

*LT Environmental, Inc.**4600 West 60th Avenue
Arvada, Colorado 80003
T 303.433.9788 / F 303.433.1432*

June 17, 2013

Mr. Todd Cullum
Base Construction Foreman
Noble Energy, Inc.
2115 117th Ave
Greeley, Colorado 80634

Mr. Jacob Evans
Senior Environmental Specialist
Noble Energy, Inc.
1625 Broadway Suite 2200
Denver, Colorado 80202

**RE: Environmental Assessment Results
Karch Blue D 24-11 Tank Battery
Weld County, Colorado
COGCC Tracking #2232915**

Dear Mr. Cullum and Mr. Evans:

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), conducted an environmental assessment at the Karch Blue D 24-11 flow line (Site). The purpose of the environmental assessment was to define the horizontal and vertical extent of hydrocarbon impacted soil and groundwater following a petroleum hydrocarbon release due to equipment failure.

The legal site description is the northeast quarter of the southwest quarter of Section 24, Township 3 North, and Range 64 West (Figure 1). The Site is located approximately 6.35 miles north of County Road 59 and Highway 6 in Weld County, Colorado.

Soil Boring Advancement

LTE advanced a total of 12 soil borings (SB01 through SB12) on May 21, 2013. Soil borings SB01 through SB12 were installed using a direct-push rig operated by ACI Services of Denver, Colorado. All soil borings, except SB04, SB09, and SB11, were set as temporary monitoring wells to allow for groundwater sampling. A site map with soil boring locations is provided as Figure 2.

The soil borings were logged by an LTE geologist, and the soil was characterized by visual inspection of the collected soil samples. The total depths of the soil borings were approximately 15 feet to 20 feet below ground surface (bgs). The soil borings and well completion diagrams are included as Attachment 1. Depth to groundwater observed in the soil borings ranged from approximately 7.5 feet to 9 feet bgs.

Soil identified at the Site was predominantly poorly graded sand from ground surface to approximately 13 feet bgs and sandy clay from approximately 13 feet to 15 feet bgs. Field-identified soil impact was observed in soil borings SB01, SB04, SB09, and SB11 with staining ranging from 8 feet to 12 feet bgs with a peak photo-ionization (PID) detector reading of 1,713 parts per million at a depth of 9 feet bgs in soil boring SB01. A geologic cross section is provided as Figure 3.

Soil Sampling

Soil borings were advanced using direct-push methods and sampled using a continuous sampler on May 21, 2013. Field measurements and soil samples were collected to identify the vertical extent of soil impact. Soil samples were submitted for analysis based on the sample interval that exhibited visible soil staining or where the highest PID reading was observed above the groundwater saturation zone.

Twelve soil samples (SB01@7' through SB12@7') were submitted to Summit Scientific (Summit) of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260B and TPH as diesel range organics (DRO) by EPA Method 8015.

Groundwater Monitoring Well Installation

All soil borings, except SB04, SB09, and SB11, were completed as temporary groundwater monitoring wells. The monitoring wells were constructed of 1-inch diameter polyvinyl chloride (PVC) casing extending from a surface flush mount to depths of approximately 15 feet to 20 feet bgs. The lower section of each well consists of 10 feet of 0.010-inch factory slotted PVC well screen. Silica sand (size 10-20) was placed from the bottom of each monitoring well to one foot bgs to act as a filter pack for the well. Bentonite chips were placed from the top of the silica sand to the ground surface at each soil boring and hydrated to provide a seal against surface contamination and precipitation infiltration. Well completion diagrams are provided as Attachment 1.

Groundwater Sampling

Groundwater samples from all monitoring wells, except SB04, SB09, and SB11, were collected on May 23, 2013. Prior to sampling each monitoring well, depth to static groundwater was measured and recorded for calculating well-specific purge volumes. Following well development and purging, samples were collected and then submitted to Origins Laboratory of Denver, Colorado, for analysis of BTEX by EPA Method 8260C.

Hydrogeology

During the May 2013 monitoring event, the depth to static groundwater level at the Site ranged from 6.98 feet below top of casing (btoc) in SB02 to 8.43 feet btoc in SB05. Groundwater is

estimated to flow northwest with an average hydraulic gradient of 0.017 feet per foot. A relative groundwater elevation map is provided as Figure 4.

