

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109



FOR OGCC USE ONLY

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☒ Site/Facility Closure ☐ Other (describe): _____

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No: _____

GENERAL INFORMATION

OGCC Operator Number: 47120		Contact Name and Telephone	
Name of Operator: Kerr-McGee Oil & Gas Onshore LLC		Name: Phillip Hamlin	
Address: P.O. Box 173779		No: (970) 336-3500	
City: Denver State: CO Zip: 80217-3779		Fax: (970) 336-3656	
API/Facility No: 445591		County: Weld	
Facility Name: Four Way-62N65W/16SEnw		Facility Number: _____	
Well Name: _____		Well Number: _____	
Location (QtrQtr, Sec, Twp, Rng, Meridian): SENW Sec 16-T2N-R6SW		Latitude: 40.141908 Longitude: -104.672677	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Oil and Condensate	
Site Conditions: Is location within a sensitive area (according to Rule 901e)? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N If yes, attach evaluation. Groundwater < 20 ft.	
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Rangeland	
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Sandy clay (CL) and medium to fine-grained sand (SM)	
Potential receptors (water wells within 1/4 mi, surface waters, etc.): Water well approximately 1,050' northwest, livestock approximately 4,000' southeast, and an occupied building approximately 1,350' west.	
Description of Impact (if previously provided, refer to that form or document):	
Impacted Media (check):	Extent of Impact:
<input checked="" type="checkbox"/> Soils	Unknown
<input type="checkbox"/> Vegetation	Investigation is ongoing
<input type="checkbox"/> Groundwater	_____
<input type="checkbox"/> Surface water	_____

REMEDIALATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
During deconstruction activities at the Four Way-62N65W/16SEnw tank battery, soil with historical petroleum hydrocarbon impacts was encountered beneath the southern produced water sump. There were no indications that the dumlimes or produced water sump were leaking. The source and volume of the release are unknown and investigation activities are ongoing. A topographic Site Location Map showing the geographic setting of the release is attached as Figure 1.
Describe how source is to be removed:
On April 14, 2016, following removal of the northern produced water sump, one soil sample (N-B01@5') was collected from beneath the sump. The soil sample was submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260C, TPH-diesel range organics and oil range organics (DRO and ORO) by USEPA Method 8015C, pH by USEPA Method 9045D, and specific conductance (EC) by USEPA Method 9050A. Laboratory analytical results indicated that the pH level in base soil sample N-B01@5', which was collected below the root zone, exceeded the COGCC Table 910-1 allowable level for pH at 9.05. BTEX, TPH, and EC levels in base soil sample N-B01@5' were less than COGCC allowable levels.
On April 19, 2016, following excavation of impacted soil discovered beneath the southern produced water sump, four representative sidewall soil samples (N01@7', E01@7', S01@7', W01@7') and one base soil sample (S-B01@14') were collected from the excavation and submitted for laboratory analysis of BTEX, TPH, pH, and EC. Laboratory analytical results indicated that the benzene concentration in soil sample S-B01@14' exceeded the COGCC Table 910-1 allowable level at 0.24 milligrams per kilogram (mg/kg).
On April 20, 2016, following removal of additional impacted soil from the southern produced water sump excavation, four sidewall soil samples (N02@16', E02@16', S02@16', and W02@16') and one base soil sample (B02@20') were collected from the excavation. Laboratory analytical results indicated that the TPH concentration in sidewall soil sample S02@16' and the benzene, total xylenes, TPH, and pH levels in base soil sample B02@20' exceeded COGCC Table 910-1 allowable levels. On April 21, 2016, following removal of additional impacted soil from the southern sidewall, one sidewall soil sample (S03@16') was collected from the excavation. Laboratory analytical results from S03@16' indicated that BTEX, TPH, pH, and EC levels were compliant with COGCC Table 910-1 allowable levels.
On May 5, 2016, a subsurface assessment was conducted to delineate the lateral and vertical extents of the remaining soil impacts. Using a direct-push drill rig, four soil borings (SB01 through SB04) were advanced around the perimeter of the excavation. One step-out soil boring (SB05) was completed to the north of SB02. The soil borings were advanced to refusal, which occurred at an approximate depth of 28 feet below ground surface (bgs). Two soil samples were collected from each soil boring. One sample was collected at total depth (28' bgs) and one at the depth of the highest photoionization detector (PID) headspace reading. The soil samples were submitted for laboratory analysis of BTEX, TPH, pH, and EC. The TPH concentration in soil sample SB02@20' exceeded the COGCC Table 910-1 allowable level. Concentrations/levels in all the remaining soil samples were compliant with COGCC allowable levels. Soil borings SB01 through SB05 were completed as temporary monitoring wells TMW01 through TMW05 to assess for the presence of groundwater. Groundwater was not encountered in any of the temporary monitoring wells within five days of completion. The temporary monitoring wells were abandoned on May 10, 2016. Soil boring logs with PID headspace readings and temporary monitoring well completion logs are included as an attachment.

(Continued on Page 2)

Submit Page 2 with Page 1.

State of Colorado
Oil and Gas Conservation Commission

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Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No.: _____

REMEDIATION WORKPLAN (CONT.)

OGCC Employee: _____

Describe how source is to be removed (Continued):

In order to remove additional impacted soil from the excavation base, the excavation sidewalls were sloped (2:1 ratio) for stability in accordance with Occupational Safety and Health Administration Excavation Standard 29 Code of Federal Regulations (CFR) Part 1926 Sub-part P Section 1926.652(c)(4). Between June 7 and 9, 2016, following the removal of additional impacted soil, two sidewall soil samples (N03@22' and S04@22'), one base soil sample (B03@25'), and seven test pit soil samples (TP04@28', TP05@30', TP06@35', TP07@30', TP08@35', TP09@30', and TP10@35') were collected from the sloped excavation. Laboratory analytical results indicated that TPH, BTEX, pH, and EC levels were in compliance with COGCC Table 910-1 allowable levels at the lateral extent of the excavation. TPH, benzene, toluene, and/or pH levels continued to exceed COGCC allowable levels in soil sample B03@25' and the test pit soil samples collected from the base of the excavation. Approximately 780 cubic yards of impacted soil were removed from the excavation and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. The general site layout, release location, excavation extent, sloped excavation access, soil sample locations, and soil boring locations are depicted on the Excavation Site Map provided as Figure 2. The soil sample analytical results are summarized in Table 1 and the laboratory analytical reports are attached.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

The impacted soil was transported to the Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal.

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Following site reclamation, further subsurface assessment will be conducted using a hollow stem auger rig to determine the vertical extent of impacted soil left in-place, and to determine if shallow groundwater has been impacted. If groundwater is encountered, groundwater monitoring wells will be installed to facilitate the groundwater assessment. The monitoring wells will be surveyed so that an accurate groundwater (if present) flow direction can be determined. If groundwater is present, monitoring activities will be conducted on a quarterly basis and all groundwater samples will be submitted for laboratory analysis of BTEX.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

The site will be decommissioned and restored to pre-release grade.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☒ Y ☐ N If yes, describe:

Further subsurface assessment activities will be conducted at the site to define the extent of the residual petroleum hydrocarbon soil impacts. If groundwater is encountered while conducting the site assessment, groundwater monitoring wells will be installed and point of compliance will be established. If groundwater is present, monitoring will continue on a quarterly basis. Upon completion of the subsurface assessment activities, a Form 27 Update Report will be provided.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

The impacted soil was transported to the Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 4/20/2016	Date Site Investigation Completed: Active	Remediation Plan Submitted: _____
Remediation Start Date: 4/20/2016	Anticipated Completion Date: TBD	Actual Completion Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

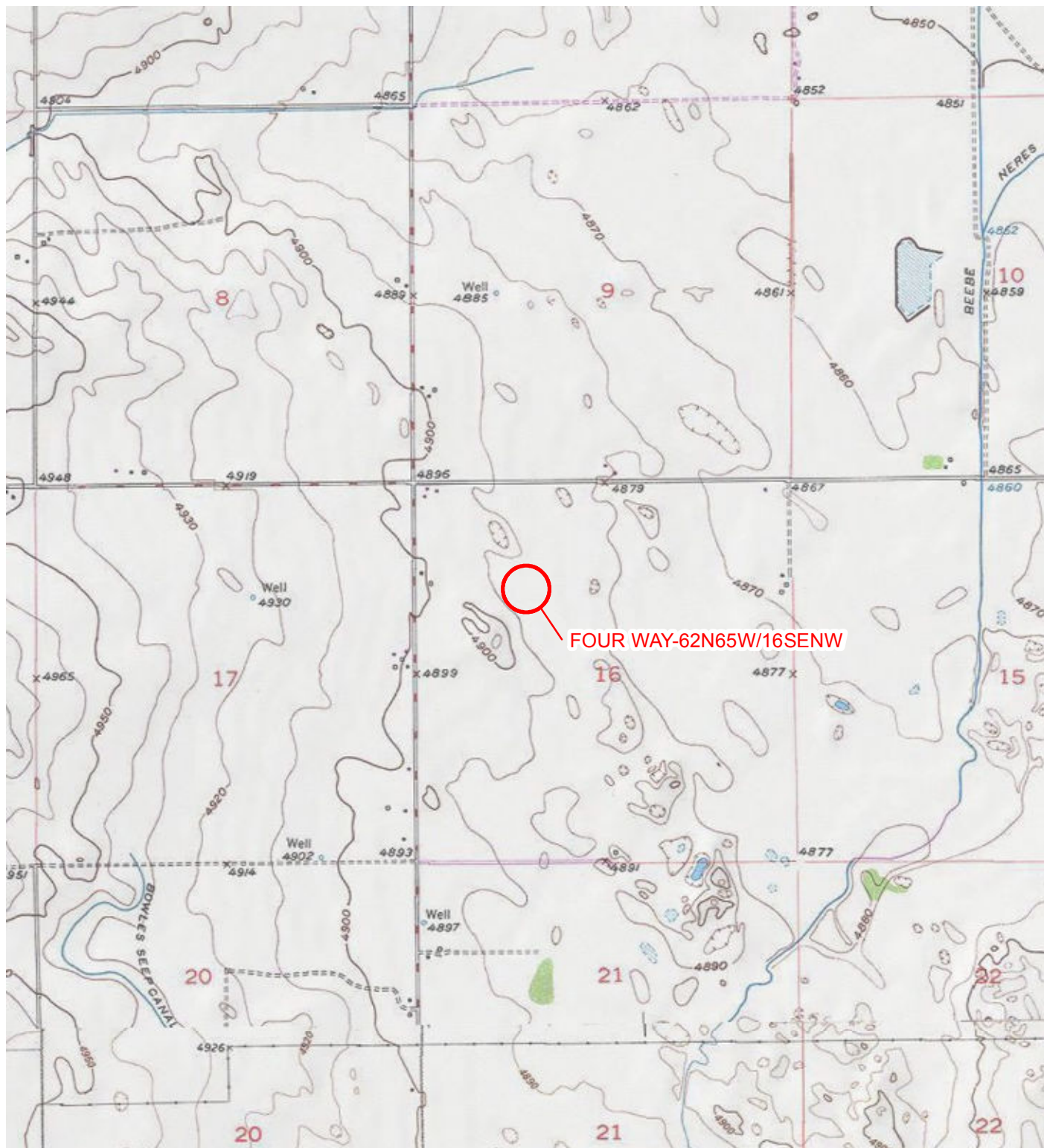
Print Name: Phillip Hamlin

Signed:

Title: Senior HSE Representative

Date: 8-9-16

OGCC Approved: _____ Title: _____ Date: _____



LEGEND

IMAGE COURTESY OF ESRI/USGS

○ SITE LOCATION

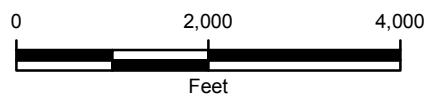


FIGURE 1
SITE LOCATION MAP
FOUR WAY-62N65W/16SENW
SENW SEC 16-T2N-R65W
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP



