



Kerr-McGee Oil and Gas Onshore LP
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October 28, 2016

received 10/28/2016
REM 9787
Document 2527142

Mr. Peter Gintautas
Environmental Protection Specialist
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado 80203

**Re: Update Report
Four Way-62N65W/16SENW
Remediation # 9787
SENW Sec 16-T2N-R65W
Weld County, Colorado**

Dear Mr. Gintautas:

Kerr-McGee Oil and Gas Onshore LP (Kerr-McGee) is submitting this letter report as an update to the Form 27 submitted on August 9, 2016, for the Four Way-62N65W/16SENW tank battery. This report describes the supplemental groundwater assessment and monitoring activities completed since the August 2016 submittal.

Site Background

In April 2016, two produced water sumps were removed during tank battery deconstruction activities. Soil with historical petroleum hydrocarbon impact was encountered beneath the southern produced water sump. Kerr-McGee contracted LT Environmental, Inc. (LTE) to document excavation activities, collect excavation soil and groundwater samples, install groundwater monitoring wells, conduct quarterly groundwater monitoring, and track the laboratory analytical results. A topographic Site Location Map showing the geographical setting of the release is provided as Figure 1.

Between April 14 and 21, 2016, twelve confirmation soil samples were collected from the excavation base and sidewalls for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) analysis by United States Environmental Protection Agency (USEPA) Method 8260C, TPH-diesel range organics (DRO) and oil range organics (ORO) analysis by USEPA Method 8015C, pH by USEPA Method 9045D, and specific conductance (EC) by USEPA Method 9050A. Laboratory analytical results indicated that levels of benzene, total xylenes, TPH, and pH continued to exceed Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 allowable levels at the base of the excavation.

On May 5, 2016, a subsurface assessment was conducted to delineate the lateral and vertical extents of the remaining soil impact prior to resuming excavation activities. Five soil borings (SB01 through SB05) were advanced around the perimeter of the open excavation and

continuously sampled to a depth of 28 feet below ground surface (bgs). Two soil samples were collected from each soil boring for laboratory analysis of BTEX, TPH, pH, and EC. The analytical results indicated the TPH concentration in soil sample SB02@20' exceeded the COGCC Table 910-1 allowable level of 500 milligrams per kilogram (mg/kg). Concentrations/levels in all the remaining soil boring 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 shallow 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.

In order to access and assess the vertical extent of the impacted soil in the base of the excavation at depths greater than 20 feet bgs, the excavation sidewalls were sloped (2:1 ratio) for stability in accordance with the Occupational Safety and Health Administration's Excavation Standard 29, Code of Federal Regulations (CFR) Part 1926 Sub-part P Section 1926.652(c)(4). After sloping the excavation, additional impacted soil was removed from the excavation base to a depth of 25 feet bgs. Between June 7 and 9, 2016, confirmation soil samples were collected from the deepened base and sidewalls of the excavation. Additionally, soil samples were collected from test pits excavated into the base of the excavation to a depth of 35 feet bgs. 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, total xylenes, and/or pH levels continued to exceed COGCC allowable levels in the test pit soil samples collected at depths of 28 feet, 30 feet, and 35 feet bgs.

A total volume of approximately 780 cubic yards of impacted soil was excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. The excavation was backfilled with clean fill and restored to pre-release grade. The general site layout, release location, excavation extent and sloping, and soil sample locations are depicted on the Excavation and Assessment Map provided as Figure 2. The soil sample analytical results are summarized in Table 1.

Additional Subsurface Assessment Activities

Between August 3 and 8, 2016, a subsurface assessment was conducted to determine the vertical and lateral extent of impacted soil left in-place at the conclusion of the excavation activities and to determine if shallow groundwater has been impacted. Six soil borings (SB06 through SB11) were cleared of utilities to a depth of 6 feet bgs using a truck-mounted hydro-vacuum rig. The soil borings were then continuously sampled and field-screened to total depth using a hollow-stem auger drill rig and a photoionization detector (PID). Soil borings SB06 and SB07 were advanced through the backfilled excavation and soil borings SB08 through SB11 were advanced to the east, south, and west of the backfilled excavation to depths of approximately 50 feet to 55 feet bgs.

Two or three soil samples were collected from each soil boring above the saturated zone, which was encountered in the soil borings at approximately 45 feet bgs. The soil samples were submitted for laboratory analysis of BTEX and TPH. Laboratory analytical results indicated concentrations of benzene, toluene, total xylenes, and/or TPH in soil samples SB07@31', SB07@37', SB09@35', SB09@37', and SB09@45' exceeded COGCC Table 910-1 allowable

levels. Concentrations/levels in all the remaining soil samples were compliant with COGCC allowable levels. Based on the laboratory analytical results, the lateral extent of the impacted soil left in-place has been defined. Impacted soil remains in-place beneath the backfilled excavation to a depth of 45 feet bgs. The soil boring and sample locations are depicted on the Excavation and Assessment Map provided as Figure 2. A Geologic Cross Section A-A' depicting the estimated extent of soil left in-place is provided as Figure 3. The soil sample analytical results are summarized in Table 1 and the laboratory analytical reports are attached.

Soil borings SB06 through SB11 were completed as monitoring wells MW01 through MW06, respectively. The monitoring well locations are depicted on the Site Map provided as Figure 4. Soil descriptions, PID headspace readings, and monitoring well completion diagrams are included on the attached field boring logs.

Groundwater Assessment Activities

During the initial quarterly groundwater monitoring event conducted on August 9, 2016, groundwater samples were collected from monitoring wells MW01 through MW06 for laboratory analysis of BTEX by USEPA Method 8260C. Laboratory analytical results indicated that benzene concentrations in MW02 and MW04 exceeded the CGWQS for benzene at concentrations of 18.1 micrograms per liter ($\mu\text{g/L}$) and 6.55 $\mu\text{g/L}$, respectively. Based on the groundwater analytical results, monitoring wells MW01, MW03, MW05, and MW06 were designated as point of compliance (POC) wells. Groundwater monitoring will continue on a quarterly basis. The groundwater sample analytical results are summarized in Table 2 and the laboratory analytical report is attached.

On August 9, 2016, monitoring wells MW01 through MW06 were surveyed to obtain relative groundwater and top-of-casing well elevation data. The survey data indicated the groundwater flow direction at the site is to the north-northeast. A Groundwater Elevation Contour Map is provided as Figure 5. The relative groundwater elevations are provided in Table 2.

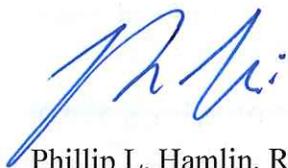
Summary and Conclusions

Remedial actions employed at the site included excavation of the source area. Six monitoring wells (MW01 through MW06) were installed and POC has been established. Groundwater monitoring will continue on a quarterly basis until a No Further Action (NFA) status request is warranted. Prior to submittal of an NFA status request, the impacted soil left in-place to naturally attenuate will be reassessed for compliance with COGCC Table 910-1 allowable levels.

Feel free to contact me at 970-336-3500 if you have any questions regarding this report.