Soil Analytical Results

The Colorado Oil and Gas Conservation Commission (COGCC) standards for BTEX and TPH in soil are 0.17 milligrams per kilogram (mg/kg), 85 mg/kg, 100 mg/kg, 175 mg/kg, and 500 mg/kg, respectively.

Soil analytical results indicate all soil samples are in compliance with COGCC standards. The soil analytical results are presented on Figure 5 and summarized in Table 1. The laboratory analytical report is included as Attachment 2.

Groundwater Analytical Results

The Colorado Department of Public Health and Environment-Water Quality Control Commission has established Regulation 41-The Basic Standards for Ground Water (WQCC Reg 41) for BTEX at 5 micrograms per liter ($\mu\text{g/L}$), 560 $\mu\text{g/L}$, 700 $\mu\text{g/L}$, and 1,400 $\mu\text{g/L}$, respectively.

Groundwater analytical results indicate groundwater sample SB01 exceeds WQCC Reg 41 for benzene at a concentration of 205 $\mu\text{g/L}$. All remaining samples are in compliance with WQCC Reg 41. Groundwater analytical results are presented on Figure 6 and summarized in Table 2. The laboratory analytical report is included as Attachment 2.

Summary and Conclusions

A total of 12 soil borings (SB01 through SB12) were advanced at the Site. Analytical data indicates that the horizontal and vertical extents of impact to soil have been defined.

All soil encountered and analyzed were in compliance with COGCC Table 910-1 standards. Impacted soil was not identified at this site.

Groundwater analytical results indicate that WQCC Reg 41 standards were exceeded in one one location, monitoring well SB01. The current estimated area of benzene impacted groundwater is approximately 900 square feet.

Please call us at 303-433-9788 if you have any questions or comments regarding this report.

Sincerely,

LT ENVIRONMENTAL, INC.



Rob Rebel, P.E.
Project Manager



Steve Kahn, P.E.
Principal

Attachments:

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Geologic Cross Section
Figure 4	Relative Groundwater Elevation
Figure 5	Soil Analytical Results
Figure 6	Groundwater Analytical Results
Table 1	Soil Analytical Results
Table 2	Groundwater Analytical Results
Attachment 1	Soil Boring/Well Completion Diagrams
Attachment 2	Laboratory Analytical Reports