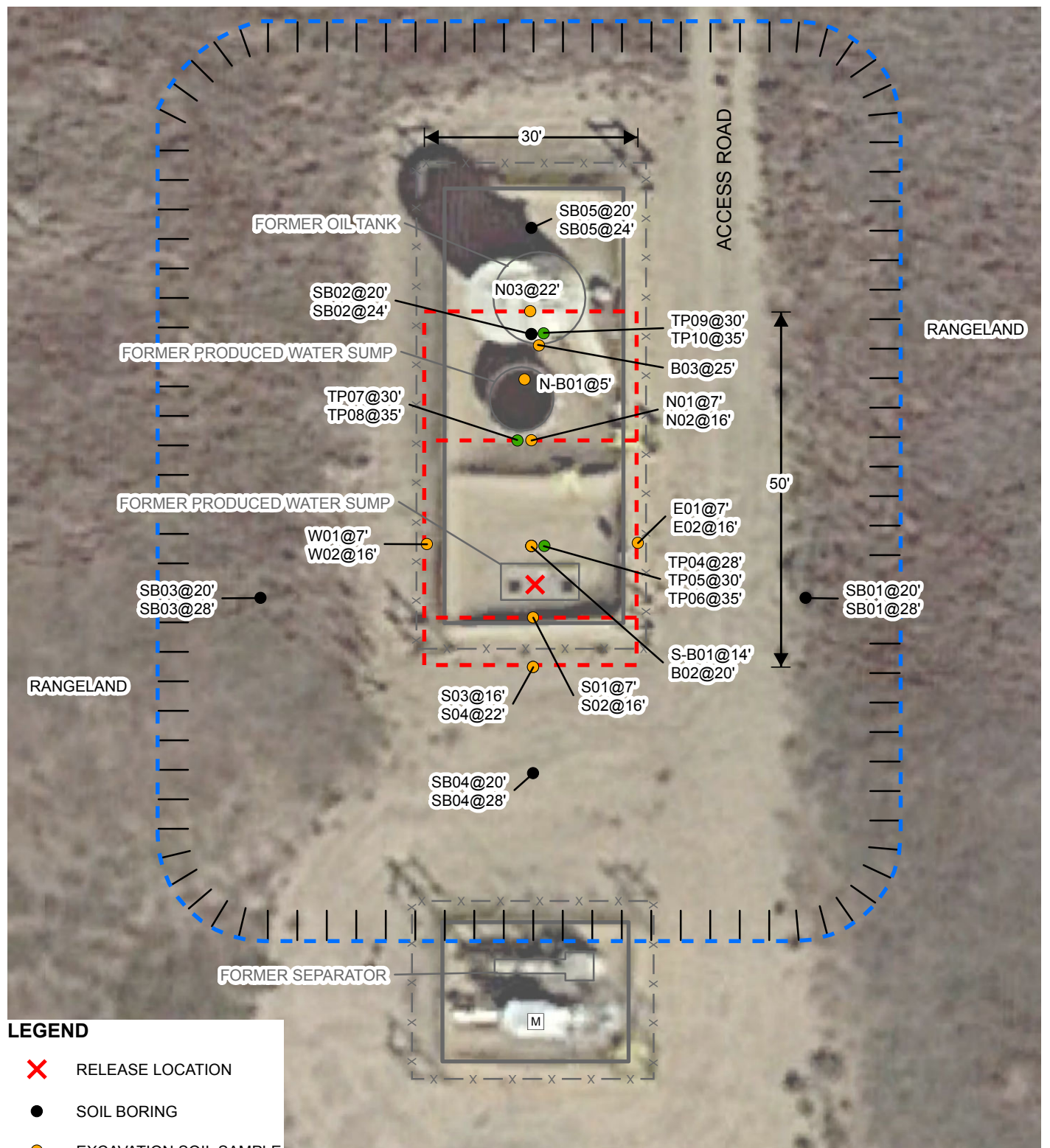


IMAGE COURTESY OF GOOGLE EARTH 2015

LEGEND

X RELEASE LOCATION

● SOIL BORING

● EXCAVATION SOIL SAMPLE

● TEST PIT SOIL SAMPLE

M METER HOUSE

x — x FORMER FENCE

SLOPED EXCAVATION ACCESS

EXCAVATION EXTENT

FORMER BERM

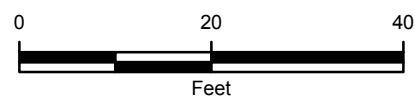


FIGURE 2
EXCAVATION SITE MAP
 FOUR WAY-62N65W/16SEW
 SENW SEC 16-T2N-R65W
 WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
FOUR WAY-62N65W/16SENW
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Soil Sample ID	Depth (bgs)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	pH (su)	Specific Conductance (mmhos/cm)
N-B01 @ 5'	5'	04/14/2016	<0.002	<0.002	<0.002	<0.002	<50	<0.20	<200	9.05 †	0.0220
E01 @ 7'	7'	04/19/2016	<0.05	<0.05	<0.05	<0.05	<25	<5.0	<100	8.14	0.140
N01 @ 7'	7'	04/19/2016	<0.05	<0.05	<0.05	<0.05	<25	<5.0	<100	8.35	0.120
S01 @ 7'	7'	04/19/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	8.21	0.120
S-B01 @ 14'	14'	04/19/2016	0.24	<0.05	1.7	26	67	150	<100	8.59	0.278
W01 @ 7'	7'	04/19/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	8.00	0.0830
B02 @ 20'	20'	04/20/2016	1.8	<0.05	14	210	940	1500	<100	9.92 †	0.116
E02 @ 16'	16'	04/20/2016	<0.05	<0.05	<0.05	<0.05	<25	<5.0	<100	8.47	0.161
N02 @ 16'	16'	04/20/2016	<0.05	<0.05	<0.05	<0.05	<25	<5.0	<100	8.71	0.191
S02 @ 16'	16'	04/20/2016	0.06	<0.05	3.4	70	470	350	<100	8.62	0.150
W02 @ 16'	16'	04/20/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	8.30	0.122
S03 @ 16'	16'	04/21/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	7.68	0.102
SB01 @ 20'	20'	05/05/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	7.50	0.0596
SB01 @ 28'	28'	05/05/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	7.46	0.0661
SB02 @ 20'	20'	05/05/2016	<0.05	<0.05	1.0	10	540	160	<100	7.31	0.0545
SB02 @ 24'	24'	05/05/2016	<0.05	1.6	1.8	22	170	160	<100	7.06	0.109
SB03 @ 20'	20'	05/05/2016	<0.05	<0.05	<0.05	<0.05	<25	<5.0	<100	7.42	0.0641
SB03 @ 28'	28'	05/05/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	7.33	0.0630
SB04 @ 20'	20'	05/05/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	7.43	0.0410
SB04 @ 28'	28'	05/05/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	7.53	0.0729
SB05 @ 20'	20'	05/05/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	8.17	0.0697
SB05 @ 24'	24'	05/05/2016	<0.002	<0.002	<0.002	<0.002	<25	<0.20	<100	7.75	0.102



TABLE 1 (Continued)
SOIL SAMPLE ANALYTICAL RESULTS
FOUR WAY-62N65W/16SENW
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Soil Sample ID	Depth (bgs)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	pH (su)	Specific Conductance (mmhos/cm)
B03 @ 25'	25'	06/07/2016	<0.002	<0.002	0.004	0.005	<25.0	<0.200	<100	8.26	0.0528
N03 @ 22'	22'	06/08/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	7.50	0.110
S04 @ 22'	22'	06/08/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	7.80	0.103
TP04 @ 28'	28'	06/08/2016	0.796	<0.050	7.52	142	844	819	<100	7.94	0.188
TP05 @ 30'	30'	06/08/2016	1.68	0.814	8.53	148	686	1040	<100	7.90	0.151
TP06 @ 35'	35'	06/09/2016	5.84	210	32.6	920	4810	3500	<100	9.10 †	0.221
TP07 @ 30'	30'	06/09/2016	12.5	272	70.9	2250	7220	9340	<100	8.67	0.609
TP08 @ 35'	35'	06/09/2016	2.14	75.9	18.7	271	3440	2240	<100	8.54	0.552
TP09 @ 30'	30'	06/09/2016	<0.050	<0.050	0.072	0.117	<25.0	5.23	<100	8.28	0.195
TP10 @ 35'	35'	06/09/2016	0.050	0.470	1.56	38.9	353	239	<100	7.95	0.426
COGCC Allowable Levels			0.17	85	100	175	500*	500*	500*	6-9	4

Notes: bgs - below ground surface

COGCC - Colorado Oil and Gas Conservation Commission

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

NA - not analyzed/not available

ORO - oil range organics

su - standard units

† - Sample was collected at a depth greater than 3 feet bgs

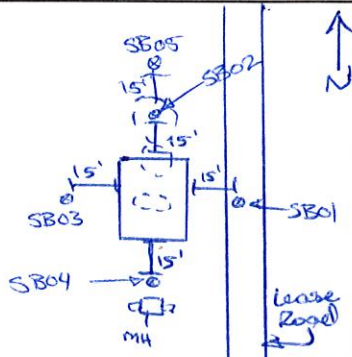
* - Standard applies to combined DRO-GRO-ORO

< - less than laboratory reporting limit

Bold indicates result exceeds allowable level



Well Location Sketch:



Compliance • Engineering • Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	SB01/TM001	Project:	Four Way #1
Date:	5/5/2016	Project Number:	14216073
Logged By:	Kris Shepherd	Drilled By:	Drill Pro
Drilling Method:	Direct Push	Sampling Method:	Continuous

Elevation:	Detector:	PID
------------	-----------	-----

Gravel Pack:	Seal:	Grout:
Silica Sand	Bentonite	-

Casing Type:	Diameter:	Length:	Hole Diameter:	Depth to Liquid:
PVC	1"	8'	3"	-

Screen Type:	Slot:	Diameter:	Length:	Total Depth:	Depth to Water:
PVC	0.01	1"	20'	28'	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2				Hand Auger, Not Logged	
					4					
					6					
	moist	0.0	none		8	2'	2'		6' → 18' Sandy clay, brown/tan, no odor, no stain, mod. cohesion, mod. plasticity, moist	
		0.0			10	4'	4'		→ trace gravel 8' → 11' bgs	
		0.2			12			CH	→ trace coarse → v. coarse sand 14.5' → 18'	
		0.1			14	4'	4'		→ 2" clayey coarse sand stringers @ 17.5' bgs, tan, no odor/stain, moist	
		0.1			16				18' → 20' v. Sandy (coarse) clay, brown, no odor, no stain, low cohesion, low plasticity, moist	
		0.2			18	2'	2'		20' → 23.5' Sandy (mg → coarse) clay, brown, no stain, no odor, high cohesion, high plasticity, moist	
		0.1			20	2'	2'	CL	23.5' → 28' sandy (fg → mg) clay, brown/tan, no stain, no odor, mod. cohesion, mod. plasticity, moist	
		0.2		SB01 @ 20' (0.155)	22	2'	2'	CH		
		0.1			24	2'	2'			
		0.2			26	2'	2'			
		0.1		SB01 @ 28' (1000)	28	2'	2'	CL	→ Refusal @ 28'	
					30				→ Temp well, flush maint	
					32					
					34					
					36					
					38					
					40					

NOTES:

Page ____ of ____

Well Location Sketch:



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4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SBO2/TM1202 Project: Four Way #1Date: 5/5/2016 Project Number: 14216073Logged By: Kris Shepherd Drilled By: Drill ProElevation: see SBO1 log Detector: PID Drilling Method: Direct Push Sampling Method: ContinuousGravel Pack: Silica Sand Seal: Bentonite Grout: -Casing Type: PVC Diameter: 1" Length: 8' Hole Diameter: 3" Depth to Liquid: -Screen Type: PVC Slot: 0.01 Diameter: 1" Length: 20' Total Depth: ~28' Depth to Water: -

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2				Hand Auger, Not Logged	
					4					
					6					
	moist	0.9	none		8	2'	2'		6' → 13.5' Sandy clay, tan, no odor, no stain, mod. cohesion, high plasticity, moist	
		0.4			10	4'	4'	CH	→ trace v. coarse sand & gravel @ 9'	
		1.1			12				13.5' → 20' gravelly, sandy (coarse) clay, brown/tan, no odor, no stain, low cohesion, low plasticity, moist	
		0.7			14	4'	4'		→ gray stain + odor @ ~17.5'	
		0.5			16				→ 2" mg → coarse sand stringer @ 19', gray stain, odor, moist	
		25.1	stain		18	2'	2'	CL	20' → 24' clay, brown, no stain, odor, high cohesion, high plasticity, moist	
		104			20	2'	2'		→ trace gravel 23' → 24'	
		59.3	none		22	2'	2'	CH	24' → 28' sandy clay (fg → coarse), brown, low cohesion, mod. plasticity, no odor, no stain, moist	
		63.8			24	2'	2'		→ gray @ 25'	
		2.1			26	2'	2'	CL	→ Refusal @ 28'	
		4.6			28	2'	2'		→ temp. well PVC Riser	
					30					
					32					
					34					
					36					
					38					
					40					