Sincerely,

Kerr-McGee Oil & Gas Onshore LP



Phillip L. Hamlin, REM, CSEM
Senior HSE Representative

Attachments

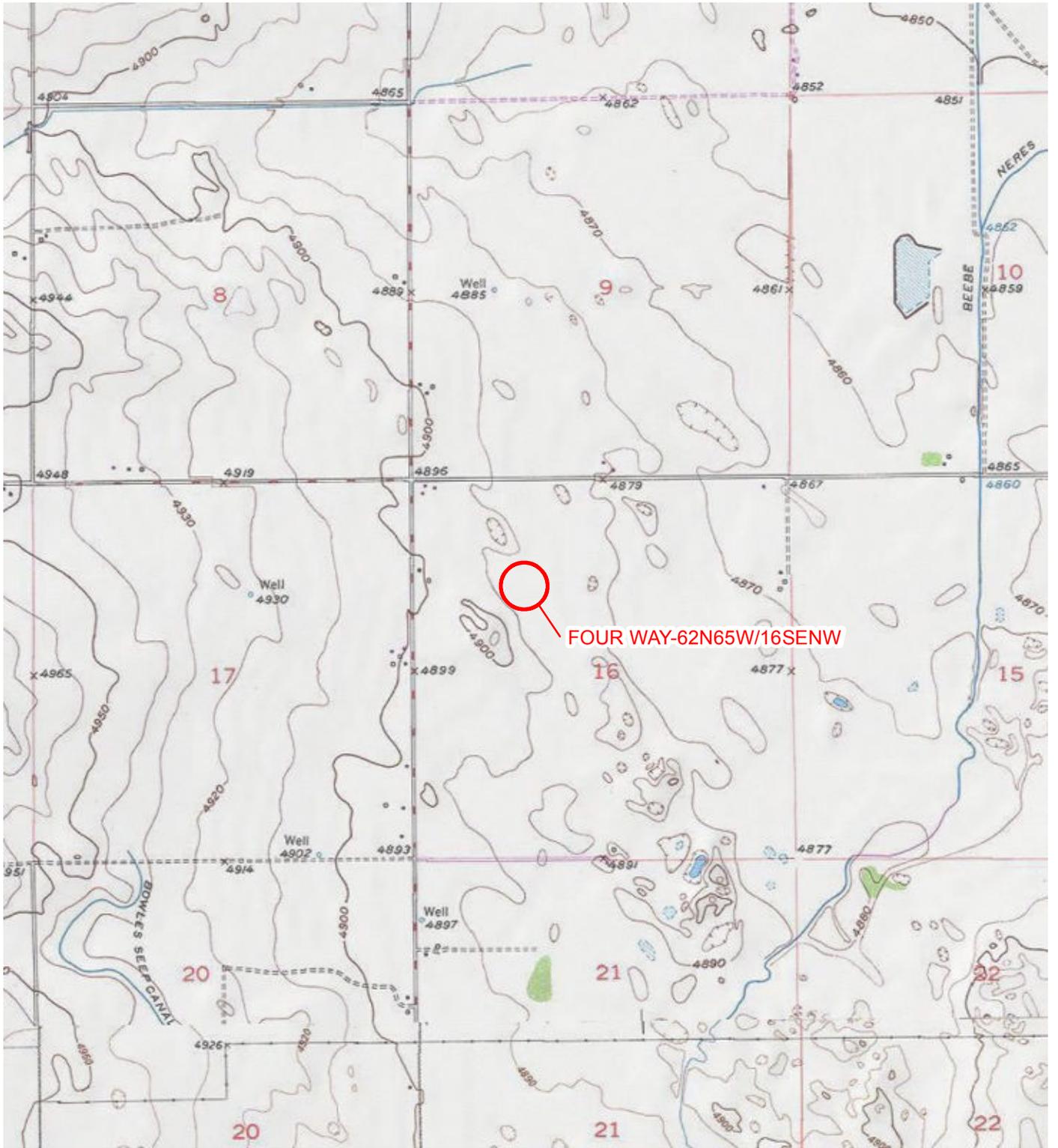


IMAGE COURTESY OF ESRI/USGS

LEGEND

 SITE LOCATION

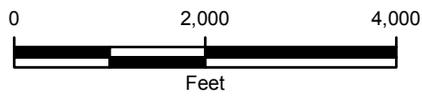
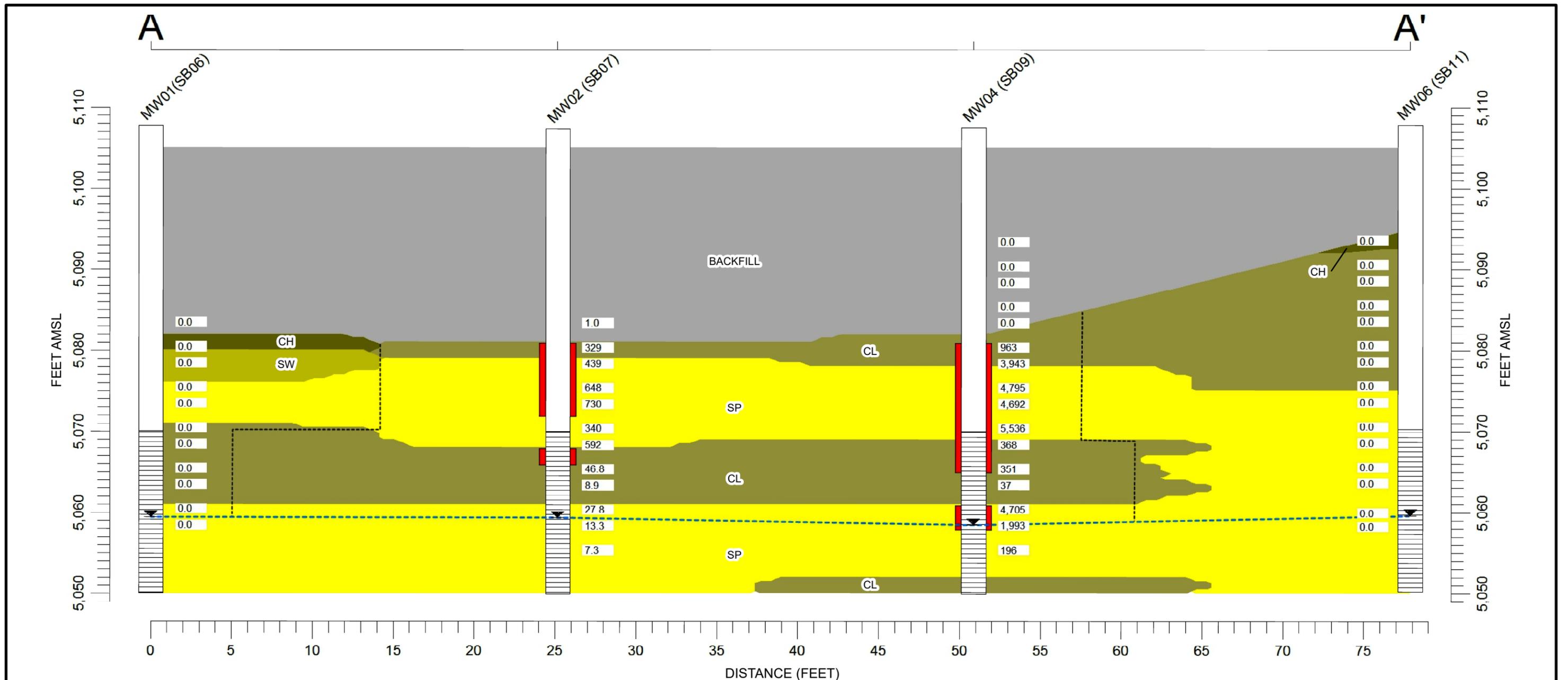


FIGURE 1
SITE LOCATION MAP
FOUR WAY-62N65W/16SENW
SENW SEC 16-T2N-R65W
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP





LEGEND

- WELL CASING
 - SCREEN INTERVAL
 - GROUNDWATER ELEVATION (8/9/2016)
 - GROUNDWATER ELEVATION
 - ESTIMATED EXTENT OF IMPACTED SOIL LEFT IN PLACE EXCEEDING COGCC ALLOWABLE LEVELS (TABLE 910-1)
 - SLOPED EXCAVATION ACCESS
 - 1.0 PID: PHOTOIONIZATION DETECTOR HEAD SPACE READING (SOIL SAMPLE)
- LITHOLOGY INDEX**
 - BACKFILL
 - CLAY (CH)
 - CLAYEY SAND (SW)
 - SANDY CLAY (CL)
 - SAND (SP)
 - STAINING

VERTICAL SCALE: 1" = 12'
 HORIZONTAL SCALE: 1" = 6'
 AMSL: ABOVE MEAN SEA LEVEL

SITE MAP

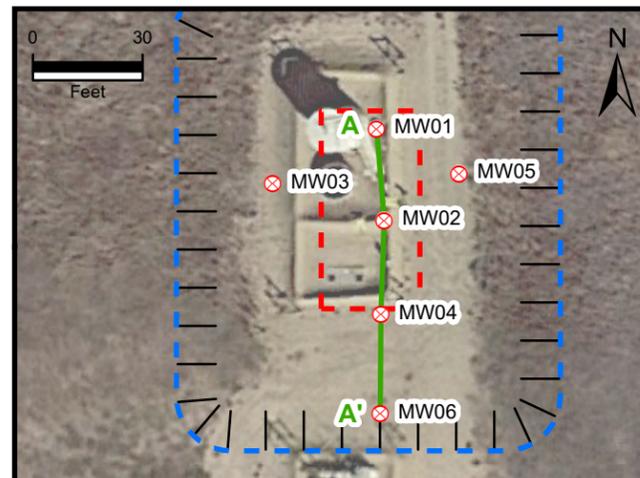


IMAGE COURTESY OF GOOGLE EARTH 2015

FIGURE 3
 GEOLOGIC CROSS SECTION A-A'
 FOUR WAY-62N65W/16SEW
 SENW SEC 16-T2N-R65W
 WELD COUNTY, COLORADO
 KERR-MCGEE OIL & GAS ONSHORE LP





IMAGE COURTESY OF GOOGLE EARTH 2015

LEGEND

-  RELEASE LOCATION
-  MONITORING WELL
-  METER HOUSE
-  FORMER FENCE
-  EXCAVATION EXTENT
-  FORMER BERM

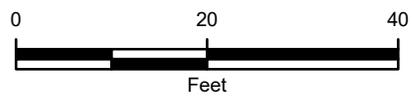


FIGURE 4
SITE MAP
 FOUR WAY-62N65W/16SEnw
 SENW SEC 16-T2N-R65W
 WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP





IMAGE COURTESY OF GOOGLE EARTH 2015

LEGEND

- ✕ RELEASE LOCATION
- ⊗ MONITORING WELL
- M METER HOUSE

x — x FORMER FENCE

— RELATIVE GROUNDWATER ELEVATION CONTOUR
 CONTOUR INTERVAL = 0.10 FEET
 GRADIENT = 0.004 FEET/FOOT

- EXCAVATION EXTENT
- FORMER BERM

GROUNDWATER ELEVATIONS WERE MEASURED ON AUGUST 9, 2016.