FIGURES

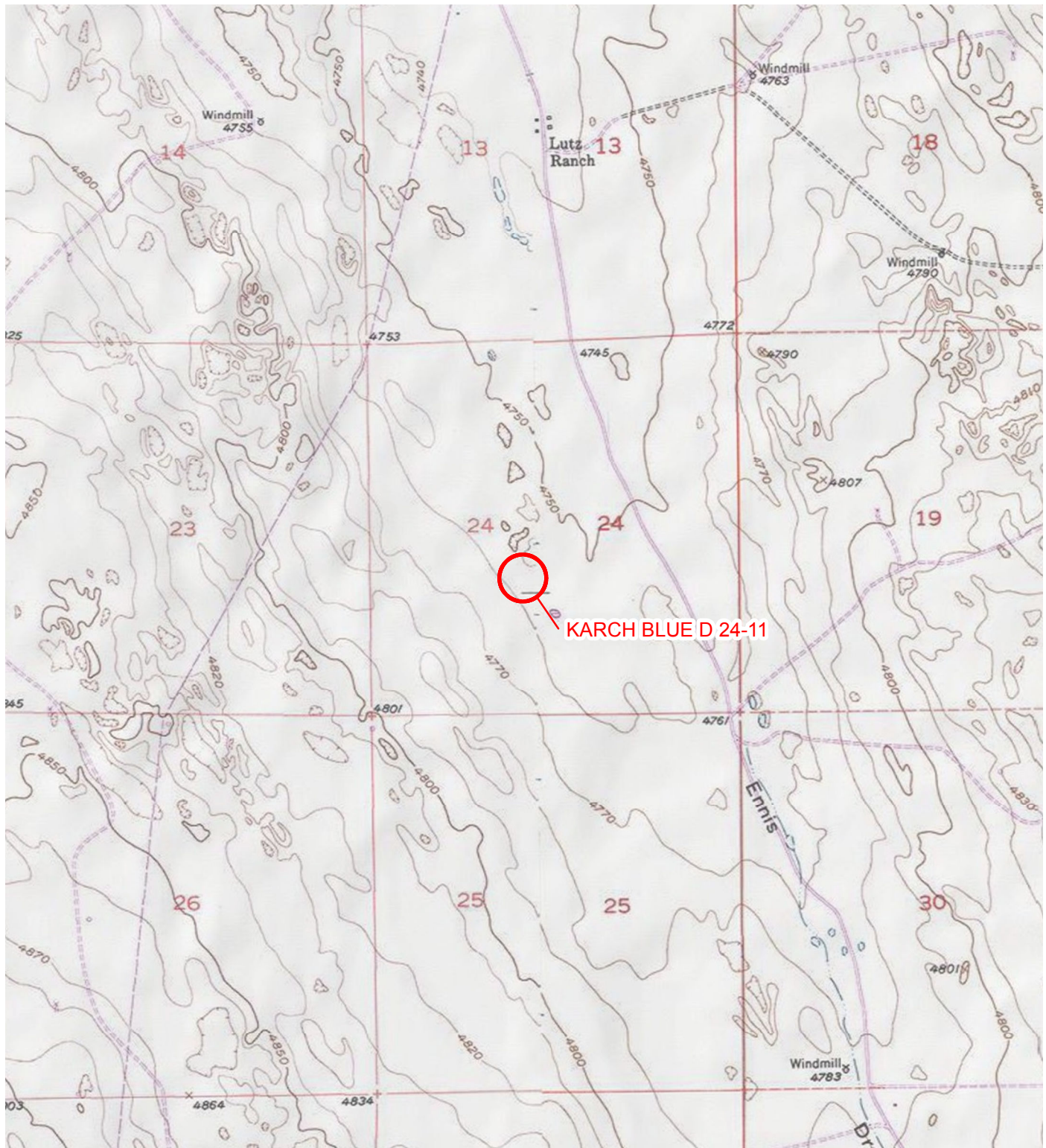


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SITE LOCATION

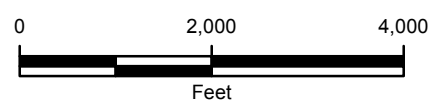


FIGURE 1
SITE LOCATION MAP
KARCH BLUE D 24-11
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- X RELEASE
- ⊗ SOIL BORING/MONITORING WELL
- SOIL BORING
- FLOW LINE
- A - A' GEOLOGIC CROSS SECTION