NOTES:

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Well Location Sketch:



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LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

SB03/TM003

Project:

Four Way #1

Date:

5/5/2016

Project Number:

14216073

Logged By:

Kris Shepherd

Drilled By:

Drill Pro

Elevation:

Detector:

PID

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

Silica Sand

Seal:

Bentonite

Grout:

-

Casing Type:

PVC

Diameter:

1"

Length:

8'

Hole Diameter:

3"

Depth to Liquid:

-

Screen Type:

PVC

Slot:

0.01

Diameter:

1"

Length:

20'

Total Depth:

28'

Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2				Hand Auger, Not Logged	
					4					
					6					
	moist	0.6	none		8	2'	2'		6' → 16.5' Sandy (fg) clay, tan, no odor, no stain, mod. cohesion, mod. plasticity, moist	
		0.8			10	4'	4'	CH	→ trace coarse sand 10' → 16.5'	
		1.0			12				16.5' → 20' v. sandy (fg-silg) clay, brown, low cohesion, low plasticity, no stain, no odor, moist	
		0.4			14	4'	4'		→ 6" stringer clayey fg sand @ 18', brown, no odor, no stain, wet	
		0.9			16				20' → 23.75' clay, trace coarse sand, brown, no odor, no stain, high cohesion, high plasticity, moist	
		1.6			18	2'	2'	CL	23.75' → 28' Sandy (fg-coarse) clay, tan, no odor, no stain, low cohesion, mod. plasticity, moist	
		0.4			20	2'	2'		→ 1" stringer vfg → fg sand tan, no odor, no stain, moist @ 27'	
		0.6			22	2'	2'	CH	→ Refusal @ 28'	
		0.7			24	2'	2'		→ Temp well PVC Riser	
		0.6			26	2'	2'	CL		
		0.1			28	2'	2'			
					30					
					32					
					34					
					36					
					38					
					40					

NOTES:

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Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB04/TM204 Project: Four Way #1Date: 5/5/2016 Project Number: 14216073Logged By: Kris Shepherd Drilled By: Drill ProElevation: See SB01 log Detector: PID Drilling Method: Direct Push Sampling Method: ContinuousGravel Pack: Silica Sand Seal: Bentonite Grout: -Casing Type: PVC Diameter: 1" Length: 8' Hole Diameter: 3" Depth to Liquid: -Screen Type: PVC Slot: 0.01 Diameter: 1" Length: 20' Total Depth: 28' Depth to Water: -

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2				Hand Auger, Not Logged	
					4					
					6					
	moist	0.3	none		8	2'	2'		6' → 18.5' Clay, tan, mod. cohesion, mod. plasticity, no odor, no stain, Moist	
		0.8			10	4'	4'		→ trace gravel & coarse sand 14' → 18.5'	
		0.6			12			CH	18.5' → 20.5' Sandy (v.fg → mg) clay, low cohesion, low plasticity, brown, no odor, no stain, Moist	
		0.5			14	4'	4'		20.5' → 25' Clay, trace mg → coarse sand, brown, no odor, no stain, mod. cohesion, high plasticity, moist	
		0.8			16				25' → 28' Sandy (mg → coarse) clay, brown, no odor, no stain, mod. cohesion, low plasticity, moist	
		0.7			18	2'	2'		→ Refusal @ 28'	
		0.5			20	2'	2'	CL	→ Temp well PVC Riser	
		0.7		SB04 @ 20' (1410')	22	2'	2'			
		0.6			24	2'	2'	CH		
		0.4			26	2'	2'			
		0.8		SB04 @ 28' (1415')	28	2'	2'	CL		
					30					
					32					
					34					
					36					
					38					
					40					

NOTES:

Page ____ of ____

Well Location Sketch:



Compliance • Engineering • Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

SB05/TMW05

Project:

Four Way #1

Date:

5/5/2016

Project Number:

14216073

Logged By:

Kris Shepherd

Drilled By:

Drill Pro

Elevation:

Detector:

PID

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

Silica Sand

Seal:

Bentonite

Grout:

-

Casing Type:

PVC

Diameter:

1"

Length:

8'

Hole Diameter:

3"

Depth to Liquid:

-

Screen Type:

PVC

Slot:

0.01

Diameter:

1"

Length:

20'

Total Depth:

~28'

Depth to Water:

-

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2				Hand Auger, Not Logged	
					4					
					6					
	moist	0.5	none		8	2'	2'		6' → 15' clay, trace coarse sand, brown, no odor, no stain, mod. cohesion, mod. plasticity, moist	
		0.5			10	4'	4'	CH	15' → 18.25' gravelly sandy clay, low cohesion, low plasticity, brown, no odor, no stain, moist	
		0.5			12				→ 2" stringer fg → Mg sand, brown, no stain/odor, moist @ 17' bgs	
		0.5			14	4'	4'		18.25' → 19.5' Mg → Mg sand, brown, no stain, no odor, moist	
	0.9				16				19.5' → 26' clay, brown, mod. plasticity, high cohesion, no odor, no stain, moist	
	0.2				18	2'	2'	CL	26' → 28' sandy clay (fg) mod. cohesion, mod. plasticity, brown, no odor, no stain, moist	
	0.6				20	2'	2'	SP	→ Refusal @ 28'	
	0.3				22	2'	2'		→ Temp. Well PVC Riser	
	0.6				24	2'	2'	CH		
	0.1				26	2'	2'			
	0.7				28	2'	2'	CL		
					30					
					32					
					34					
					36					
					38					
					40					

NOTES:

Page 1 of 1



July 07, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1

Project Number - [none]

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. April 14, 2016. This project is associated with Origins project number X604163-05.

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

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

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

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

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

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



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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

John Cocroft

Project Number: [none]

Project: KMG - Four Way #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N-B01 @ 5'	X604163-05	Soil	April 14, 2016 16:20	04/14/2016 17:30

Per the email from Mike Furtaw on 07/07/16, sample ID B01 @5' was changed to N-B01 @5'.

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

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page / of /

ORIGINS
LABORATORY, INC

Client: LTE
Address: 4600 W 60th Ave
Arvada CO 80003
Telephone Number: 303 433 9788
Email Address: JCOLE@CITENV.COM/sec list

Project Manager: John Cocroft
Project Name: Four Way #1
Project Number:
Samples Collected By: Dan Newman / Chad Tracy

X604163

APC Contact Sam large

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ #	Other	GC/MS	GC/MS	GC/MS	GC/MS	
N0124'	4/19/16	1600	2	X											1	Hold All
E0124'		1605	2	X											2	Hold All
S0124'		1610	2	X											3	Hold All
W0124'		1615	2	X											4	Hold All
B0125'		1620	2	X											5	Hold SAR
B601		1625	2	X											6	Hold All
															7	
															8	
															9	
															10	
Relinquished By: <u>[Signature]</u>	Date: <u>4/19/16</u>	Time: <u>1723</u>														Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>
Relinquished By:	Date:	Time:														

Temp Received: 5.2 Date Results Needed 4/15/16 0700

Origins Laboratory, Inc.

Jefe Pellegrini

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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X604163

Client: LTE

Client Project ID: Four Way #1

Checklist Completed by: Jeff Smith

Shipped Via: H/D

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

Date/time completed: 4/14/16

Airbill #: NA

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

Cooler Number/Temperature: 15.2 °C °C °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	X			DH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

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

Jeff Smith
Reviewed by (Project Manager)

4/14/16
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

N-B01 @ 5'
4/14/2016 4:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604163-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	B6D1405	04/14/2016	04/14/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 88.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6D1404	04/14/2016	04/15/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 110 % 70-130 " " "
Surrogate: Toluene-d8 97.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 100 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.05		pH Units	1	B6D1407	04/14/2016	04/14/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0220		mmhos/cm	"	B6D1408	04/14/2016	"	
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Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

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 B6D1404 - EPA 5030 (soil)										
Blank (B6D1404-BLK1)					Prepared: 04/14/2016 Analyzed: 04/14/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

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 B6D1404 - EPA 5030 (soil)										
LCS (B6D1404-BS1)					Prepared: 04/14/2016 Analyzed: 04/14/2016					
Benzene	0.100	0.002	mg/kg	0.100		100	77.1-124			
Toluene	0.105	0.002	"	0.100		105	74.5-128			
Ethylbenzene	0.114	0.002	"	0.100		114	66.4-127			
m,p-Xylene	0.234	0.004	"	0.200		117	76.6-124			
o-Xylene	0.112	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		98.5	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.3	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

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 B6D1404 - EPA 5030 (soil)

Matrix Spike (B6D1404-MS1)		Source: X604132-01			Prepared: 04/14/2016 Analyzed: 04/14/2016					
Benzene	0.097	0.002	mg/kg	0.100	ND	96.8	71.8-126			
Toluene	0.112	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.111	0.002	"	0.100	ND	111	62.2-130			
m,p-Xylene	0.235	0.004	"	0.200	ND	117	46.5-137			
o-Xylene	0.112	0.002	"	0.100	ND	112	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

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 B6D1404 - EPA 5030 (soil)

Matrix Spike Dup (B6D1404-MSD1)		Source: X604132-01			Prepared: 04/14/2016 Analyzed: 04/15/2016					
Benzene	0.095	0.002	mg/kg	0.100	ND	95.1	71.8-126	1.75	11.3	
Toluene	0.106	0.002	"	0.100	ND	106	65.1-130	5.64	15.4	
Ethylbenzene	0.108	0.002	"	0.100	ND	108	62.2-130	2.88	19.6	
m,p-Xylene	0.226	0.004	"	0.200	ND	113	46.5-137	3.79	19.2	
o-Xylene	0.108	0.002	"	0.100	ND	108	54.2-134	3.00	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B6D1405 - EPA 3580

Blank (B6D1405-BLK1)

Prepared: 04/14/2016 Analyzed: 04/14/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	49		"	50.0		97.8	59-131			

LCS (B6D1405-BS1)

Prepared: 04/14/2016 Analyzed: 04/14/2016

Diesel (C10-C28)	1120	50.0	mg/kg	1000		112	64-121			
Residual Range Organics (C28-C40)	1020	200	"	1000		102	58-124			
Surrogate: o-Terphenyl	51		"	50.0		102	59-131			

Matrix Spike (B6D1405-MS1)

Source: X604135-01

Prepared: 04/14/2016 Analyzed: 04/14/2016

Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	53-125			
Residual Range Organics (C28-C40)	1020	200	"	1000	ND	102	47-133			
Surrogate: o-Terphenyl	52		"	50.0		103	59-131			

Matrix Spike Dup (B6D1405-MSD1)

Source: X604135-01

Prepared: 04/14/2016 Analyzed: 04/14/2016

Diesel (C10-C28)	1010	50.0	mg/kg	1000	ND	101	53-125	2.14	20	
Residual Range Organics (C28-C40)	987	200	"	1000	ND	98.7	47-133	3.26	20	
Surrogate: o-Terphenyl	49		"	50.0		97.4	59-131			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

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 B6D1407 - NO PREP										
Duplicate (B6D1407-DUP1)		Source: X604164-01			Prepared: 04/14/2016 Analyzed: 04/14/2016					
pH	8.73		pH Units		8.57			1.85	25	
Batch B6D1408 - NO PREP										
Blank (B6D1408-BLK1)		Prepared: 04/14/2016 Analyzed: 04/14/2016								
Specific Conductance (EC)	0.00240		mmhos/cm							
Duplicate (B6D1408-DUP1)		Source: X604164-01			Prepared: 04/14/2016 Analyzed: 04/14/2016					
Specific Conductance (EC)	0.196		mmhos/cm		0.162			18.6	25	

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: [none]
Project: KMG - Four Way #1

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



July 07, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1

Project Number - 014216073/WO# 211279

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. April 19, 2016. This project is associated with Origins project number X604205-01.