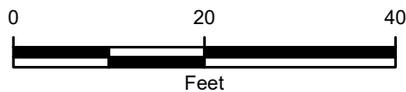


FIGURE 5
GROUNDWATER ELEVATION CONTOUR MAP
 FOUR WAY-62N65W/16SE
 SENW SEC 16-T2N-R65W
 WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP



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
SB06 @ 35'	35'	08/03/2016	<0.050	<0.050	<0.050	0.154	<25.0	<5.00	<100	NA	NA
SB06 @ 45'	45'	08/03/2016	<0.050	<0.050	<0.050	0.112	<25.0	<5.00	<100	NA	NA
SB07 @ 31'	31'	08/03/2016	3.37	86.6	36.4	836	1180	4750	<100	NA	NA
SB07 @ 37'	37'	08/03/2016	<0.050	2.93	2.75	62.4	770	899	<100	NA	NA
SB07 @ 45'	45'	08/03/2016	<0.050	<0.050	<0.050	0.409	30.6	27.5	<100	NA	NA
SB08@25'	25'	08/04/2016	<0.002	<0.002	<0.002	<0.002	<25.0	<0.200	<100	NA	NA
SB08@35'	35'	08/04/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	NA	NA
SB08@39'	39'	08/04/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	NA	NA
SB09 @ 35'	35'	08/05/2016	9.12	222	49.0	818	2650	4550	<100	NA	NA
SB09 @ 37'	37'	08/05/2016	0.408	1.31	0.078	1.33	<25.0	12.3	<100	NA	NA
SB09 @ 45'	45'	08/05/2016	1.39	50.2	20.9	473	2700	3020	<100	NA	NA
SB10 @ 34'	34'	08/05/2016	<0.002	<0.002	<0.002	<0.002	<25.0	<0.200	<100	NA	NA



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)
SB10 @ 36'	36'	08/05/2016	<0.050	<0.050	0.130	0.174	<25.0	5.23	<100	NA	NA
SB10 @ 45'	45'	08/05/2016	<0.050	<0.050	0.090	0.120	<25.0	<5.00	<100	NA	NA
SB11 @ 35'	35'	08/08/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	NA	NA
SB11 @ 45'	45'	08/08/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	NA	NA
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



TABLE 2
GROUNDWATER ANALYTICAL AND FIELD RESULTS
FOUR WAY-62N65W/16SEW
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

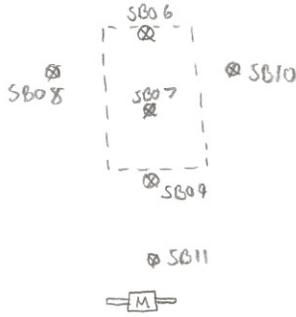
Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
MW01	08/09/2016	<1.00	<1.00	1.42	<1.00	45.79	51.54
MW02	08/09/2016	18.1	110	11.7	208	45.78	51.65
MW03	08/09/2016	<1.00	<1.00	<1.00	<1.00	46.35	51.69
MW04	08/09/2016	6.55	48.6	7.85	216	45.67	51.67
MW05	08/09/2016	1.32	8.29	2.40	29.5	45.18	51.60
MW06	08/09/2016	<1.00	<1.00	<1.00	<1.00	45.81	51.84
CGWQS		5	1000	700	1400		

Notes: CGWQS - Colorado Groundwater Quality Standards
Elev. - elevation
ft bgs - feet below ground surface
GW - groundwater
NA - not analyzed/not available

NM - not measured
µg/L - micrograms per liter
< - less than laboratory reporting limit
Bold indicates result exceeds allowable level
Excavation groundwater depth is approximate



Location Map:



Compliance _M Engineering _M Remediation
LT Environmental, Inc.
 4400 W. 46th Avenue
 Denver, Colorado 80212

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB06/MW01	Project: Four Way #1
Date: 8/3/16	Project Number: 14216073
Logged By: Jeremy Espinoza	Drilled By: Drill Pro
Elevation:	Detector: PID
Drilling Method: Hollow-Stem Auger	Sampling Method: Continuous

Gravel Pack: 10/20 Silica Sand	Seal: Bentonite	Grout: -
Casing Type: Sch 40 PVC	Diameter: 2	Length: 35'
Screen Type: Sch 40 PVC	Diameter: 2	Length: 20'
Slot: 0.01	Total Depth: 55'	Depth to Liquid: -
	Depth to Water: 46'	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
					4			Hydrovac, Not Logged	
	Moist		None		8			6-20' Backfill, not logged	
					12			20-23' Gravelly sandy clay, brown, moist, no stain, no odor (backfill)	
					16				
					20			23-25' Clay, brown to grey, moist, high plasticity, cohesive, no stain, no odor	
5.6/0.12	0.0				24	2/2	CL		
6.8/0.11	0.0				24	2/2	CH		
4.7/8.10	0.0				28	2/2	SW	25-29 clayey sand, light brown, moist, no stain, no odor	
3.8/7.11	0.0				32	2/2		29-34 Sand, trace clay, light brown, moist, no stain, no odor	
2.9/12/2	0.0				36	2/2			
5.6/8.8	0.0			SB06	36	2/2			
2.5/8.8	0.0			ES35	40	2/2	CL	35-44 Sandy clay, trace gravel, light brown, med plasticity, non cohesive, no stain, no odor	
4.6/8.8	0.0			ES37	40	2/2		- Some gravel at 33'	
2.3/5/6	Moist	0.0		ES39	44	2/2			
	WCT	0.0		ES42	44	2/2			
3.6/6.10	WCT	0.0		ES45	48	2/2	SW	2" stringer of wet sand at 39'	
3.5/6/2		0.0			52	8/0		44-46 fine - coarse sand, med brown, moist, no stain, no odor	
					56			46-47 Coarse sand, med brown, wet, trace gravel, no stain, no odor	
					60			flowing sand, not sampled 47-55'	

Location Map:



Compliance m Engineering m Remediation
LT Environmental, Inc.
 4400 W. 46th Avenue
 Denver, Colorado 80212

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SBO7/MW02 Project: Four Way #1

Date: 8/3/2016 Project Number: 14216073

Logged By: Kris Shepherd / Jeremy Espinoza Drilled By: Drill Pro

Elevation: _____ Detector: MiniRae 3000 PID Drilling Method: Hollow-Stem Auger Sampling Method: Split spoon

Gravel Pack: 10-20 Silica Sand Seal: Bentonite Grout: _____

Casing Type: Schedule 40 PVC Diameter: 2" Length: 35' Hole Diameter: 8" Depth to Liquid: _____

Screen Type: Schedule 40 PVC Slot: 0.01 Diameter: 2" Length: 20' Total Depth: 55' Depth to Water: ~45.5'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Hydrovac to 6' bgs	
					4			Back fill, not logge 6' → 20' bgs	
					8				
					12			20' → 24' gravelly, sandy clay, brown, no stain, no odor, moist	
					16			(backfill)	
					20			24' → 26' Sandy clay, gray, low cohesion, mod. plasticity, stain	
4.5, 4.3	moist	1.0	none		20	2/2		odor, moist	
2.4, 7.1		329	stain		24	2/2		26' → 33' fg sand, gray, stain & odor, moist	
3.4, 8.12		439			28	2/2		→ trace clay ~29' → ~33'	
2.4, 6.8		648		SBO7 31' (1540)	32	1.5/2		33' → 37' fg → coarse sand, tan, no stain, odor, moist	
3.6, 10.11		730			36	1.5/2		37' → 41' Silty clay, gray, stain & odor, mod. cohesion, mod. plasticity, moist	
10.15, 9.20		592		SBO7 37' (1545)	40	1/2		→ stain ends @ ~39' bgs, tan	
10.3, 3.8		46.8			44	2/2		41' → 45.5' Sandy clay, light brown, no odor, no stain, mod. cohesion, high plasticity, moist	
3.6, 8.11		8.9			48	2/2		→ 6" stringer fg → coarse sand, tan, no odor, no stain, moist @ ~44'	
4.6, 5.8		27.8		SBO7 @45' (1550)	52	1/2		45.5' → 50' fg → coarse sand, tan, no odor, no stain, wet	
5.15, 12.12	wet	13.3			56			→ Drill to 55' bgs, flowing sands	
4.13, 11.15					60			not sampled	