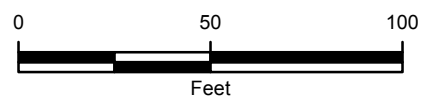
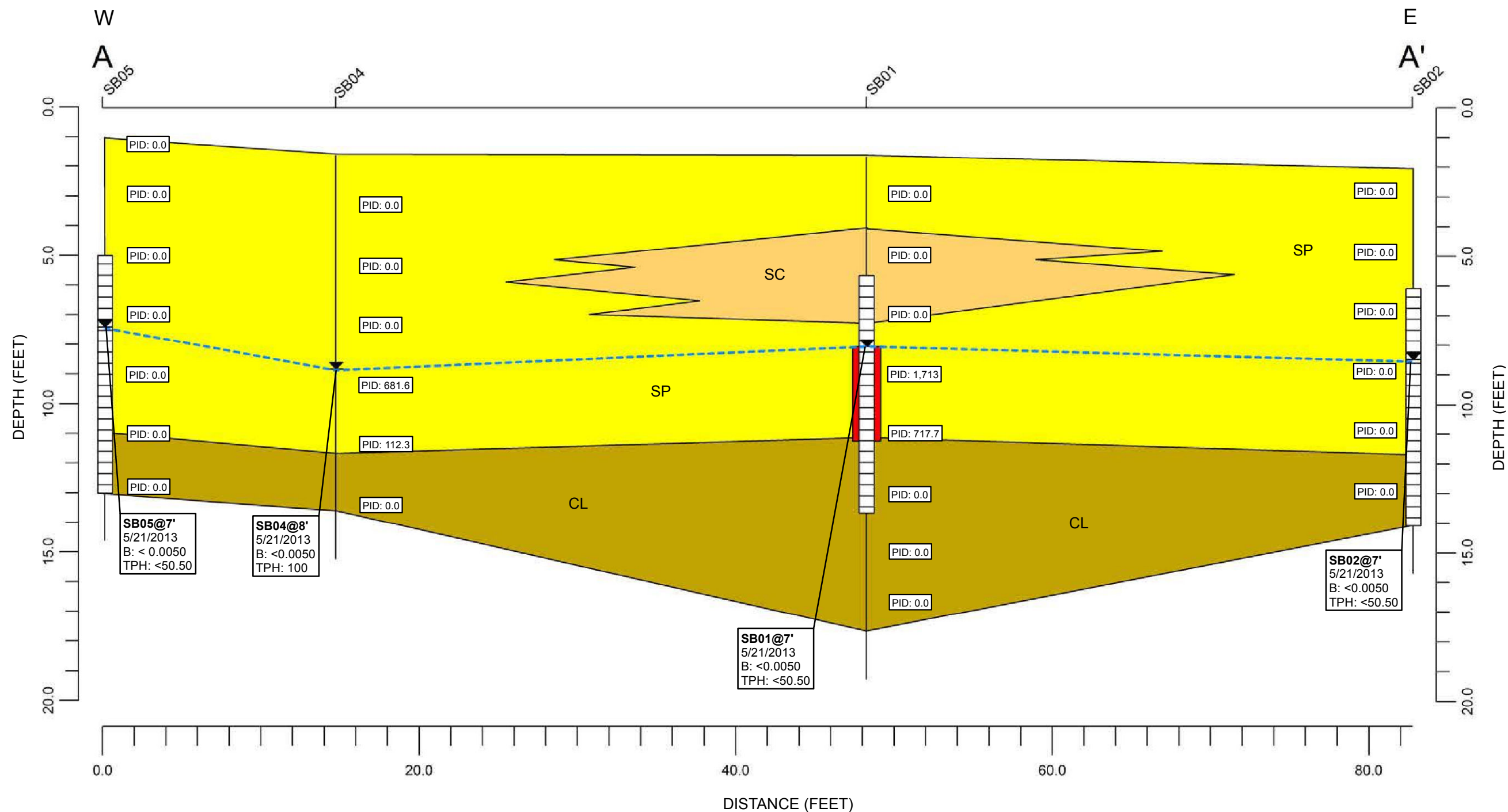





FIGURE 2
SITE MAP
KARCH BLUE D 24-11
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.









LEGEND

 SCREENED INTERVAL
 GROUNDWATER ELEVATION DURING SAMPLING
 APPROXIMATE GROUNDWATER ELEVATION
 PID: PHOTO-IONIZATION DETECTOR READING FROM SOIL SAMPLE
 VERTICAL SCALE: 1" = 3.75'
 HORIZONTAL SCALE: 1" = 7'

LITHOLOGY INDEX

 POORLY GRADED SANDS (SP)
 CLAYEY SAND (SC)
 INORGANIC CLAYS (CL)
 SOIL STAINING

SAMPLE ID
 SAMPLE DATE
 B: BENZENE (mg/kg)
 TPH: TOTAL PETROLEUM HYDROCARBONS (mg/kg)
 <: INDICATES RESULT IS LESS THAN
 THE LABORATORY REPORTING LIMIT

FIGURE 3
 GEOLOGIC CROSS SECTION
 KARCH BLUE D 24-11
 WELD COUNTY, COLORADO

NOBLE ENERGY, INC.



RANGELAND

RANGELAND

*SB08 WAS NOT USED FOR GENERATING
RELATIVE GROUNDWATER ELEVATION
CONTOURS DURING THIS SAMPLING EVENT.