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

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

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

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

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

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



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01 @ 7'	X604205-01	Soil	April 19, 2016 12:15	04/19/2016 16:25
E01 @ 7'	X604205-02	Soil	April 19, 2016 12:20	04/19/2016 16:25
W01 @ 7'	X604205-03	Soil	April 19, 2016 12:25	04/19/2016 16:25
S01 @ 7'	X604205-04	Soil	April 19, 2016 12:30	04/19/2016 16:25
S-B01 @ 14'	X604205-05	Soil	April 19, 2016 12:35	04/19/2016 16:25

Per the email from Mike Furtaw on 07/07/16, the following sample IDs were changed:

S-N01@7' to N01@7'

S-E01@7' to E01@7'

S-W01@7' to W01@7'

S-S01@7' to S01@7'

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

www.originslaboratory.com

X604205

ORIGINS
LABORATORY, INC

Client: LTE
Address: 4600 W 60th Ave
ARVADA CO 80003
Telephone Number: 303-433-9700
Email Address: Jcocroft@LTENV.com

Project Manager: John Cocroft
Project Name: Four Way #1
Project Number: 014216073
Samples Collected By: RZ
ATT: Sam Larue WO# 2112791.PAB

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix		Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa	Conister #	Other	As	
S-Nb10 7'	4/19/16	1215	2	X				X		X	X	X		Hold S&E 1
S-Eo10 7'		1220	2	X				X		X	X	X		Hold S&E 2
S-Wo10 7'		1225	2	X				X		X	X	X		Hold S&E 3
S-So10 7'		1230	2	X				X		X	X	X		Hold S&E 4
S-Bo10 14'		1235	2	X				X		X	X	X		Hold S&E 5
S-Bq10	V	1240	2	X				X		X	X	X		Hold All 6
														7
														8
														9
														10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<u>[Signature]</u>	4/19/16	1547	<u>[Signature]</u>	4-19-16	3:46	Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/>
<u>[Signature]</u>	4-19-16	4:08 PM	<u>[Signature]</u>	4/19/16	1425	48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>

Date Results Needed WED 4/20/16

Temp Received: 4.8

Origins Laboratory, Inc.

Jefe Pellegrini

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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X604205

Client: LTE

Client Project ID: Four Way #1

Checklist Completed by: Jeff Smith

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

Date/time completed: 4/19/16

Airbill #: NA

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

Cooler Number/Temperature: _____ °C _____ °C _____ °C (Describe)

Thermometer ID: 7003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?				
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Jeff Smith
Reviewed by (Project Manager)

4/19/16
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

N01 @ 7'

4/19/2016 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604205-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6D1904	04/19/2016	04/19/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 82.2 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1903	04/19/2016	04/20/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 107 % 70-130 " " "
Surrogate: Toluene-d8 99.0 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.35		pH Units	1	B6D1906	04/19/2016	04/19/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.120		mmhos/cm	"	B6D1907	04/19/2016	04/19/2016	
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Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

E01 @ 7'

4/19/2016 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604205-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6D1904	04/19/2016	04/19/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 73.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1903	04/19/2016	04/20/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " " "
Surrogate: Toluene-d8 98.1 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.7 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.14		pH Units	1	B6D1906	04/19/2016	04/19/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.140		mmhos/cm	"	B6D1907	04/19/2016	04/19/2016	
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Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

W01 @ 7'

4/19/2016 12:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604205-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6D1904	04/19/2016	04/19/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 79.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6D1903	04/19/2016	04/19/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 122 % 70-130 " " "
Surrogate: Toluene-d8 94.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.1 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.00		pH Units	1	B6D1906	04/19/2016	04/19/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0830		mmhos/cm	"	B6D1907	04/19/2016	04/19/2016	
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Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

S01 @ 7'

4/19/2016 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604205-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6D1904	04/19/2016	04/19/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 84.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6D1903	04/19/2016	04/19/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 128 % 70-130 " " "
Surrogate: Toluene-d8 95.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.4 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.21		pH Units	1	B6D1906	04/19/2016	04/19/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.120		mmhos/cm	"	B6D1907	04/19/2016	04/19/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

S-B01 @ 14'

4/19/2016 12:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X604205-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	67.4	25.0	mg/kg	1	B6D1904	04/19/2016	04/19/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	79.3 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	145	5.00	mg/kg	25	B6D1903	04/19/2016	04/20/2016	
Benzene	0.242	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	1.71	0.050	"	"	"	"	"	
Xylenes, total	26.4	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	109 %	70-130			"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.3 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.59		pH Units	1	B6D1906	04/19/2016	04/19/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.278		mmhos/cm	"	B6D1907	04/19/2016	04/19/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6D1903 - EPA 5030 (soil)										
Blank (B6D1903-BLK1)					Prepared: 04/19/2016 Analyzed: 04/19/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	73		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.6	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6D1903 - EPA 5030 (soil)										
LCS (B6D1903-BS1)					Prepared: 04/19/2016 Analyzed: 04/19/2016					
Benzene	0.108	0.002	mg/kg	0.100		108	77.1-124			
Toluene	0.109	0.002	"	0.100		109	74.5-128			
Ethylbenzene	0.113	0.002	"	0.100		113	66.4-127			
m,p-Xylene	0.234	0.004	"	0.200		117	76.6-124			
o-Xylene	0.111	0.002	"	0.100		111	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.1	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6D1903 - EPA 5030 (soil)

Matrix Spike (B6D1903-MS1)		Source: X604165-03			Prepared: 04/19/2016 Analyzed: 04/19/2016					
Benzene	0.106	0.002	mg/kg	0.100	ND	106	71.8-126			
Toluene	0.105	0.002	"	0.100	ND	105	65.1-130			
Ethylbenzene	0.106	0.002	"	0.100	ND	106	62.2-130			
m,p-Xylene	0.222	0.004	"	0.200	ND	111	46.5-137			
o-Xylene	0.106	0.002	"	0.100	ND	106	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6D1903 - EPA 5030 (soil)

Matrix Spike Dup (B6D1903-MSD1)		Source: X604165-03			Prepared: 04/19/2016 Analyzed: 04/19/2016					
Benzene	0.097	0.002	mg/kg	0.100	ND	97.0	71.8-126	9.21	11.3	
Toluene	0.094	0.002	"	0.100	ND	94.3	65.1-130	11.0	15.4	
Ethylbenzene	0.095	0.002	"	0.100	ND	94.6	62.2-130	11.4	19.6	
m,p-Xylene	0.195	0.004	"	0.200	ND	97.7	46.5-137	12.5	19.2	
o-Xylene	0.095	0.002	"	0.100	ND	95.2	54.2-134	10.5	17.9	
Surrogate: 1,2-Dichloroethane-d4	75		ug/kg	62.5		120	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.0	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.6	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1904 - EPA 3580

Blank (B6D1904-BLK1)

Prepared: 04/19/2016 Analyzed: 04/19/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	45		"	50.0		90.4	59-131			

LCS (B6D1904-BS1)

Prepared: 04/19/2016 Analyzed: 04/19/2016

Diesel (C10-C28)	1120	50.0	mg/kg	1000		112	64-121			
Residual Range Organics (C28-C40)	945	200	"	1000		94.5	58-124			
Surrogate: o-Terphenyl	54		"	50.0		109	59-131			

Matrix Spike (B6D1904-MS1)

Source: X604165-03

Prepared: 04/19/2016 Analyzed: 04/19/2016

Diesel (C10-C28)	1180	50.0	mg/kg	1000	ND	118	53-125			
Residual Range Organics (C28-C40)	867	200	"	1000	ND	86.7	47-133			
Surrogate: o-Terphenyl	48		"	50.0		96.8	59-131			

Matrix Spike Dup (B6D1904-MSD1)

Source: X604165-03

Prepared: 04/19/2016 Analyzed: 04/19/2016

Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	53-125	13.5	20	
Residual Range Organics (C28-C40)	819	200	"	1000	ND	81.9	47-133	5.76	20	
Surrogate: o-Terphenyl	53		"	50.0		105	59-131			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6D1906 - NO PREP										
Duplicate (B6D1906-DUP1)		Source: X604205-01			Prepared: 04/19/2016 Analyzed: 04/19/2016					
pH	8.39		pH Units		8.35			0.478	25	
Batch B6D1907 - NO PREP										
Blank (B6D1907-BLK1)		Prepared: 04/19/2016 Analyzed: 04/19/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B6D1907-DUP1)		Source: X604205-01			Prepared: 04/19/2016 Analyzed: 04/19/2016					
Specific Conductance (EC)	0.142		mmhos/cm		0.120			16.5	25	

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



July 07, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1 South

Project Number - 014216073/WO# 211279

Attached are your analytical results for KMG - Four Way #1 South received by Origins Laboratory, Inc. April 20, 2016. This project is associated with Origins project number X604218-01.

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

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

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

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

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

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



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B02 @ 20'	X604218-01	Soil	April 20, 2016 15:50	04/20/2016 18:04
N02 @ 16'	X604218-02	Soil	April 20, 2016 16:00	04/20/2016 18:04
E02 @ 16'	X604218-03	Soil	April 20, 2016 16:05	04/20/2016 18:04
S02 @ 16'	X604218-04	Soil	April 20, 2016 16:10	04/20/2016 18:04
W02 @ 16'	X604218-05	Soil	April 20, 2016 16:20	04/20/2016 18:04

Per the email from Mike Furtaw on 07/07/16, the "S-" prefix was removed from all sample IDs.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

ORIGINS LABORATORY, INC

www.originslaboratory.com

page 1 of 1

X604216

Client: **LTE**

Address: **4600 W 60th Ave Arvada CO**

Telephone Number: **(303)433-9788**

Email Address: **AFC Team**

Project Manager: **J. Cocroft**

Project Name: **Four Way #1 South**

Project Number: **014216073**

Samples Collected By: **Kris Shepherd**

100 H 2112791.PAB Att. Sam LaRue

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions		
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa			Other	
S-B020201	4/20/16	15:50	2	X				X			X	X	1	Hold SAC
S-N020161	4/20/16	16:00	2	X				X			X	X	2	
S-E020161	4/20/16	16:05	2	X				X			X	X	3	
S-S020161	4/20/16	16:10	2	X				X			X	X	4	
S-W020161	4/20/16	16:20	2	X				X			X	X	5	
													6	
													7	
													8	
													9	
													10	

Relinquished By: *[Signature]*

Relinquished By: *[Signature]*

Date: 4/20/16

Date: 4-20-16

Time: 15:50

Time: 6:04 PM

Received By: *[Signature]*

Received By: *[Signature]*

Date: 4-20-16

Date: 4/20/16

Time: 5:22 PM

Time: 1:04 PM

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

Date Results Needed: 4/21/16 (0700)

2.4

Origins Laboratory, Inc.

Jefe Pellegrini

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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

John Cocroft

Project Number: 014216073/WO# 2112791.PAB

Project: KMG - Four Way #1 South

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X604218

Client: LTE

Client Project ID: Four Way #1 South

Checklist Completed by: Jeff Smith

Shipped Via: H/D

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

Date/time completed: 4/26/12

Airbill #: 134

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

Cooler Number/Temperature: 1 / 2.9 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager) Jeff Smith

Date/Time Reviewed 4/26/12

Origins Laboratory, Inc.