Location Map:



Compliance _M Engineering _M Remediation
LT Environmental, Inc.
 4400 W. 46th Avenue
 Denver, Colorado 80212

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB09/MW04	Project: Four Way #1
Date: 8/4/16	Project Number: 14216073
Logged By: Jeremy Espinoza	Drilled By: Drill Pro
Drilling Method: Hollow-Stem Auger	Sampling Method: Continuous

Sec SB06

Elevation:	Detector: PID
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Gravel Pack: 10/20 Silica Sand	Seal: Bentonite	Grout:
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Casing Type: Sch 40 PVC	Diameter: 2	Length: 35'	Hole Diameter: 8"	Depth to Liquid: 45.5
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Screen Type: Sch 40 PVC	Slot: 0.01	Diameter: 2	Length: 20'	Total Depth: 55'	Depth to Water: 45.5
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Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Hydrovac, Not Logged	
					4				
					8			6-10 Backfill, not logged	
2,223	moist	0.0	None		12	2/2	CL	10-23 Gravelly sandy clay, med brown, moist, no stain, no odor (backfill)	
3344		0.0			16	2/2		23-25 clay, trace sand, med brown, moist, stain and odor starting at 24', high plasticity, cohesive	
2,212		0.0			20	2/2			
2,231		0.0			24	2/2	CH	25-27 Sandy clay, med brown to grey, moist, stain, odor, med plasticity, cohesive	
2,141		0.0			28	2/2		27-36 clayey fine sand, grey, moist, stain, odor	
3,610,2		963		SB09 @ 25'	32	2/2	SW	36-44 Sandy clay, grey, moist, stain, odor, high plasticity, cohesive	
3,70,14		3943	Stain	SB09 @ 27'	36	2/2			
2,71,15		4795		SB09 @ 32'	40	2/2	CH	- 2" fine sand, wet, stain, odor @ 39'	
4,10,10,12		4692		SB09 @ 35'	44	2/2		- no stain, odor starting at 41'	
5,788		5536		SB09 @ 37'	48	2/2	SW	44-45 clayey sand, dark brown, moist, stain, odor,	
2,579		368		SB09 @ 45'	52	2/2		45-50 coarse sand, trace gravel, black to brown, wet, stain, odor, and	
3,579		351			56	5/0	CL	Screen 45-47	
3,78,10		37.0	None		60			- no stain 47-50	
5,712,12	wet	4705	Stain	SB09 @ 45'				- flowing sands at 50' not sampled	
4,14,18		1993							
6,12,14		196							

Sandy clay on augers at ~ 53'

Location Map:



Compliance _M Engineering _M Remediation
LT Environmental, Inc.
 4400 W. 46th Avenue
 Denver, Colorado 80212

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB10/MW05	Project: Four Way #1
Date: 8/5/16	Project Number: 14216073
Logged By: Jeremy Espinoza	Drilled By: Drill Pro
Elevation:	Detector: PID
Drilling Method: Hollow-Stem Auger	Sampling Method: Continuous

Sec SB06

Gravel Pack: 10/20 Silica Sand	Seal: Bentonite	Grout:
Casing Type: Sch 40 PVC	Diameter: 2	Length: 35'
Screen Type: Sch 40 PVC	Diameter: 2	Length: 20'
	Total Depth: 55'	Depth to Liquid: 46'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Hydrovac, Not Logged	
					4				
					8			6-10 Backfill, not logged	
22,34	Moist	0.0	None		12	2/2	CL	10-17' Gravelly sandy clay, med brown, moist, no stain, no odor (Backfill)	
22,34		0.0			16	2/2			
36,11,13		0.0			20	2/2		17-28 Sandy clay, med brown, moist, med plasticity, cohesive, no stain, no odor	
8,15,77		0.0			24	2/2	CL	- 6" stringer of coarse sand at 19'	
2,16,10,13		0.0			28	2/2		28-30 fine sand, med brown, moist, no stain, no odor	
35,9,11		0.0			32	2/2	SP	30-33 Clayey fine sand, med brown, moist, no stain, no odor	
3,8,14,15		0.0		SB10 E34'	36	2/2	SW	33-35 Coarse sand with gravel, tan, moist, no stain, no odor	
3,8,9,11		0.0		SB10 E36'	40	2/2		35-46 Clay, light brown, moist, stain, odor, high plasticity, cohesive	
9,8,11,13		0.0			44	2/2		- 2" stringer of coarse sand with stain and odor at 39'	
5,9,8,15		0.0	Stain		48	2/2	CH	- no stain or odor at 39.5'	
35,8,10		9.7			52	8/0	SW	- 2" stringer of fine sand, no stain, no odor at 44'	
7,9,10,11		9.3			56			46-47' Coarse sand with gravel, wet, med brown, no stain, no odor	
8,7,10,14		0.0	None		60			- flowing sands, not sampled	
6,9,14,13		0.0		SB10 E45'					
7,9,14,15	Wet								

Location Map:



Compliance _M Engineering _M Remediation
LT Environmental, Inc.
 4400 W. 46th Avenue
 Denver, Colorado 80212

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SB11 / MW06 Project: Four Way #1

Date: 8/8/16 Project Number: 14216073

Logged By: Jeremy Espinoza Drilled By: Drill Pro

Elevation: Sec SB06 Detector: PID Drilling Method: Hollow-Stem Auger Sampling Method: Continuous

Gravel Pack: 10/20 Silica Sand Seal: Bentonite Grout: -

Casing Type: Sch 40 PVC Diameter: 2 Length: 35 Hole Diameter: 8" Depth to Liquid: -

Screen Type: Sch 40 PVC Slot: 0.01 Diameter: 2 Length: 20 Total Depth: 55' Depth to Water: 46'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Hydrovac, Not Logged	
					4				
					8			6-10 not logged, backfill 10-10.5 Gravelly, sandy clay, med brown, moist, no stain, no odor (backfill) 10.5-13 Clay, med brown, moist, high plasticity, cohesive, no stain, no odor 13-30' Sandy clay, brown to tan, moist, high plasticity, cohesive, no stain, no odor 30-46' clayey fine sand, med brown, no stain, no odor 10" stringer of fine sand (no clay) at 34' 46-47' Coarse sand, light brown, wet - flowing sands at 47', not sampled	
26,911	Moist	0.0	None		12	2/2	CL		
37,811		0.0			16	2/2	CH		
34,810		0.0			20	3/2	CH		
23,710		0.0			24	2/3	CH		
		0.0			28	5/5	CH		
		0.0			32	5/5	CH		
		0.0		SB11 @ 35'	36	5/3	SW		
		0.0			40	5/4	SW		
		0.0			44	5/5	SW		
		0.0		SB11 @ 45'	48	2/3	SW		
					52	8/0			
					56				
					60				

August 04, 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. August 03, 2016. This project is associated with Origins project number X608036-01.

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

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

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

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

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

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



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

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB06 @ 35'	X608036-01	Soil	August 3, 2016 10:40	08/03/2016 18:13
SB06 @ 45'	X608036-05	Soil	August 3, 2016 11:20	08/03/2016 18:13
SB07 @ 31'	X608036-06	Soil	August 3, 2016 15:40	08/03/2016 18:13
SB07 @ 37'	X608036-07	Soil	August 3, 2016 15:45	08/03/2016 18:13
SB07 @ 45'	X608036-08	Soil	August 3, 2016 15:50	08/03/2016 18:13
SB07GW	X608036-09	Water	August 3, 2016 17:00	08/03/2016 18:13

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

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X608036

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: 8/3/16

Airbill #: NA

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

Cooler Number/Temperature: 1 / 10.9 °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⁾ ?		X		Sampled same day
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

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

John Cocroft
 Reviewed by (Project Manager)

8/3/16
 Date/Time Reviewed

Origins Laboratory, Inc.