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND



RELEASE



SOIL BORING/MONITORING WELL



SOIL BORING



ESTIMATED GROUNDWATER FLOW DIRECTION

— FLOW LINE

— RELATIVE GROUNDWATER ELVATION CONTOUR
CONTOUR INTERVAL = 0.25 FEET
GRADIENT = 0.017 FT/FT

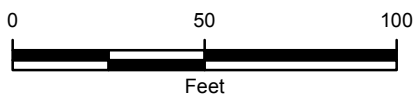
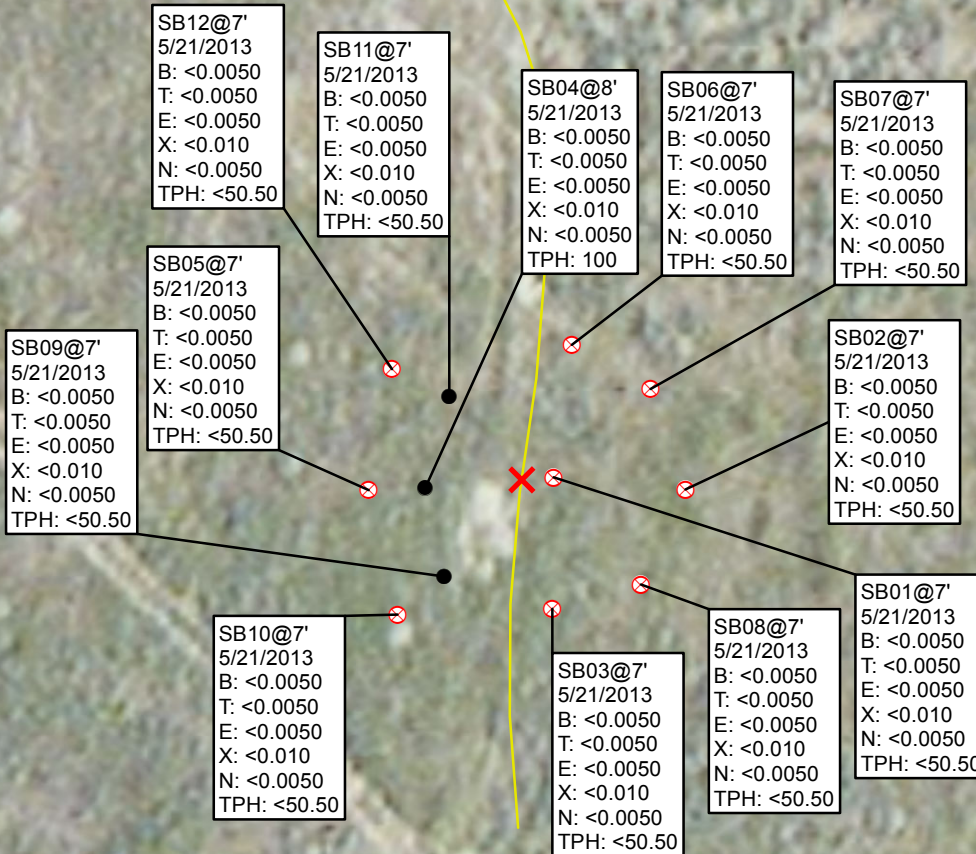


FIGURE 4
RELATIVE GROUNDWATER ELEVATION MAP
MAY 23, 2013
KARCH BLUE D 24-11
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.



RANGELAND



RANGELAND

SAMPLE ID
SAMPLE DATE
B: BENZENE (mg/kg)
T: TOLUENE (mg/kg)
E: ETHYLBENZENE (mg/kg)
X: TOTAL XYLENES (mg/kg)
N: NAPHALENE (mg/kg)
TPH: TOTAL PETROLEUM HYDROCARBONS (mg/kg)
<: INDICATES RESULT IS LESS THAN THE
LABORATORY REPORTING LIMIT

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- X RELEASE
- ⊗ SOIL BORING/MONITORING WELL
- SOIL BORING
- FLOW LINE