Jen Pellegrini

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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

B02 @ 20'
4/20/2016 3:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604218-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	935	25.0	mg/kg	1	B6D2002	04/20/2016	04/20/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	93.4 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	1460	50.0	mg/kg	250	B6D2001	04/20/2016	04/20/2016	
Benzene	1.82	0.050	"	25	"	"	04/20/2016	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	13.7	0.498	"	250	"	"	04/20/2016	
Xylenes, total	209	0.498	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	92.4 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	9.92		pH Units	1	B6D2003	04/20/2016	04/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.116		mmhos/cm	"	B6D2004	04/20/2016	"	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

N02 @ 16'
4/20/2016 4:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604218-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6D2002	04/20/2016	04/20/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 81.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D2001	04/20/2016	04/20/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 100 % 70-130 " " "
Surrogate: Toluene-d8 98.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 94.7 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.71		pH Units	1	B6D2003	04/20/2016	04/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.191		mmhos/cm	"	B6D2004	04/20/2016	"	
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

E02 @ 16'
4/20/2016 4:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604218-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6D2002	04/20/2016	04/20/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 87.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D2001	04/20/2016	04/20/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 101 % 70-130 " " "
Surrogate: Toluene-d8 99.4 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.47		pH Units	1	B6D2003	04/20/2016	04/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.161		mmhos/cm	"	B6D2004	04/20/2016	"	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

S02 @ 16'
4/20/2016 4:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604218-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	465	25.0	mg/kg	1	B6D2002	04/20/2016	04/20/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	83.7 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	351	5.00	mg/kg	25	B6D2001	04/20/2016	04/20/2016	
Benzene	0.062	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	3.41	0.050	"	"	"	"	"	
Xylenes, total	69.5	0.498	"	250	"	"	04/20/2016	

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	04/20/2016	
Surrogate: Toluene-d8	106 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	120 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.62		pH Units	1	B6D2003	04/20/2016	04/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.150		mmhos/cm	"	B6D2004	04/20/2016	"	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

W02 @ 16'

4/20/2016 4:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X604218-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6D2002	04/20/2016	04/20/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 88.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6D2001	04/20/2016	04/20/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 118 % 70-130 " " "
Surrogate: Toluene-d8 95.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.6 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.30		pH Units	1	B6D2003	04/20/2016	04/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.122		mmhos/cm	"	B6D2004	04/20/2016	"	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2001 - EPA 5030 (soil)										
Blank (B6D2001-BLK1)					Prepared: 04/20/2016 Analyzed: 04/20/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2001 - EPA 5030 (soil)

LCS (B6D2001-BS1)

Prepared: 04/20/2016 Analyzed: 04/20/2016

Benzene	0.103	0.002	mg/kg	0.100		103	77.1-124			
Toluene	0.103	0.002	"	0.100		103	74.5-128			
Ethylbenzene	0.106	0.002	"	0.100		106	66.4-127			
m,p-Xylene	0.219	0.004	"	0.200		109	76.6-124			
o-Xylene	0.105	0.002	"	0.100		105	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.9	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2001 - EPA 5030 (soil)

Matrix Spike (B6D2001-MS1)		Source: X604203-01			Prepared: 04/20/2016 Analyzed: 04/20/2016					
Benzene	0.102	0.002	mg/kg	0.100	ND	102	71.8-126			
Toluene	0.103	0.002	"	0.100	ND	103	65.1-130			
Ethylbenzene	0.102	0.002	"	0.100	ND	102	62.2-130			
m,p-Xylene	0.211	0.004	"	0.200	ND	106	46.5-137			
o-Xylene	0.100	0.002	"	0.100	ND	99.8	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.0	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2001 - EPA 5030 (soil)

Matrix Spike Dup (B6D2001-MSD1)		Source: X604203-01			Prepared: 04/20/2016 Analyzed: 04/20/2016					
Benzene	0.102	0.002	mg/kg	0.100	ND	102	71.8-126	0.137	11.3	
Toluene	0.102	0.002	"	0.100	ND	102	65.1-130	0.955	15.4	
Ethylbenzene	0.103	0.002	"	0.100	ND	103	62.2-130	0.722	19.6	
m,p-Xylene	0.212	0.004	"	0.200	ND	106	46.5-137	0.218	19.2	
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134	1.43	17.9	
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		97.0	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.9	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2002 - EPA 3580

Blank (B6D2002-BLK1)

Prepared: 04/20/2016 Analyzed: 04/20/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	48		"	50.0		96.1	59-131			

LCS (B6D2002-BS1)

Prepared: 04/20/2016 Analyzed: 04/20/2016

Diesel (C10-C28)	1210	50.0	mg/kg	1000		121	64-121			
Residual Range Organics (C28-C40)	939	200	"	1000		93.9	58-124			
Surrogate: o-Terphenyl	62		"	50.0		123	59-131			

Matrix Spike (B6D2002-MS1)

Source: X604203-01

Prepared: 04/20/2016 Analyzed: 04/20/2016

Diesel (C10-C28)	1040	50.0	mg/kg	1000	ND	104	53-125			
Residual Range Organics (C28-C40)	814	200	"	1000	ND	81.4	47-133			
Surrogate: o-Terphenyl	52		"	50.0		104	59-131			

Matrix Spike Dup (B6D2002-MSD1)

Source: X604203-01

Prepared: 04/20/2016 Analyzed: 04/20/2016

Diesel (C10-C28)	948	50.0	mg/kg	1000	ND	94.8	53-125	8.82	20	
Residual Range Organics (C28-C40)	731	200	"	1000	ND	73.1	47-133	10.7	20	
Surrogate: o-Terphenyl	48		"	50.0		96.0	59-131			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2003 - NO PREP										
Duplicate (B6D2003-DUP1)		Source: X604206-03			Prepared: 04/20/2016 Analyzed: 04/20/2016					
pH	7.19		pH Units		7.20			0.139	25	
Batch B6D2004 - NO PREP										
Blank (B6D2004-BLK1)		Prepared: 04/20/2016 Analyzed: 04/20/2016								
Specific Conductance (EC)	0.00270		mmhos/cm							
Duplicate (B6D2004-DUP1)		Source: X604206-03			Prepared: 04/20/2016 Analyzed: 04/20/2016					
Specific Conductance (EC)	0.0854		mmhos/cm		0.0784			8.55	25	

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



April 22, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1 South

Project Number - 014216073/WO# 211279

Attached are your analytical results for KMG - Four Way #1 South received by Origins Laboratory, Inc. April 21, 2016. This project is associated with Origins project number X604226-01.

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

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

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

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

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

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



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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

John Cocroft

Project Number: 014216073/WO# 2112791.PAB

Project: KMG - Four Way #1 South

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S03 @ 16'	X604226-01	Soil	April 21, 2016 13:20	04/21/2016 16:25

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

[illegible]

Origins Laboratory, Inc.

Jeff Pellipini

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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

John Cocroft

Project Number: 014216073/WO# 2112791.PAB

Project: KMG - Four Way #1 South

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X60422C

Client: LTE

Client Project ID: Four Way #1 South

Checklist Completed by: Jeff Smith

Shipped Via: HTD

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

Date/time completed: 4/21/16

Airbill #: NA

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

Cooler Number/Temperature: 1 / 3.7 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T203

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

John Cocroft
Reviewed by (Project Manager)

4/21/16
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

S03 @ 16'
4/21/2016 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604226-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6D2103	04/21/2016	04/21/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 93.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6D2102	04/21/2016	04/21/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 117 % 70-130 " " "
Surrogate: Toluene-d8 96.4 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.5 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.68		pH Units	1	B6D2105	04/21/2016	04/21/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.102		mmhos/cm	"	B6D2106	04/21/2016	04/21/2016	
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Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2102 - EPA 5030 (soil)										
Blank (B6D2102-BLK1)					Prepared: 04/21/2016 Analyzed: 04/21/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	60		"	62.5		95.5	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2102 - EPA 5030 (soil)										
LCS (B6D2102-BS1)					Prepared: 04/21/2016 Analyzed: 04/21/2016					
Benzene	0.10	0.002	mg/kg	0.100		103	77.1-124			
Toluene	0.10	0.002	"	0.100		103	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		103	66.4-127			
m,p-Xylene	0.20	0.004	"	0.200		101	76.6-124			
o-Xylene	0.10	0.002	"	0.100		102	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2102 - EPA 5030 (soil)

Matrix Spike (B6D2102-MS1)		Source: X604219-04			Prepared: 04/21/2016 Analyzed: 04/21/2016					
Benzene	0.12	0.002	mg/kg	0.100	ND	124	71.8-126			
Toluene	0.12	0.002	"	0.100	ND	124	65.1-130			
Ethylbenzene	0.12	0.002	"	0.100	ND	125	62.2-130			
m,p-Xylene	0.26	0.004	"	0.200	ND	131	46.5-137			
o-Xylene	0.13	0.002	"	0.100	ND	125	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		114	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.2	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2102 - EPA 5030 (soil)

Matrix Spike Dup (B6D2102-MSD1)		Source: X604219-04			Prepared: 04/21/2016 Analyzed: 04/21/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	95.9	71.8-126	25.5	11.3	QR-02
Toluene	0.10	0.002	"	0.100	ND	95.9	65.1-130	25.4	15.4	QR-02
Ethylbenzene	0.09	0.002	"	0.100	ND	92.7	62.2-130	29.5	19.6	QR-02
m,p-Xylene	0.19	0.004	"	0.200	ND	93.3	46.5-137	33.4	19.2	QR-03
o-Xylene	0.09	0.002	"	0.100	ND	93.6	54.2-134	28.9	17.9	QR-02
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.6	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2103 - EPA 3580

Blank (B6D2103-BLK1)

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	64		"	50.0		128	59-131			

LCS (B6D2103-BS1)

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	1000	50	mg/kg	1000		101	64-121			
Residual Range Organics (C28-C40)	670	200	"	1000		66.9	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.6	59-131			

Matrix Spike (B6D2103-MS1)

Source: X604219-04

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	940	50	mg/kg	1000	ND	93.6	53-125			
Residual Range Organics (C28-C40)	650	200	"	1000	15	63.8	47-133			
Surrogate: o-Terphenyl	43		"	50.0		86.1	59-131			

Matrix Spike Dup (B6D2103-MSD1)

Source: X604219-04

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	1200	50	mg/kg	1000	ND	116	53-125	21.0	20	QR-02
Residual Range Organics (C28-C40)	870	200	"	1000	15	85.0	47-133	28.4	20	QR-02
Surrogate: o-Terphenyl	52		"	50.0		104	59-131			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

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 B6D2105 - NO PREP										
Duplicate (B6D2105-DUP1)		Source: X604226-01			Prepared: 04/21/2016 Analyzed: 04/21/2016					
pH	7.70		pH Units		7.68			0.260	25	
Batch B6D2106 - NO PREP										
Blank (B6D2106-BLK1)		Prepared: 04/21/2016 Analyzed: 04/21/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B6D2106-DUP1)		Source: X604226-01			Prepared: 04/21/2016 Analyzed: 04/21/2016					
Specific Conductance (EC)	0.0823		mmhos/cm		0.102			21.3	25	

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1 South

Notes and Definitions

U Sample is Non-Detect.

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



May 06, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1

Project Number - 014216073/WO# 211279

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. May 05, 2016. This project is associated with Origins project number X605072-01.

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

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

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

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

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

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



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01 @ 20'	X605072-01	Soil	May 5, 2016 9:55	05/05/2016 17:03
SB01 @ 28'	X605072-02	Soil	May 5, 2016 10:00	05/05/2016 17:03
SB02 @ 20'	X605072-03	Soil	May 5, 2016 11:10	05/05/2016 17:03
SB02 @ 24'	X605072-04	Soil	May 5, 2016 11:15	05/05/2016 17:03
SB03@ 20'	X605072-06	Soil	May 5, 2016 12:55	05/05/2016 17:03
SB03@ 28'	X605072-07	Soil	May 5, 2016 13:00	05/05/2016 17:03
SB04@ 20'	X605072-08	Soil	May 5, 2016 14:10	05/05/2016 17:03
SB04@ 28'	X605072-09	Soil	May 5, 2016 14:15	05/05/2016 17:03
SB05@ 20'	X605072-10	Soil	May 5, 2016 15:10	05/05/2016 17:03
SB05@ 24'	X605072-11	Soil	May 5, 2016 15:15	05/05/2016 17:03

Origins Laboratory, Inc.



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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

John Cocroft

Project Number: 014216073/WO# 2112791.PAB

Project: KMG - Four Way #1

Samples SB05 @ 20' and SB05 @ 24' taken off hold per the email from Justin on 05/06/16. Same day TAT.