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

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

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

SB06 @ 35'
8/3/2016 10:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608036-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0306	08/03/2016	08/03/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

<i>Surrogate: o-Terphenyl</i>	68.4 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6H0206	08/03/2016	08/03/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	0.154	0.050	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	99.8 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	94.7 %	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

SB06 @ 45'
8/3/2016 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608036-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0306	08/03/2016	08/03/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 71.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6H0206	08/03/2016	08/04/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	0.112	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 104 % 70-130 " " "
Surrogate: Toluene-d8 99.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 93.8 % 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
 Project: KMG - Four Way #1

SB07 @ 31'
8/3/2016 3:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608036-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	1180	25.0	mg/kg	1	B6H0306	08/03/2016	08/03/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

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

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	4750	50.0	mg/kg	250	B6H0206	08/03/2016	08/04/2016	
Benzene	3.37	0.050	"	25	"	"	08/04/2016	
Toluene	86.6	0.498	"	250	"	"	08/04/2016	
Ethylbenzene	36.4	0.498	"	"	"	"	"	
Xylenes, total	836	2.49	"	1250	"	"	08/04/2016	

Surrogate: 1,2-Dichloroethane-d4 104 % 70-130 " " 08/04/2016
 Surrogate: Toluene-d8 110 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 98.0 % 70-130 " " "

Origins Laboratory, Inc.



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

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

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

SB07 @ 37'
8/3/2016 3:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608036-07 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	770	25.0	mg/kg	1	B6H0306	08/03/2016	08/03/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 82.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	899	50.0	mg/kg	250	B6H0206	08/03/2016	08/04/2016	
Benzene	ND	0.050	"	25	"	"	08/04/2016	U
Toluene	2.93	0.050	"	"	"	"	"	
Ethylbenzene	2.75	0.050	"	"	"	"	"	
Xylenes, total	62.4	0.498	"	250	"	"	08/04/2016	

Surrogate: 1,2-Dichloroethane-d4 113 % 70-130 " " 08/04/2016
 Surrogate: Toluene-d8 107 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 109 % 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

SB07 @ 45'
8/3/2016 3:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608036-08 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	30.6	25.0	mg/kg	1	B6H0306	08/03/2016	08/03/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

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

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	27.5	5.00	mg/kg	25	B6H0206	08/03/2016	08/04/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	0.409	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 100 % 70-130 " " "
 Surrogate: Toluene-d8 99.4 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 94.6 % 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
 Project: KMG - Four Way #1

SB07GW
8/3/2016 5:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608036-09 (Water)

BTEX by EPA 8260C

Benzene	788	4.00	ug/L	4	B6H0301	08/03/2016	08/03/2016	
Toluene	5030	100	"	100	"	"	08/04/2016	
Ethylbenzene	668	4.00	"	4	"	"	08/03/2016	
Xylenes, total	12700	100	"	100	"	"	08/04/2016	
Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	08/03/2016	
Surrogate: Toluene-d8	104 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	94.4 %	84-114			"	"	"	

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 B6H0301 - EPA 5030B (Water)

Blank (B6H0301-BLK1)

Prepared: 08/03/2016 Analyzed: 08/03/2016

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	103		84-121			
Surrogate: Toluene-d8	62		"	62.5	100		85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5	96.5		84-114			

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 B6H0301 - EPA 5030B (Water)

LCS (B6H0301-BS1)

Prepared: 08/03/2016 Analyzed: 08/03/2016

Benzene	44.0	1.00	ug/L	50.0		88.0	73.3-129			
Toluene	44.3	1.00	"	50.0		88.6	76.2-123			
Ethylbenzene	45.4	1.00	"	50.0		90.8	73.6-130			
m,p-Xylene	92.3	2.00	"	100		92.3	76.1-126			
o-Xylene	45.2	1.00	"	50.0		90.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.2	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.8	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.9	84-114			

Origins Laboratory, Inc.



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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 B6H0301 - EPA 5030B (Water)

Matrix Spike (B6H0301-MS1)	Source: X608005-10			Prepared: 08/03/2016 Analyzed: 08/03/2016						
Benzene	50.2	1.00	ug/L	50.0	ND	100	74-130			
Toluene	51.0	1.00	"	50.0	ND	102	73-131			
Ethylbenzene	52.7	1.00	"	50.0	ND	105	76-132			
m,p-Xylene	106	2.00	"	100	0.480	105	69-139			
o-Xylene	52.2	1.00	"	50.0	ND	104	74-131			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		100	84-121			
Surrogate: Toluene-d8	62		"	62.5		98.9	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

Origins Laboratory, Inc.



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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 B6H0301 - EPA 5030B (Water)

Matrix Spike (B6H0301-MS2)	Source: X608005-11			Prepared: 08/03/2016 Analyzed: 08/03/2016						
Benzene	51.4	1.00	ug/L	50.0	ND	103	74-130			
Toluene	52.0	1.00	"	50.0	ND	104	73-131			
Ethylbenzene	53.8	1.00	"	50.0	ND	108	76-132			
m,p-Xylene	108	2.00	"	100	0.350	107	69-139			
o-Xylene	53.1	1.00	"	50.0	ND	106	74-131			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.7	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.6	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.9	84-114			

Origins Laboratory, Inc.



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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 B6H0301 - EPA 5030B (Water)

Matrix Spike Dup (B6H0301-MSD1)	Source: X608005-10			Prepared: 08/03/2016 Analyzed: 08/03/2016						
Benzene	48.4	1.00	ug/L	50.0	ND	96.9	74-130	3.61	20	
Toluene	49.2	1.00	"	50.0	ND	98.4	73-131	3.47	20	
Ethylbenzene	49.9	1.00	"	50.0	ND	99.8	76-132	5.42	20	
m,p-Xylene	100	2.00	"	100	0.480	100	69-139	5.19	20	
o-Xylene	50.4	1.00	"	50.0	ND	101	74-131	3.62	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.8	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.9	84-114			

Origins Laboratory, Inc.



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 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 B6H0301 - EPA 5030B (Water)

Matrix Spike Dup (B6H0301-MSD2)	Source: X608005-11			Prepared: 08/03/2016 Analyzed: 08/03/2016						
Benzene	48.2	1.00	ug/L	50.0	ND	96.3	74-130	6.49	20	
Toluene	49.3	1.00	"	50.0	ND	98.6	73-131	5.43	20	
Ethylbenzene	50.4	1.00	"	50.0	ND	101	76-132	6.52	20	
m,p-Xylene	101	2.00	"	100	0.350	101	69-139	6.25	20	
o-Xylene	50.6	1.00	"	50.0	ND	101	74-131	4.86	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.7	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.5	84-114			

Origins Laboratory, Inc.



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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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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 B6H0306 - EPA 3580

Blank (B6H0306-BLK1)

Prepared: 08/03/2016 Analyzed: 08/03/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	47		"	50.0		93.8	59-131			

LCS (B6H0306-BS1)

Prepared: 08/03/2016 Analyzed: 08/03/2016

Diesel (C10-C28)	1150	50.0	mg/kg	1000		115	64-121			
Residual Range Organics (C28-C40)	1190	200	"	1000		119	58-124			
Surrogate: o-Terphenyl	51		"	50.0		101	59-131			

Matrix Spike (B6H0306-MS1)

Source: X608035-02

Prepared: 08/03/2016 Analyzed: 08/03/2016

Diesel (C10-C28)	1120	50.0	mg/kg	1000	15.5	110	53-125			
Residual Range Organics (C28-C40)	1130	200	"	1000	ND	113	47-133			
Surrogate: o-Terphenyl	45		"	50.0		90.6	59-131			

Matrix Spike Dup (B6H0306-MSD1)

Source: X608035-02

Prepared: 08/03/2016 Analyzed: 08/03/2016

Diesel (C10-C28)	1100	50.0	mg/kg	1000	15.5	109	53-125	1.18	20	
Residual Range Organics (C28-C40)	1160	200	"	1000	ND	116	47-133	2.04	20	
Surrogate: o-Terphenyl	45		"	50.0		89.6	59-131			

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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.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

August 05, 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. August 04, 2016. This project is associated with Origins project number X608045-01.

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

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

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

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

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

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



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

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB08@25'	X608045-01	Soil	August 4, 2016 14:00	08/04/2016 17:20
SB08@35'	X608045-02	Soil	August 4, 2016 14:15	08/04/2016 17:20
SB08@39'	X608045-03	Soil	August 4, 2016 14:30	08/04/2016 17:20

Origins Laboratory, Inc.



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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: X608045

Client: LTE

Client Project ID: KMG Four Way #1

Checklist Completed by: J. Henderson

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

Date/time completed: 2/4/16 1728

Airbill #: ND

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

Cooler Number/Temperature: 1 18.3 °C / _____ °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		Sampled Sunday
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		
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 Na ₂ SO 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.