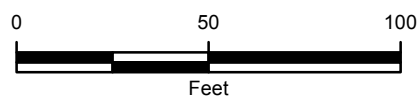
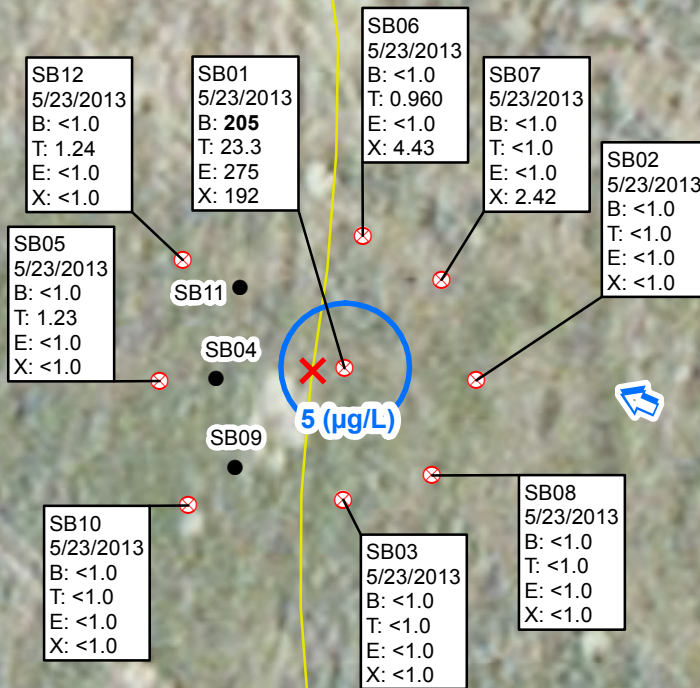


FIGURE 5
SOIL ANALYTICAL RESULTS
KARCH BLUE D 24-11
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.



RANGELAND



5 (µg/L)

RANGELAND

SAMPLE ID
 SAMPLE DATE
 B: BENZENE IN MICROGRAMS PER LITER (µg/L)
 T: TOLUENE (µg/L)
 E: ETHYLBENZENE (µg/L)
 X: TOTAL XYLENES (µg/L)
 <: INDICATES RESULT IS LESS THAN THE
 LABORATORY REPORTING LIMIT
**BOLD: INDICATES RESULT EXCEEDS THE
 APPLICABLE STANDARD**

LEGEND



RELEASE



SOIL BORING/MONITORING WELL



SOIL BORING



ESTIMATED GROUNDWATER FLOW DIRECTION

— FLOW LINE

— BENZENE ISOCONCENTRATION CONTOUR

IMAGE COURTESY OF ESRI/BING MAPS

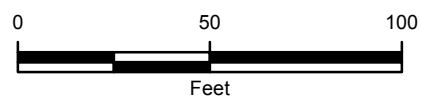


FIGURE 6
 GROUNDWATER ANALYTICAL RESULTS
 KARCH BLUE D 24-11
 WELD COUNTY, COLORADO

NOBLE ENERGY, INC.



TABLES

TABLE 1

SOIL ANALYTICAL RESULTS
KARCH BLUE D 24-11
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Soil Sample	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)
SB01@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB02@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB03@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB04@8'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	100	100
SB05@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB06@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB07@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB08@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB09@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB10@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB11@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
SB12@7'	5/21/2013	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.50	<50	<50.50
COGCC Table 910-1 Standard		0.17	85	100	175	23	--	--	500

NOTES:

mg/kg - milligrams per kilogram

GRO - gasoline range organics analyzed by EPA Modified Method 8260B

DRO - diesel range organics analyzed by EPA Modified Method 8015

TPH- total petroleum hydrocarbons

TPH is the sum of GRO and DRO

< - indicates result is less than the stated laboratory method reporting limit

COGCC - Colorado Oil and Gas Conservation Commission

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
KARCH BLUE D 24-11
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Monitoring Well	Date	Depth to Water (feet btoc)	Relative Groundwater Elevation (feet btoc)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
SB01	5/23/2013	7.62	87.32	205	23.3	275	192
SB02	5/23/2013	6.98	87.41	<1.0	<1.0	<1.0	<1.0
SB03	5/23/2013	7.15	87.64	<1.0	<1.0	<1.0	<1.0
SB05	5/23/2013	8.43	87.35	<1.0	1.23	<1.0	<1.0
SB06	5/23/2013	7.91	87.07	<1.0	0.960	<1.0	4.43
SB07	5/23/2013	7.33	87.23	<1.0	<1.0	<1.0	2.42
SB08	5/23/2013	7.33	87.41	<1.0	<1.0	<1.0	<1.0
SB10	5/23/2013	7.80	87.57	<1.0	<1.0	<1.0	<1.0
SB12	5/23/2013	8.37	87.24	<1.0	1.24	<1.0	<1.0
CDPHE WQCC Reg 41				5	560	700	1,400