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

www.originslaboratory.com

page 1 of 2

ORIGINS
LABORATORY, INC

Client: LTE
Address: 4600 W 60th Ave Arvada CO
Telephone Number: (303)433-9788
Email Address: AFE Team

Project Manager: J. Cocroft
Project Name: Four Way #1
Project Number: 014216073
Samples Collected By: KMG Shepherd

ATTN: Sam LaRue AFE# 2112791.PAB

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other			
SB01@20'	5/5/16	0955	2	X				X				X	X	Hold SAR
SB01@28'		1000	2	X				X				X	X	
SB02@20'		1110	2	X				X				X	X	
SB02@24'		1115	2	X				X				X	X	
SB02@28'		1120	2	X				X				X	X	
SB03@20'		1255	2	X				X				X	X	Hold All
SB03@28'		1300	2	X				X				X	X	Hold SAR
SB04@20'		1410	2	X				X				X	X	
SB04@28'		1415	2	X				X				X	X	
SB05@20'		1510	2	X				X				X	X	Hold All

Relinquished By: [Signature]
Date: 5/5/16
Time: 1625

Received By: [Signature]
Date: 5/5/16
Time: 1625

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

Date Results Needed: 5/6/16 (0800)

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

ORIGINS

LABORATORY, INC

X05072

www.originslaboratory.com

page of

Client: LTE
Address: 4600 W 60th Ave Aravada CO
Telephone Number: (303) 433-9788
Email Address: APC Team

Project Manager: J. Cocroft
Project Name: Four Way #1
Project Number: 014216073
Samples Collected By: Kris Shepherd

APN: San La Re AFE # 212741, PAB

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Aluminum Continer #			Other
S805C24'	5/5/16	15:15	2	X					X		TPH, P, S, R	Hold All Only	1
S805C26'	6	15:20	2	X					X			Hold All	2
													3
													4
													5
													6
													7
													8
													9
													10
Relinquished By: <u>[Signature]</u>	Date: <u>5/5/16</u>		Time: <u>1625</u>	Received By: <u>[Signature]</u>	Date: <u>5-5-16</u>	Time: <u>1505</u>	Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>						
Relinquished By: <u>[Signature]</u>	Date: <u>5-5-16</u>		Time: <u>1703</u>	Received By: <u>[Signature]</u>	Date: <u>5/5/14</u>	Time: <u>1703</u>							

Date Results Needed

5/6/16 (1800)

Origins Laboratory, Inc.

Jose Pellegrini

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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X605072

Client: LTE

Client Project ID: Four Way #1

Checklist Completed by: Jef Smith

Shipped Via: H/D

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

Date/time completed: 5/5/12

Airbill #: NA

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

Cooler Number/Temperature: 1 / 55° °C / °C / °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<u>X</u>			
Is there ice present (document if blue ice is used)	<u>1</u>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<u>1</u>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<u>1</u>		
Were all samples received intact ⁽¹⁾ ?	<u>1</u>			
Was adequate sample volume provided ⁽¹⁾ ?	<u>1</u>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<u>X</u>			<u>PH</u>
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<u>1</u>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<u>1</u>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<u>1</u>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<u>1</u>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<u>1</u>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<u>X</u>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

5/5/12 1932
Date/Time Reviewed

Origins Laboratory, Inc.

Jef Pellegrini

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB01 @ 20'
5/5/2016 9:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 92.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 114 % 70-130 " " "
Surrogate: Toluene-d8 97.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.7 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.50		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0596		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB01 @ 28'
5/5/2016 10:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 82.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 124 % 70-130 " " "
Surrogate: Toluene-d8 98.3 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.46		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0661		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB02 @ 20'
5/5/2016 11:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	540	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 73.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	160	5.0	mg/kg	25	B6E0501	05/05/2016	05/05/2016	
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	1.0	0.05	"	"	"	"	"	
Xylenes, total	10	0.05	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 111 % 70-130 " " "
Surrogate: Toluene-d8 96.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.31		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0545		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB02 @ 24'
5/5/2016 11:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	170	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	79.2 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	160	5.0	mg/kg	25	B6E0501	05/05/2016	05/05/2016	
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	1.6	0.05	"	"	"	"	"	
Ethylbenzene	1.8	0.05	"	"	"	"	"	
Xylenes, total	22	0.50	"	250	"	"	05/06/2016	

Surrogate: 1,2-Dichloroethane-d4	118 %	70-130			"	"	05/05/2016	
Surrogate: Toluene-d8	99.5 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	7.06		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.109		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB03@ 20'
5/5/2016 12:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 72.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 112 % 70-130 " " "
Surrogate: Toluene-d8 96.1 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.42		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0641		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB03@ 28'

5/5/2016 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X605072-07 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 68.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 120 % 70-130 " " "
Surrogate: Toluene-d8 95.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.0 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.33		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0630		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB04@ 20'
5/5/2016 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-08 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 75.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 121 % 70-130 " " "
Surrogate: Toluene-d8 97.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.1 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.43		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0410		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB04@ 28'

5/5/2016 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-09 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0502	05/05/2016	05/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 77.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6E0501	05/05/2016	05/05/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 121 % 70-130 " " "
Surrogate: Toluene-d8 95.5 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.5 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.53		pH Units	1	B6E0504	05/05/2016	05/05/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0729		mmhos/cm	"	B6E0505	05/05/2016	05/05/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB05@ 20'
5/5/2016 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-10 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0603	05/06/2016	05/06/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 84.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6E0602	05/06/2016	05/06/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 112 % 70-130 " " "
Surrogate: Toluene-d8 97.1 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.17	pH Units	1	B6E0604	05/06/2016	05/06/2016
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0697	mmhos/cm	"	B6E0605	"	"
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

SB05@ 24'
5/5/2016 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X605072-11 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	B6E0603	05/06/2016	05/06/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 91.2 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6E0602	05/06/2016	05/06/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 114 % 70-130 " " "
Surrogate: Toluene-d8 98.4 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.75	pH Units	1	B6E0604	05/06/2016	05/06/2016
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.102	mmhos/cm	"	B6E0605	"	"
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)										
Blank (B6E0501-BLK1)					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)										
Blank (B6E0501-BLK2)					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)										
LCS (B6E0501-BS1)					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100		102	77.1-124			
Toluene	0.10	0.002	"	0.100		96.4	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		101	66.4-127			
m,p-Xylene	0.21	0.004	"	0.200		104	76.6-124			
o-Xylene	0.10	0.002	"	0.100		97.7	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)										
LCS (B6E0501-BS2)					Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100		101	77.1-124			
Toluene	0.11	0.002	"	0.100		110	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		103	66.4-127			
m,p-Xylene	0.23	0.004	"	0.200		115	76.6-124			
o-Xylene	0.12	0.002	"	0.100		117	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.7	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	70-130			

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Arvada CO 80003

John Cocroft
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Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)

Matrix Spike (B6E0501-MS1)		Source: X605070-01			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	108	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	103	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	106	62.2-130			
m,p-Xylene	0.22	0.004	"	0.200	ND	109	46.5-137			
o-Xylene	0.10	0.002	"	0.100	ND	102	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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John Cocroft
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Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)

Matrix Spike (B6E0501-MS2)		Source: X605070-02			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	96.4	71.8-126			
Toluene	0.09	0.002	"	0.100	ND	91.5	65.1-130			
Ethylbenzene	0.09	0.002	"	0.100	ND	91.6	62.2-130			
m,p-Xylene	0.19	0.004	"	0.200	ND	93.2	46.5-137			
o-Xylene	0.09	0.002	"	0.100	ND	89.4	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)										
Matrix Spike Dup (B6E0501-MSD1)		Source: X605070-01			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.07	0.002	mg/kg	0.100	ND	65.3	71.8-126	48.9	11.3	QM-07
Toluene	0.06	0.002	"	0.100	ND	59.5	65.1-130	53.7	15.4	QM-07
Ethylbenzene	0.06	0.002	"	0.100	ND	58.4	62.2-130	57.8	19.6	QM-07
m,p-Xylene	0.12	0.004	"	0.200	ND	59.2	46.5-137	58.9	19.2	QM-07
o-Xylene	0.06	0.002	"	0.100	ND	57.7	54.2-134	55.7	17.9	QM-07
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		115	70-130			QM-07
Surrogate: Toluene-d8	62		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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Project: KMG - Four Way #1

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 B6E0501 - EPA 5030 (soil)

Matrix Spike Dup (B6E0501-MSD2)		Source: X605070-02			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	105	71.8-126	8.48	11.3	
Toluene	0.10	0.002	"	0.100	ND	97.9	65.1-130	6.67	15.4	
Ethylbenzene	0.10	0.002	"	0.100	ND	102	62.2-130	11.1	19.6	
m,p-Xylene	0.21	0.004	"	0.200	ND	106	46.5-137	12.9	19.2	
o-Xylene	0.10	0.002	"	0.100	ND	99.3	54.2-134	10.4	17.9	
Surrogate: 1,2-Dichloroethane-d4	74		ug/kg	62.5		118	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

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Project: KMG - Four Way #1

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 B6E0602 - EPA 5030 (soil)										
Blank (B6E0602-BLK1)					Prepared: 05/06/2016 Analyzed: 05/06/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	60		"	62.5		95.5	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	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 B6E0602 - EPA 5030 (soil)

LCS (B6E0602-BS1)

Prepared: 05/06/2016 Analyzed: 05/06/2016

Benzene	0.09	0.002	mg/kg	0.100		91.0	77.1-124			
Toluene	0.10	0.002	"	0.100		101	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		97.0	66.4-127			
m,p-Xylene	0.21	0.004	"	0.200		107	76.6-124			
o-Xylene	0.11	0.002	"	0.100		105	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

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Project: KMG - Four Way #1

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 B6E0602 - EPA 5030 (soil)

Matrix Spike (B6E0602-MS1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	98.4	71.8-126			
Toluene	0.11	0.002	"	0.100	ND	108	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	111	62.2-130			
m,p-Xylene	0.24	0.004	"	0.200	ND	122	46.5-137			
o-Xylene	0.12	0.002	"	0.100	ND	117	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.6	70-130			

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John Cocroft
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Project: KMG - Four Way #1

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 B6E0602 - EPA 5030 (soil)

Matrix Spike Dup (B6E0602-MSD1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Benzene	0.09	0.002	mg/kg	0.100	ND	90.9	71.8-126	7.95	11.3	
Toluene	0.10	0.002	"	0.100	ND	99.8	65.1-130	8.28	15.4	
Ethylbenzene	0.10	0.002	"	0.100	ND	99.2	62.2-130	11.2	19.6	
m,p-Xylene	0.22	0.004	"	0.200	ND	111	46.5-137	9.32	19.2	
o-Xylene	0.11	0.002	"	0.100	ND	110	54.2-134	6.02	17.9	
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.1	70-130			

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Project: KMG - Four Way #1

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

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6E0502 - EPA 3580

Blank (B6E0502-BLK1)

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	41		"	50.0		81.6	59-131			

Blank (B6E0502-BLK2)

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	40		"	50.0		79.5	59-131			

LCS (B6E0502-BS1)

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	930	50	mg/kg	1000		92.7	64-121			
Residual Range Organics (C28-C40)	1100	200	"	1000		114	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.2	59-131			

LCS (B6E0502-BS2)

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	960	50	mg/kg	1000		95.6	64-121			
Residual Range Organics (C28-C40)	1100	200	"	1000		114	58-124			
Surrogate: o-Terphenyl	49		"	50.0		98.4	59-131			

Matrix Spike (B6E0502-MS1)

Source: X605020-01

Prepared: 05/05/2016 Analyzed: 05/05/2016

Diesel (C10-C28)	900	50	mg/kg	1000	ND	89.7	53-125			
Residual Range Organics (C28-C40)	1100	200	"	1000	29	107	47-133			

Origins Laboratory, Inc.