J. Henderson
 Reviewed by (Project Manager)

2/4/16
 Date/Time Reviewed

Origins Laboratory, Inc.



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

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

SB08@25'
8/4/2016 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608045-01 (Soil)

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6H0405	08/04/2016	08/04/2016	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	109 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.6 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0402	08/04/2016	08/04/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	78.0 %	65-146			"	"	"	
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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
 Project: KMG - Four Way #1

SB08@35'
8/4/2016 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608045-02 (Soil)

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6H0405	08/04/2016	08/04/2016	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	104 %	70-130			"	"	"	
Surrogate: Toluene-d8	99.9 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0402	08/04/2016	08/04/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	83.8 %	65-146			"	"	"	
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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
 Project: KMG - Four Way #1

SB08@39'
8/4/2016 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608045-03 (Soil)

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6H0405	08/04/2016	08/04/2016	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	102 %	70-130			"	"	"	
Surrogate: Toluene-d8	99.9 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.9 %	70-130			"	"	"	

TPH-Carbon Chain by EPA Method 8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0402	08/04/2016	08/04/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	75.7 %	65-146			"	"	"	
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Origins Laboratory, Inc.



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 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 B6H0405 - EPA 5030 (soil)

Blank (B6H0405-BLK1)

Prepared: 08/04/2016 Analyzed: 08/04/2016

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	62		"	62.5		99.3	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
 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 B6H0405 - EPA 5030 (soil)

LCS (B6H0405-BS1)

Prepared: 08/04/2016 Analyzed: 08/04/2016

Benzene	0.109	0.002	mg/kg	0.100		109	77.1-124			
Toluene	0.106	0.002	"	0.100		106	74.5-128			
Ethylbenzene	0.105	0.002	"	0.100		105	66.4-127			
m,p-Xylene	0.211	0.004	"	0.200		105	76.6-124			
o-Xylene	0.104	0.002	"	0.100		104	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.5	70-130			

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Jen Pellegrini For Noelle Doyle Mathis, President

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

John Cocroft
 Project Number: 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 B6H0405 - EPA 5030 (soil)

Matrix Spike (B6H0405-MS1)	Source: X608045-01			Prepared: 08/04/2016 Analyzed: 08/04/2016						
Benzene	0.100	0.002	mg/kg	0.100	ND	100	71.8-126			
Toluene	0.097	0.002	"	0.100	ND	96.8	65.1-130			
Ethylbenzene	0.097	0.002	"	0.100	ND	96.9	62.2-130			
m,p-Xylene	0.196	0.004	"	0.200	ND	97.8	46.5-137			
o-Xylene	0.098	0.002	"	0.100	ND	98.0	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.7	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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 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 B6H0405 - EPA 5030 (soil)

Matrix Spike Dup (B6H0405-MSD1)	Source: X608045-01			Prepared: 08/04/2016 Analyzed: 08/04/2016						
Benzene	0.101	0.002	mg/kg	0.100	ND	101	71.8-126	0.457	11.3	
Toluene	0.098	0.002	"	0.100	ND	98.0	65.1-130	1.27	15.4	
Ethylbenzene	0.097	0.002	"	0.100	ND	97.4	62.2-130	0.453	19.6	
m,p-Xylene	0.198	0.004	"	0.200	ND	99.0	46.5-137	1.26	19.2	
o-Xylene	0.099	0.002	"	0.100	ND	99.4	54.2-134	1.36	17.9	
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.7	70-130			

Origins Laboratory, Inc.



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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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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 B6H0402 - EPA 3580

Blank (B6H0402-BLK1)

Prepared: 08/04/2016 Analyzed: 08/04/2016

Gasoline (C6-C10)	ND	50.0	mg/kg							U
Diesel (C10-C28)	ND	50.0	"							U
Residual Range Organics (C28-C40)	ND	200	"							U

Surrogate: o-Terphenyl 37.9 " 50.0 75.8 65-146

LCS (B6H0402-BS1)

Prepared: 08/04/2016 Analyzed: 08/04/2016

Gasoline (C6-C10)	923	50.0	mg/kg	1000		92.3	66.7-119			
Diesel (C10-C28)	1080	50.0	"	1000		108	70.1-127			
Residual Range Organics (C28-C40)	1090	200	"	1000		109	54.5-139			

Surrogate: o-Terphenyl 50.1 " 50.0 100 65-146

Matrix Spike (B6H0402-MS1)

Source: X608037-01

Prepared: 08/04/2016 Analyzed: 08/04/2016

Gasoline (C6-C10)	916	50.0	mg/kg	1000	ND	91.6	56.4-132			
Diesel (C10-C28)	1020	50.0	"	1000	7.55	102	57.4-138			
Residual Range Organics (C28-C40)	1030	200	"	1000	ND	103	47.7-129			

Surrogate: o-Terphenyl 44.6 " 50.0 89.3 65-146

Matrix Spike Dup (B6H0402-MSD1)

Source: X608037-01

Prepared: 08/04/2016 Analyzed: 08/04/2016

Gasoline (C6-C10)	891	50.0	mg/kg	1000	ND	89.1	56.4-132	2.79	22	
Diesel (C10-C28)	1010	50.0	"	1000	7.55	101	57.4-138	0.824	18.3	
Residual Range Organics (C28-C40)	1020	200	"	1000	ND	102	47.7-129	1.39	30.1	

Surrogate: o-Terphenyl 45.2 " 50.0 90.4 65-146

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.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

August 08, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Four Way #1

Project Number - 014216073/89053715

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. August 05, 2016. This project is associated with Origins project number X608059-04.

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

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

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

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

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

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



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

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB09 @ 35'	X608059-04	Soil	August 5, 2016 9:20	08/05/2016 15:08
SB09 @ 37'	X608059-05	Soil	August 5, 2016 9:30	08/05/2016 15:08
SB09 @ 45'	X608059-06	Soil	August 5, 2016 9:50	08/05/2016 15:08
SB10 @ 34'	X608059-07	Soil	August 5, 2016 13:00	08/05/2016 15:08
SB10 @ 36'	X608059-08	Soil	August 5, 2016 13:10	08/05/2016 15:08
SB10 @ 45'	X608059-09	Soil	August 5, 2016 13:20	08/05/2016 15:08

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: 014216073/89053715
 Project: KMG - Four Way #1

www.originslaboratory.com
 c.c. Larson Lab
 Lab # 89053715
 page 1 of 1

ORIGINS
 LABORATORY, INC

X1408059

Client: CTE
 Project Manager: John Cocroft
 Address: 4600 W 60th Ave
 Arvada, CO 80003
 Project Name: Four Way #1
 Project Number: 014216073
 Telephone Number: 720-557-7157
 Samples Collected By: Jeremy Espinoza
 Email Address: j.cocroft@LTEnviron

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ #	Other	TPH		GTEx
S109e25	8/5/9	0840	1	X				X					Hold	1
S109e27		0900	1	X				X					Hold	2
S109e32		0910	1	X				X					Hold	3
S109e35		0930	1	X				X						4
S109e37		0930	1	X				X						5
S109e35		0950	1	X				X						6
S10e34		1300	1	X				X						7
S10e36		1310	1	X				X						8
S10e45		1330	1	X				X						9
														10

Relinquished By: [Signature] Date: 8/5/9 Time: 1508
 Turnaround Time: Same Day 24 Hr
 48 Hr 72 Hr
 Standard

Received By: [Signature] Date: 8/5/10 Time: 1508
 Date Results Needed: [Blank]

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

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: 014216073/89053715
 Project: KMG - Four Way #1

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

Sample Receipt Checklist

Origins Work Order: X608059 Client: LTE
 Checklist Completed by: Joe Henderson Client Project ID: Four Way #1
 Date/time completed: 8/5/16 1507 Shipped Via: HL
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: 22
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 18.3 °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		Sampled Saturday
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⁾ ?	^			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

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

Reviewed by [Signature] (Project Manager) 8/5/16
Date/Time Reviewed

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: 014216073/89053715
 Project: KMG - Four Way #1

SB09 @ 35'
8/5/2016 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608059-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	2650	25.0	mg/kg	1	B6H0504	08/05/2016	08/05/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 106 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	4550	50.0	mg/kg	250	B6H0503	08/05/2016	08/05/2016	
Benzene	9.12	0.498	"	"	"	"	"	
Toluene	222	1.99	"	1000	"	"	08/06/2016	
Ethylbenzene	49.0	0.498	"	250	"	"	08/05/2016	
Xylenes, total	818	1.99	"	1000	"	"	08/06/2016	

Surrogate: 1,2-Dichloroethane-d4 101 % 70-130 " " 08/05/2016

Surrogate: Toluene-d8 115 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 121 % 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: 014216073/89053715
 Project: KMG - Four Way #1