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Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6E0502 - EPA 3580										
Matrix Spike (B6E0502-MS1)		Source: X605020-01			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Surrogate: o-Terphenyl	44		mg/kg	50.0		88.2	59-131			
Matrix Spike (B6E0502-MS2)		Source: X605020-02			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Diesel (C10-C28)	930	50	mg/kg	1000	ND	92.6	53-125			
Residual Range Organics (C28-C40)	1000	200	"	1000	24	98.9	47-133			
Surrogate: o-Terphenyl	43		"	50.0		85.4	59-131			
Matrix Spike Dup (B6E0502-MSD1)		Source: X605020-01			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Diesel (C10-C28)	810	50	mg/kg	1000	ND	80.8	53-125	10.4	20	
Residual Range Organics (C28-C40)	880	200	"	1000	29	85.4	47-133	22.6	20	QR-02
Surrogate: o-Terphenyl	41		"	50.0		83.0	59-131			
Matrix Spike Dup (B6E0502-MSD2)		Source: X605020-02			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Diesel (C10-C28)	1100	50	mg/kg	1000	ND	114	53-125	20.4	20	QR-02
Residual Range Organics (C28-C40)	1300	200	"	1000	24	132	47-133	28.8	20	QR-02
Surrogate: o-Terphenyl	53		"	50.0		106	59-131			
Batch B6E0603 - EPA 3580										
Blank (B6E0603-BLK1)		Prepared: 05/06/2016 Analyzed: 05/06/2016								
Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		77.9	59-131			
LCS (B6E0603-BS1)		Prepared: 05/06/2016 Analyzed: 05/06/2016								
Diesel (C10-C28)	860	50	mg/kg	1000		86.3	64-121			
Residual Range Organics (C28-C40)	930	200	"	1000		92.7	58-124			
Surrogate: o-Terphenyl	41		"	50.0		82.3	59-131			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6E0603 - EPA 3580										
Matrix Spike (B6E0603-MS1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Diesel (C10-C28)	970	50	mg/kg	1000	ND	97.3	53-125			
Residual Range Organics (C28-C40)	1100	200	"	1000	26	112	47-133			
Surrogate: o-Terphenyl	48		"	50.0		95.2	59-131			
Matrix Spike Dup (B6E0603-MSD1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Diesel (C10-C28)	910	50	mg/kg	1000	ND	90.7	53-125	7.09	20	
Residual Range Organics (C28-C40)	1100	200	"	1000	26	103	47-133	8.40	20	
Surrogate: o-Terphenyl	44		"	50.0		88.1	59-131			

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4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

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 B6E0504 - NO PREP										
Duplicate (B6E0504-DUP1)		Source: X605072-01			Prepared: 05/05/2016 Analyzed: 05/05/2016					
pH	7.53		pH Units		7.50			0.399	25	
Batch B6E0505 - NO PREP										
Blank (B6E0505-BLK1)		Prepared: 05/05/2016 Analyzed: 05/05/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B6E0505-DUP1)		Source: X605072-01			Prepared: 05/05/2016 Analyzed: 05/05/2016					
Specific Conductance (EC)	0.0670		mmhos/cm		0.0596			11.7	25	
Batch B6E0604 - NO PREP										
Duplicate (B6E0604-DUP1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
pH	7.61		pH Units		8.17			7.10	25	
Batch B6E0605 - NO PREP										
Blank (B6E0605-BLK1)		Prepared: 05/06/2016 Analyzed: 05/06/2016								
Specific Conductance (EC)	0.00300		mmhos/cm							
Duplicate (B6E0605-DUP1)		Source: X605072-10			Prepared: 05/06/2016 Analyzed: 05/06/2016					
Specific Conductance (EC)	0.0601		mmhos/cm		0.0697			14.8	25	

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 2112791.PAB
Project: KMG - Four Way #1

Notes and Definitions

U Sample is Non-Detect.

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

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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June 08, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1

Project Number - 014216073

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. June 07, 2016. This project is associated with Origins project number X606083-01.

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

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

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

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

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

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



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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

John Cocroft

Project Number: 014216073

Project: KMG - Four Way #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B03@25'	X606083-01	Soil	June 7, 2016 16:30	06/07/2016 17:45

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.

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

ORIGINS

LABORATORY, INC

X606083

C.C. Sam Levine

W#: 89053715

www.originslaboratory.com

Client: LTE

Address: 4600 W 60th Ave
Arundel, CO 80003

Telephone Number: 720-556-7159

Email Address: jccraft@ltaew.com

Project Manager: John Craft

Project Name: Four Way #1

Project Number: 014216073

Samples Collected By: Jeremy Espinoza

page | of |

Fax: 303.265.9645

Phone: 303.433.1322

Denver, CO 80211

1725 Eik Place

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	GTEX	TPH	DRO ORG		pH
B03e251	6/7/16	1630	4	X					X			X	X	X	1	
															2	
															3	
															4	
															5	
															6	
															7	
															8	
															9	
															10	
Relinquished By:	Date:		Time:	Received By:				Date:	Time:	Turnaround Time:						
Jeffery	6/7/16		1745							Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/>						
Relinquished By:	Date:		Time:	Received By:				Date:	Time:	48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/>						
				JES				6/7/16	1745	Standard <input type="checkbox"/>						

Temp Received: 73°

Date Results Needed

Origins Laboratory, Inc.

Jeff Pellipini

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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 1606083

Client: LT Environmental

Client Project ID: Four Way #1

Checklist Completed by: Joe Henderson

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

Date/time completed: 6/7/16 1748

Airbill #: DA

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

Cooler Number/Temperature: 1 / 7.9 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>Sampled Sunday</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			<u>PH</u>
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 6/8/16

Origins Laboratory, Inc.

[Signature]

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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

B03@25'
6/7/2016 4:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606083-01 (Soil)

DRO/RRO by EPA8015C

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

Surrogate: o-Terphenyl 79.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6F0703	06/07/2016	06/07/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	0.004	0.002	"	"	"	"	"	
Xylenes, total	0.005	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "
Surrogate: Toluene-d8 101 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.26		pH Units	1	B6F0707	06/07/2016	06/07/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0528		mmhos/cm	"	B6F0708	"	06/07/2016	
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Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0703 - EPA 5030 (soil)										
Blank (B6F0703-BLK1)					Prepared: 06/07/2016 Analyzed: 06/07/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0703 - EPA 5030 (soil)

LCS (B6F0703-BS1)

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

Benzene	0.118	0.002	mg/kg	0.100		118	77.1-124			
Toluene	0.118	0.002	"	0.100		118	74.5-128			
Ethylbenzene	0.111	0.002	"	0.100		111	66.4-127			
m,p-Xylene	0.225	0.004	"	0.200		112	76.6-124			
o-Xylene	0.112	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B6F0703 - EPA 5030 (soil)

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

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

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

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

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B6F0705 - EPA 3580

Blank (B6F0705-BLK1)

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

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

LCS (B6F0705-BS1)

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

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

Matrix Spike (B6F0705-MS1)

Source: X606069-01

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

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

Matrix Spike Dup (B6F0705-MSD1)

Source: X606069-01

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

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

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

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

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073
Project: KMG - Four Way #1

Notes and Definitions

U Sample is Non-Detect.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



July 11, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1

Project Number - 014216073/WO# 890537

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. June 08, 2016. This project is associated with Origins project number X606108-01.

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

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

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

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

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

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



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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP04 @ 28'	X606108-01	Soil	June 8, 2016 16:00	06/08/2016 17:15
TP05 @ 30'	X606108-02	Soil	June 8, 2016 16:10	06/08/2016 17:15
N03 @ 22'	X606108-03	Soil	June 8, 2016 13:40	06/08/2016 17:15
S04 @ 22'	X606108-04	Soil	June 8, 2016 13:55	06/08/2016 17:15

The following IDs were changed per the email from Mike Futaw on 07/11/16.

B04@28' to TP04@28'

B05@30' to TP05@30'

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

www.originslaboratory.com

page (of 1)

CC: Sam L. Rice
WO# 89053715

Project Manager: John Cocroft
Project Name: Four Way #1
Project Number: 014216073
Samples Collected By: Jeremy Espartero

Client: LTE
Address: 4600 W 60th Ave
Arvada, CO, 80003
Telephone Number: 720-556-7159
Email Address: jcocroft@hnu.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air/Surface	Other	TPH	DRO-OK	PH	
B04E28'	6/8/16	1600	2	X					X			X	X	X	1
B05E20'	6/8/16	1610	2	X					X			X	X	X	2
N05E22'	6/8/16	1940	2	X					X			X	X	X	3
S04E22'	6/8/16	1955	2	X					X			X	X	X	4
															5
															6
															7
															8
															9
															10

Relinquished By: *[Signature]*
Date: 6/8/16
Time: 1715

Received By: *[Signature]*
Date: 6/8/16
Time: 1715

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

Temp Received: 16.8

Date Results Needed

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X606108

Client: LTE

Client Project ID: Four Way #1

Checklist Completed by: Jeff Smith

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

Date/time completed: 6/8/12

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 6.8 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>Sampled Same Day</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			<u>DU</u>
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Jeff Smith
Reviewed by (Project Manager)

6/8/12
Date/Time Reviewed

Origins Laboratory, Inc.

Jeff Pellegrini

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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

TP04 @ 28'
6/8/2016 4:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
X606108-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	844	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	95.1 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	819	50.0	mg/kg	250	B6F0801	06/08/2016	06/08/2016	
Benzene	0.796	0.050	"	25	"	"	06/08/2016	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	7.52	0.050	"	"	"	"	"	
Xylenes, total	142	0.498	"	250	"	"	06/08/2016	

Surrogate: 1,2-Dichloroethane-d4	99.9 %	70-130			"	"	"	
Surrogate: Toluene-d8	107 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.2 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	7.94		pH Units	1	B6F0803	06/08/2016	06/08/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.188		mmhos/cm	"	B6F0804	"	06/08/2016	
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

TP05 @ 30'
6/8/2016 4:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606108-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	686	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	89.0 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	1040	50.0	mg/kg	250	B6F0801	06/08/2016	06/08/2016	
Benzene	1.68	0.050	"	25	"	"	06/08/2016	
Toluene	0.814	0.050	"	"	"	"	"	
Ethylbenzene	8.53	0.050	"	"	"	"	"	
Xylenes, total	148	0.498	"	250	"	"	06/08/2016	

Surrogate: 1,2-Dichloroethane-d4	97.7 %	70-130			"	"	"	
Surrogate: Toluene-d8	109 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.9 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	7.90		pH Units	1	B6F0803	06/08/2016	06/08/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.151		mmhos/cm	"	B6F0804	"	06/08/2016	
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

N03 @ 22'
6/8/2016 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606108-03 (Soil)

DRO/RRO by EPA8015C

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

Surrogate: o-Terphenyl 83.1 % 59-131 " " "

GBTEX by EPA 8260C

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

Surrogate: 1,2-Dichloroethane-d4 98.6 % 70-130 " " "
Surrogate: Toluene-d8 102 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.50	pH Units	1	B6F0803	06/08/2016	06/08/2016
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.110	mmhos/cm	"	B6F0804	"	06/08/2016
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

S04 @ 22'
6/8/2016 1:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606108-04 (Soil)

DRO/RRO by EPA8015C

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

Surrogate: o-Terphenyl 78.9 % 59-131 " " "

GBTEX by EPA 8260C

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

Surrogate: 1,2-Dichloroethane-d4 95.0 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 105 % 70-130 " " "

pH in Soil by EPA 9045D

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

Specific Conductance (EC)	0.103	mmhos/cm	"	B6F0804	"	06/08/2016
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0801 - EPA 5030 (soil)										
Blank (B6F0801-BLK1)					Prepared: 06/08/2016 Analyzed: 06/08/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0801 - EPA 5030 (soil)										
Blank (B6F0801-BLK2)					Prepared: 06/08/2016 Analyzed: 06/08/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0801 - EPA 5030 (soil)										
LCS (B6F0801-BS1)					Prepared: 06/08/2016 Analyzed: 06/08/2016					
Benzene	0.111	0.002	mg/kg	0.100		111	77.1-124			
Toluene	0.111	0.002	"	0.100		111	74.5-128			
Ethylbenzene	0.109	0.002	"	0.100		109	66.4-127			
m,p-Xylene	0.215	0.004	"	0.200		107	76.6-124			
o-Xylene	0.106	0.002	"	0.100		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0801 - EPA 5030 (soil)

LCS (B6F0801-BS2)

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

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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0801 - EPA 5030 (soil)

Matrix Spike (B6F0801-MS1)		Source: X606061-01			Prepared: 06/08/2016 Analyzed: 06/08/2016					
Benzene	0.114	0.002	mg/kg	0.100	ND	114	71.8-126			
Toluene	0.115	0.002	"	0.100	ND	115	65.1-130			
Ethylbenzene	0.113	0.002	"	0.100	ND	113	62.2-130			
m,p-Xylene	0.225	0.004	"	0.200	ND	113	46.5-137			
o-Xylene	0.111	0.002	"	0.100	ND	111	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0801 - EPA 5030 (soil)

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

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

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

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0801 - EPA 5030 (soil)

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

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0802 - EPA 3580

Blank (B6F0802-BLK1)

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

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

Blank (B6F0802-BLK2)

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

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

LCS (B6F0802-BS1)

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

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

LCS (B6F0802-BS2)

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

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

Matrix Spike (B6F0802-MS1)

Source: X606061-01

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

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

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

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

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

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

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

Notes and Definitions

U Sample is Non-Detect.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



July 11, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Four Way #1

Project Number - 014216073/WO# 890537

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. June 09, 2016. This project is associated with Origins project number X606122-01.