SB09 @ 37'
8/5/2016 9:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608059-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0504	08/05/2016	08/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 81.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	12.3	5.00	mg/kg	25	B6H0503	08/05/2016	08/05/2016	
Benzene	0.408	0.050	"	"	"	"	"	
Toluene	1.31	0.050	"	"	"	"	"	
Ethylbenzene	0.078	0.050	"	"	"	"	"	
Xylenes, total	1.33	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " " "

Surrogate: Toluene-d8 96.1 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 109 % 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: 014216073/89053715
 Project: KMG - Four Way #1

SB09 @ 45'
8/5/2016 9:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608059-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	2700	25.0	mg/kg	1	B6H0504	08/05/2016	08/05/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 113 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	3020	50.0	mg/kg	250	B6H0503	08/05/2016	08/05/2016	
Benzene	1.39	0.050	"	25	"	"	08/05/2016	
Toluene	50.2	0.498	"	250	"	"	08/05/2016	
Ethylbenzene	20.9	0.498	"	"	"	"	"	
Xylenes, total	473	0.995	"	500	"	"	08/06/2016	

Surrogate: 1,2-Dichloroethane-d4 108 % 70-130 " " 08/05/2016

Surrogate: Toluene-d8 103 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 116 % 70-130 " " "

Origins Laboratory, Inc.



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

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

SB10 @ 34'
8/5/2016 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608059-07 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0504	08/05/2016	08/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

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

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6H0503	08/05/2016	08/05/2016	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 107 % 70-130 " " "
Surrogate: Toluene-d8 98.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 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: 014216073/89053715
 Project: KMG - Four Way #1

SB10 @ 36'
8/5/2016 1:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608059-08 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0504	08/05/2016	08/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	84.7 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	5.23	5.00	mg/kg	25	B6H0503	08/05/2016	08/05/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.130	0.050	"	"	"	"	"	
Xylenes, total	0.174	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"	
Surrogate: Toluene-d8	96.8 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	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: 014216073/89053715
 Project: KMG - Four Way #1

SB10 @ 45'
8/5/2016 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608059-09 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0504	08/05/2016	08/05/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

<i>Surrogate: o-Terphenyl</i>	82.1 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6H0503	08/05/2016	08/05/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.090	0.050	"	"	"	"	"	
Xylenes, total	0.120	0.050	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	106 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.6 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	107 %	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: 014216073/89053715
 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 B6H0503 - EPA 5030 (soil)										
Blank (B6H0503-BLK1)										
					Prepared: 08/05/2016 Analyzed: 08/05/2016					
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		105	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	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: 014216073/89053715
 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 B6H0503 - EPA 5030 (soil)

LCS (B6H0503-BS1)

Prepared: 08/05/2016 Analyzed: 08/05/2016

Benzene	0.107	0.002	mg/kg	0.100		107	77.1-124			
Toluene	0.105	0.002	"	0.100		105	74.5-128			
Ethylbenzene	0.105	0.002	"	0.100		105	66.4-127			
m,p-Xylene	0.214	0.004	"	0.200		107	76.6-124			
o-Xylene	0.105	0.002	"	0.100		105	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.1	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: 014216073/89053715
 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 B6H0503 - EPA 5030 (soil)

Matrix Spike (B6H0503-MS1)	Source: X608059-07			Prepared: 08/05/2016 Analyzed: 08/05/2016						
Benzene	0.114	0.002	mg/kg	0.100	ND	114	71.8-126			
Toluene	0.114	0.002	"	0.100	ND	114	65.1-130			
Ethylbenzene	0.114	0.002	"	0.100	ND	114	62.2-130			
m,p-Xylene	0.232	0.004	"	0.200	ND	116	46.5-137			
o-Xylene	0.113	0.002	"	0.100	ND	113	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.4	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: 014216073/89053715
 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 B6H0503 - EPA 5030 (soil)

Matrix Spike Dup (B6H0503-MSD1)	Source: X608059-07			Prepared: 08/05/2016 Analyzed: 08/05/2016						
Benzene	0.096	0.002	mg/kg	0.100	ND	96.3	71.8-126	16.5	11.3	QR-02
Toluene	0.095	0.002	"	0.100	ND	95.0	65.1-130	17.8	15.4	QR-02
Ethylbenzene	0.095	0.002	"	0.100	ND	95.1	62.2-130	17.8	19.6	
m,p-Xylene	0.195	0.004	"	0.200	ND	97.3	46.5-137	17.4	19.2	
o-Xylene	0.096	0.002	"	0.100	ND	95.8	54.2-134	16.6	17.9	
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.1	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
 Project Number: 014216073/89053715
 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 B6H0504 - EPA 3580

Blank (B6H0504-BLK1)

Prepared: 08/05/2016 Analyzed: 08/05/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	46		"	50.0		93.0	59-131			

LCS (B6H0504-BS1)

Prepared: 08/05/2016 Analyzed: 08/05/2016

Diesel (C10-C28)	1150	50.0	mg/kg	1000		115	64-121			
Residual Range Organics (C28-C40)	1200	200	"	1000		120	58-124			
Surrogate: o-Terphenyl	49		"	50.0		98.8	59-131			

Matrix Spike (B6H0504-MS1)

Source: X608059-07

Prepared: 08/05/2016 Analyzed: 08/05/2016

Diesel (C10-C28)	1140	50.0	mg/kg	1000	14.3	112	53-125			
Residual Range Organics (C28-C40)	1180	200	"	1000	ND	118	47-133			
Surrogate: o-Terphenyl	50		"	50.0		100	59-131			

Matrix Spike Dup (B6H0504-MSD1)

Source: X608059-07

Prepared: 08/05/2016 Analyzed: 08/05/2016

Diesel (C10-C28)	1220	50.0	mg/kg	1000	14.3	121	53-125	7.46	20	
Residual Range Organics (C28-C40)	1260	200	"	1000	ND	126	47-133	6.59	20	
Surrogate: o-Terphenyl	52		"	50.0		103	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: 014216073/89053715
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.

Jen Pellegrini For Noelle Doyle Mathis, President



August 09, 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. August 08, 2016. This project is associated with Origins project number X608073-01.

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
SB11 @ 35'	X608073-01	Soil	August 8, 2016 10:00	08/08/2016 14:00
SB11 @ 45'	X608073-02	Soil	August 8, 2016 10:15	08/08/2016 14:00

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

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X608073

Client: LTE

Client Project ID: Four Way #1

Checklist Completed by: JHE Smith

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

Date/time completed: 8/18/16

Airbill #: NA

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

Cooler Number/Temperature: 1 / 8.3 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: 2003

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"/>		<i>Sampled Some Dry</i>
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.

JHE Smith
 Reviewed by (Project Manager)

8/18/16
 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# 89053715
 Project: KMG - Four Way #1

SB11 @ 35'
8/8/2016 10:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608073-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0804	08/08/2016	08/08/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 75.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6H0803	08/08/2016	08/08/2016	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 107 % 70-130 " " "

Surrogate: Toluene-d8 97.1 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 105 % 70-130 " " "

Origins Laboratory, Inc.



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

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

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

SB11 @ 45'
8/8/2016 10:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608073-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6H0804	08/08/2016	08/08/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

<i>Surrogate: o-Terphenyl</i>	83.1 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6H0803	08/08/2016	08/08/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

<i>Surrogate: 1,2-Dichloroethane-d4</i>	108 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.6 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	106 %	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 B6H0803 - EPA 5030 (soil)

Blank (B6H0803-BLK1)

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

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	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

Origins Laboratory, Inc.