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

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

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

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

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

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



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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP06 @ 35'	X606122-01	Soil	June 9, 2016 10:00	06/09/2016 17:00
TP07 @ 30'	X606122-02	Soil	June 9, 2016 14:50	06/09/2016 17:00
TP08 @ 35'	X606122-03	Soil	June 9, 2016 14:55	06/09/2016 17:00
TP09 @ 30'	X606122-04	Soil	June 9, 2016 15:10	06/09/2016 17:00
TP10 @ 35'	X606122-05	Soil	June 9, 2016 15:20	06/09/2016 17:00

The following IDs were changed per the email from Mike Furtaw on 07/11/16.

B06@35' to TP06@35'
B07@30' to TP07@30'
B08@35' to TP08@35'
B09@30' to TP09@30'
B10@35' to TP10@35'

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

www.originslaboratory.com

page 1 of 1

Client: **LTE**

Address: **4600 W 60th Ave**

Telephone Number: **720-556-7159**

Email Address: **jcocroft@lteenv.com**

Project Manager: **John Cocroft**

Project Name: **Four Way #1**

Project Number: **014216073**

Samples Collected By: **Jeremy Espinoza**

CO: **San Luis**

WO# **89053715**

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

ORIGINS
LABORATORY, INC

X600122

Temp Received: **h-l**

Date Results Needed

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix		Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other	TPH	DRO, ORO	
B06E 35'	6/9/16	1060	2	X				X		X	X	X	X	1
B07E 30'	6/9/16	1450	2	X				X		X	X	X	X	2
B08E 35'	6/9/16	1455	2	X				X		X	X	X	X	3
B09E 30'	6/9/16	1510	2	X				X		X	X	X	X	4
B10E 35'	6/9/16	1520	2	X				X		X	X	X	X	5
														6
														7
														8
														9
														10

Relinquished By: **[Signature]**

Relinquished By: **[Signature]**

Date: **6/9/16**

Date: **6/9/16**

Time: **1700**

Time: **1700**

Received By: **[Signature]**

Received By: **[Signature]**

Date: **6/9/16**

Date: **6/9/16**

Time: **1700**

Time: **1700**

Turnaround Time: **Same Day**

Turnaround Time: **24 Hr**

Turnaround Time: **48 Hr**

Turnaround Time: **72 Hr**

Turnaround Time: **Standard**

Turnaround Time: **Standard**

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X606122

Client: LTE

Client Project ID: Four Way #1

Checklist Completed by: Jeff Smith

Shipped Via: H7D
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 6/9/16

Airbill #: NA

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

Cooler Number/Temperature: 1 14.6 °C °C °C (Describe)

Thermometer ID: 7003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<u>Y</u>			
Is there ice present (document if blue ice is used)	<u>Y</u>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<u>Y</u>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<u>Y</u>		
Were all samples received intact ⁽¹⁾ ?	<u>Y</u>			
Was adequate sample volume provided ⁽¹⁾ ?	<u>Y</u>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<u>X</u>			<u>PH</u>
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<u>Y</u>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<u>Y</u>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<u>Y</u>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<u>Y</u>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<u>X</u>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<u>Y</u>	
Additional Comments (if any):				

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

Reviewed By (Project Manager) Jeff Smith

Date/Time Reviewed 6/9/16

Origins Laboratory, Inc.

Jeff Pellegrini

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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

TP06 @ 35'
6/9/2016 10:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606122-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	4810	25.0	mg/kg	1	B6F0905	06/09/2016	06/09/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	108 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	3500	50.0	mg/kg	250	B6F0903	06/09/2016	06/09/2016	
Benzene	5.84	0.498	"	"	"	"	"	
Toluene	210	4.98	"	2500	"	"	06/10/2016	
Ethylbenzene	32.6	0.498	"	250	"	"	06/09/2016	
Xylenes, total	920	4.98	"	2500	"	"	06/10/2016	

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	06/09/2016	
Surrogate: Toluene-d8	121 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	9.10		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.221		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

TP07 @ 30'
6/9/2016 2:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606122-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	7220	25.0	mg/kg	1	B6F0905	06/09/2016	06/09/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	125 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	9340	500	mg/kg	2500	B6F0903	06/09/2016	06/10/2016	
Benzene	12.5	0.498	"	250	"	"	06/09/2016	
Toluene	272	4.98	"	2500	"	"	06/10/2016	
Ethylbenzene	70.9	0.498	"	250	"	"	06/09/2016	
Xylenes, total	2250	4.98	"	2500	"	"	06/10/2016	

Surrogate: 1,2-Dichloroethane-d4	94.6 %	70-130			"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.67		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.609		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

TP08 @ 35'
6/9/2016 2:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606122-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	3440	25.0	mg/kg	1	B6F0905	06/09/2016	06/09/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	98.9 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	2240	50.0	mg/kg	250	B6F0903	06/09/2016	06/09/2016	
Benzene	2.14	0.050	"	25	"	"	06/09/2016	
Toluene	75.9	0.498	"	250	"	"	06/09/2016	
Ethylbenzene	18.7	0.498	"	"	"	"	"	
Xylenes, total	271	0.498	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"	
Surrogate: Toluene-d8	112 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.54		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.552		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

TP09 @ 30'
6/9/2016 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606122-04 (Soil)

DRO/RRO by EPA8015C

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

Surrogate: o-Terphenyl 86.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	5.23	5.00	mg/kg	25	B6F0903	06/09/2016	06/09/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.072	0.050	"	"	"	"	"	
Xylenes, total	0.117	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 99.1 % 70-130 " " "
Surrogate: Toluene-d8 101 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 107 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.28		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.195		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

TP10 @ 35'
6/9/2016 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606122-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	353	25.0	mg/kg	1	B6F0905	06/09/2016	06/09/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

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

Gasoline Range Hydrocarbons	239	5.00	mg/kg	25	B6F0903	06/09/2016	06/09/2016	
Benzene	0.050	0.050	"	"	"	"	"	
Toluene	0.470	0.050	"	"	"	"	"	
Ethylbenzene	1.56	0.050	"	"	"	"	"	
Xylenes, total	38.9	0.498	"	250	"	"	06/09/2016	

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	06/09/2016	
Surrogate: Toluene-d8	108 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	112 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	7.95		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.426		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0903 - EPA 5030 (soil)										
Blank (B6F0903-BLK1)					Prepared: 06/09/2016 Analyzed: 06/09/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		98.4	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0903 - EPA 5030 (soil)										
Blank (B6F0903-BLK2)					Prepared: 06/09/2016 Analyzed: 06/09/2016					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.2	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0903 - EPA 5030 (soil)										
LCS (B6F0903-BS1)					Prepared: 06/09/2016 Analyzed: 06/09/2016					
Benzene	0.102	0.002	mg/kg	0.100		102	77.1-124			
Toluene	0.106	0.002	"	0.100		106	74.5-128			
Ethylbenzene	0.110	0.002	"	0.100		110	66.4-127			
m,p-Xylene	0.220	0.004	"	0.200		110	76.6-124			
o-Xylene	0.108	0.002	"	0.100		108	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0903 - EPA 5030 (soil)

LCS (B6F0903-BS2)

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

Benzene	0.085	0.002	mg/kg	0.100		84.9	77.1-124			
Toluene	0.086	0.002	"	0.100		86.4	74.5-128			
Ethylbenzene	0.087	0.002	"	0.100		87.4	66.4-127			
m,p-Xylene	0.176	0.004	"	0.200		87.8	76.6-124			
o-Xylene	0.085	0.002	"	0.100		85.5	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.8	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B6F0903 - EPA 5030 (soil)

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

Origins Laboratory, Inc.



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

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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0903 - EPA 5030 (soil)

Matrix Spike (B6F0903-MS2)		Source: X606118-02			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Benzene	0.098	0.002	mg/kg	0.100	0.0009	96.8	71.8-126			
Toluene	0.096	0.002	"	0.100	0.001	94.6	65.1-130			
Ethylbenzene	0.099	0.002	"	0.100	ND	99.1	62.2-130			
m,p-Xylene	0.201	0.004	"	0.200	ND	100	46.5-137			
o-Xylene	0.098	0.002	"	0.100	ND	98.1	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0903 - EPA 5030 (soil)										
Matrix Spike Dup (B6F0903-MSD1)					Source: X606098-01					Prepared: 06/09/2016 Analyzed: 06/09/2016
Benzene	0.093	0.002	mg/kg	0.100	ND	93.3	71.8-126	5.60	11.3	
Toluene	0.094	0.002	"	0.100	ND	94.2	65.1-130	7.01	15.4	
Ethylbenzene	0.095	0.002	"	0.100	ND	94.7	62.2-130	7.26	19.6	
m,p-Xylene	0.191	0.004	"	0.200	ND	95.6	46.5-137	8.35	19.2	
o-Xylene	0.094	0.002	"	0.100	ND	93.6	54.2-134	6.13	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0903 - EPA 5030 (soil)										
Matrix Spike Dup (B6F0903-MSD2)										
					Source: X606118-02					
										Prepared: 06/09/2016 Analyzed: 06/09/2016
Benzene	0.098	0.002	mg/kg	0.100	0.0009	97.1	71.8-126	0.286	11.3	
Toluene	0.096	0.002	"	0.100	0.001	95.2	65.1-130	0.604	15.4	
Ethylbenzene	0.099	0.002	"	0.100	ND	99.0	62.2-130	0.121	19.6	
m,p-Xylene	0.203	0.004	"	0.200	ND	102	46.5-137	1.07	19.2	
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134	2.50	17.9	
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		115	70-130			
Surrogate: Toluene-d8	62		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6F0905 - EPA 3580

Blank (B6F0905-BLK1)

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

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

Blank (B6F0905-BLK2)

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

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		88.3	59-131			

LCS (B6F0905-BS1)

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

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

LCS (B6F0905-BS2)

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

Diesel (C10-C28)	884	50.0	mg/kg	1000		88.4	64-121			
Residual Range Organics (C28-C40)	801	200	"	1000		80.1	58-124			
Surrogate: o-Terphenyl	45		"	50.0		89.3	59-131			

Matrix Spike (B6F0905-MS1)

Source: X606098-01

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

Diesel (C10-C28)	870	50.0	mg/kg	1000	29.3	84.1	53-125			
Residual Range Organics (C28-C40)	744	200	"	1000	ND	74.4	47-133			

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Project: KMG - Four Way #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0905 - EPA 3580										
Matrix Spike (B6F0905-MS1)		Source: X606098-01			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Surrogate: o-Terphenyl	45		mg/kg	50.0		89.6	59-131			
Matrix Spike (B6F0905-MS2)		Source: X606098-02			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Diesel (C10-C28)	867	50.0	mg/kg	1000	27.0	84.0	53-125			
Residual Range Organics (C28-C40)	783	200	"	1000	ND	78.3	47-133			
Surrogate: o-Terphenyl	43		"	50.0		85.7	59-131			
Matrix Spike Dup (B6F0905-MSD1)		Source: X606098-01			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Diesel (C10-C28)	921	50.0	mg/kg	1000	29.3	89.2	53-125	5.88	20	
Residual Range Organics (C28-C40)	856	200	"	1000	ND	85.6	47-133	14.0	20	
Surrogate: o-Terphenyl	44		"	50.0		88.8	59-131			
Matrix Spike Dup (B6F0905-MSD2)		Source: X606098-02			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Diesel (C10-C28)	715	50.0	mg/kg	1000	27.0	68.8	53-125	19.9	20	
Residual Range Organics (C28-C40)	649	200	"	1000	ND	64.9	47-133	18.8	20	
Surrogate: o-Terphenyl	39		"	50.0		78.6	59-131			

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Project Number: 014216073/WO# 89053715
Project: KMG - Four Way #1

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

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

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Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Jen Pellegrini For Noelle Doyle Mathis, President