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

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

John Cocroft
 Project Number: 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 B6H0803 - EPA 5030 (soil)

LCS (B6H0803-BS1)

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

Benzene	0.097	0.002	mg/kg	0.100		97.1	77.1-124			
Toluene	0.094	0.002	"	0.100		93.6	74.5-128			
Ethylbenzene	0.094	0.002	"	0.100		94.0	66.4-127			
m,p-Xylene	0.189	0.004	"	0.200		94.3	76.6-124			
o-Xylene	0.095	0.002	"	0.100		94.9	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		108	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 B6H0803 - EPA 5030 (soil)

Matrix Spike (B6H0803-MS1)	Source: X608058-01			Prepared: 08/08/2016 Analyzed: 08/08/2016						
Benzene	0.090	0.002	mg/kg	0.100	ND	89.6	71.8-126			
Toluene	0.086	0.002	"	0.100	ND	85.6	65.1-130			
Ethylbenzene	0.081	0.002	"	0.100	ND	80.5	62.2-130			
m,p-Xylene	0.163	0.004	"	0.200	ND	81.3	46.5-137			
o-Xylene	0.082	0.002	"	0.100	ND	82.3	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	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 B6H0803 - EPA 5030 (soil)

Matrix Spike Dup (B6H0803-MSD1)	Source: X608058-01			Prepared: 08/08/2016 Analyzed: 08/08/2016						
Benzene	0.084	0.002	mg/kg	0.100	ND	84.2	71.8-126	6.21	11.3	
Toluene	0.081	0.002	"	0.100	ND	80.6	65.1-130	5.99	15.4	
Ethylbenzene	0.076	0.002	"	0.100	ND	76.4	62.2-130	5.20	19.6	
m,p-Xylene	0.152	0.004	"	0.200	ND	76.0	46.5-137	6.74	19.2	
o-Xylene	0.078	0.002	"	0.100	ND	77.7	54.2-134	5.75	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 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 B6H0804 - EPA 3580

Blank (B6H0804-BLK1)

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

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	40		"	50.0		79.4	59-131			

LCS (B6H0804-BS1)

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

Diesel (C10-C28)	1120	50.0	mg/kg	1000		112	64-121			
Residual Range Organics (C28-C40)	1130	200	"	1000		113	58-124			
Surrogate: o-Terphenyl	46		"	50.0		92.6	59-131			

Matrix Spike (B6H0804-MS1)

Source: X608058-01

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

Diesel (C10-C28)	925	50.0	mg/kg	1000	ND	92.5	53-125			
Residual Range Organics (C28-C40)	905	200	"	1000	ND	90.5	47-133			
Surrogate: o-Terphenyl	36		"	50.0		73.0	59-131			

Matrix Spike Dup (B6H0804-MSD1)

Source: X608058-01

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

Diesel (C10-C28)	988	50.0	mg/kg	1000	ND	98.8	53-125	6.63	20	
Residual Range Organics (C28-C40)	1050	200	"	1000	ND	105	47-133	15.2	20	
Surrogate: o-Terphenyl	37		"	50.0		73.3	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# 89053715
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.

Jen Pellegrini For Noelle Doyle Mathis, President

August 15, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Four Way #1

Project Number - 0142-1/WO #89053715

Attached are your analytical results for KMG - Four Way #1 received by Origins Laboratory, Inc. August 10, 2016. This project is associated with Origins project number X608107-01.

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

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

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

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

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

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



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

John Cocroft
Project Number: 0142-1/WO #89053715
Project: KMG - Four Way #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	X608107-01	Water	August 9, 2016 16:45	08/10/2016 16:30
MW02	X608107-02	Water	August 9, 2016 17:00	08/10/2016 16:30
MW03	X608107-03	Water	August 9, 2016 17:15	08/10/2016 16:30
MW04	X608107-04	Water	August 9, 2016 17:45	08/10/2016 16:30
MW05	X608107-05	Water	August 9, 2016 18:15	08/10/2016 16:30
MW06	X608107-06	Water	August 9, 2016 18:45	08/10/2016 16:30

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: 0142-1/WO #89053715
 Project: KMG - Four Way #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X1608107 Client: LTE
 Client Project ID: KMG - Four Way #1
 Checklist Completed by: J. H. Smith Shipped Via: HD
 Date/time completed: 8/11/12 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: NA
 Matrix(s) Received: (Check all that apply): X Soil/Solid X Water Other:
 Cooler Number/Temperature: 1 / 4.1 °C / °C / °C (Describe)
 Thermometer ID: TC03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ^{(1)?}	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		1		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		1		
Were all samples received intact ^{(1)?}	X			
Was adequate sample volume provided ^{(1)?}	X			
Are short holding time analytes or samples with HTs due within 48 hours present ^{(1)?}		X		
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.		1		
Are samples preserved that require preservation and was it checked ^{(1)?} (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)	X			HCL
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: JM (Project Manager) Date/Time Reviewed: 8/11/12

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: 0142-1/WO #89053715
 Project: KMG - Four Way #1

MW01
8/9/2016 4:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608107-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B6H1104	08/11/2016	08/11/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	1.42	1.00	"	"	"	"	"	
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	106 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 0142-1/WO #89053715
 Project: KMG - Four Way #1

MW02
8/9/2016 5:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608107-02 (Water)

BTEX by EPA 8260C

Benzene	18.1	10.0	ug/L	10	B6H1104	08/11/2016	08/15/2016	
Toluene	110	10.0	"	"	"	"	"	
Ethylbenzene	11.7	10.0	"	"	"	"	"	
Xylenes, total	208	10.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	119 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.2 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	91.6 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 0142-1/WO #89053715
 Project: KMG - Four Way #1

MW03
8/9/2016 5:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608107-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B6H1104	08/11/2016	08/15/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	120 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
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 Arvada CO 80003

John Cocroft
 Project Number: 0142-1/WO #89053715
 Project: KMG - Four Way #1

MW04
8/9/2016 5:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608107-04 (Water)

BTEX by EPA 8260C

Benzene	6.55	5.00	ug/L	5	B6H1104	08/11/2016	08/15/2016	
Toluene	48.6	5.00	"	"	"	"	"	
Ethylbenzene	7.85	5.00	"	"	"	"	"	
Xylenes, total	216	5.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	117 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.4 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	94.0 %	84-114			"	"	"	

Origins Laboratory, Inc.



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 Arvada CO 80003

John Cocroft
 Project Number: 0142-1/WO #89053715
 Project: KMG - Four Way #1

MW05
8/9/2016 6:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608107-05 (Water)

BTEX by EPA 8260C

Benzene	1.32	1.00	ug/L	1	B6H1104	08/11/2016	08/11/2016	
Toluene	8.29	1.00	"	"	"	"	"	
Ethylbenzene	2.40	1.00	"	"	"	"	"	
Xylenes, total	29.5	1.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	111 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.7 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	92.6 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 0142-1/WO #89053715
 Project: KMG - Four Way #1

MW06
8/9/2016 6:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X608107-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B6H1104	08/11/2016	08/11/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	111 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.9 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.7 %	84-114			"	"	"	

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LT Environmental, Inc.
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John Cocroft
 Project Number: 0142-1/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 B6H1104 - EPA 5030B (Water)

Blank (B6H1104-BLK1)

Prepared: 08/11/2016 Analyzed: 08/11/2016

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	71		"	62.5	114		84-121			
Surrogate: Toluene-d8	62		"	62.5	98.5		85-115			
Surrogate: 4-Bromofluorobenzene	57		"	62.5	91.8		84-114			

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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 B6H1104 - EPA 5030B (Water)

LCS (B6H1104-BS1)

Prepared: 08/11/2016 Analyzed: 08/11/2016

Benzene	44.6	1.00	ug/L	50.0		89.2	73.3-129			
Toluene	45.8	1.00	"	50.0		91.6	76.2-123			
Ethylbenzene	46.8	1.00	"	50.0		93.5	73.6-130			
m,p-Xylene	95.9	2.00	"	100		95.9	76.1-126			
o-Xylene	48.7	1.00	"	50.0		97.4	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		93.4	84-114			

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LT Environmental, Inc.
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 Arvada CO 80003

John Cocroft
 Project Number: 0142-1/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 B6H1104 - EPA 5030B (Water)

Matrix Spike (B6H1104-MS1)	Source: X608093-03			Prepared: 08/11/2016 Analyzed: 08/11/2016						
Benzene	52.8	1.00	ug/L	50.0	ND	106	74-130			
Toluene	53.1	1.00	"	50.0	ND	106	73-131			
Ethylbenzene	56.1	1.00	"	50.0	ND	112	76-132			
m,p-Xylene	113	2.00	"	100	ND	113	69-139			
o-Xylene	55.2	1.00	"	50.0	ND	110	74-131			
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.2	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.9	84-114			

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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 B6H1104 - EPA 5030B (Water)

Matrix Spike Dup (B6H1104-MSD1)	Source: X608093-03			Prepared: 08/11/2016 Analyzed: 08/11/2016						
Benzene	52.5	1.00	ug/L	50.0	ND	105	74-130	0.475	20	
Toluene	53.2	1.00	"	50.0	ND	106	73-131	0.263	20	
Ethylbenzene	56.3	1.00	"	50.0	ND	113	76-132	0.320	20	
m,p-Xylene	114	2.00	"	100	ND	114	69-139	0.926	20	
o-Xylene	55.3	1.00	"	50.0	ND	111	74-131	0.181	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		105	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.3	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.1	84-114			

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Arvada CO 80003

John Cocroft
Project Number: 0142-1/WO #89053715
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.

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Jen Pellegrini For Noelle Doyle Mathis, President