NOTES:

btoc - below top of casing

µg/L - micrograms per liter

< - indicates result is less than the stated laboratory method reporting limit

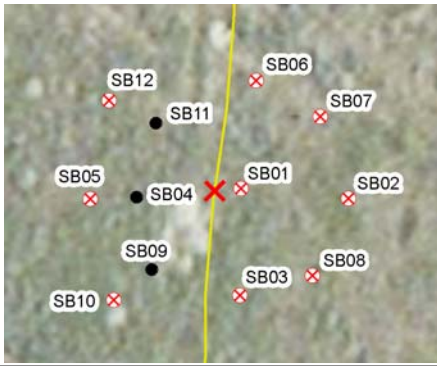
BOLD - indicates result exceeds the applicable standard

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260C

CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment-Water Quality

Control Commission Regulation 41 covering the Basic Standards for Ground Water

ATTACHMENT 1
SOIL BORING/WELL COMPLETION DIAGRAMS

Location Map


Compliance • Engineering • Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003
BORING LOG/MONITORING WELL COMPLETION DIAGRAM
BORING/WELL NO.: SB01

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: SCH. 40 PVC

SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: 1"

SCREEN SLOT: 0.010"

TD: 20' **DTW:** 8'

GROUT: Concrete

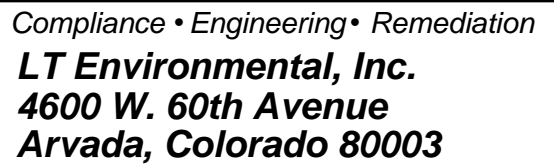
CASING LENGTH: 5'

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0				0	SP		SP: Sand - 0'-3' - fine grained, dry, medium brown, poorly graded, no odor	
		0.0			5/5		SC		SC: Clayey Sand - 3'-7' - fine grained, dry, light brown, no odor	
		0.0				5				
		0.0			5/5		SP		SP: Sand - 7'-12' - fine grained, dry, wet @8', light brown, poorly graded, odor from 8'-12'	
	Wet	1,713		SB01 @7'						
		717.7				10				
					5/5		CL		CL: Sandy Clay - 12'-15' - moist, medium brown turning to olive with rust lenses, high cohesion, high plasticity, no odor	
	Moist	0.0				15				
		0.0			5/5		CL		CL: Claystone - 15'-20' - dry, olive-rust with yellow mottles, moderate-high cohesion, moderate-high plasticity, no odor	
	Dry	0.0				20				
		0.0								
		0.0								
									Backfilled to 15' Flush Mount	

Location Map

The map shows a central road (yellow line) with 12 sampling points (SB01-SB12) distributed around it. SB01, SB04, and SB06 are marked with red 'X's, while SB02, SB03, SB05, SB07, SB08, SB09, SB10, SB11, and SB12 are marked with black dots. A north arrow is located in the bottom right corner.



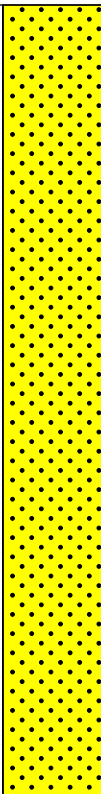
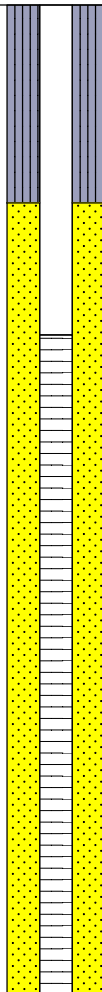

BORING/WELL NO.: SB02
DATE: 5/21/13
LOGGED BY: Chris Roy
DRILL MTHD: Direct Push

PROJECT:Karch Blue D 24-11
PROJECT NO.: 008313023
DRILLED BY: Site Services
SAMPLE MTHD: Continuous

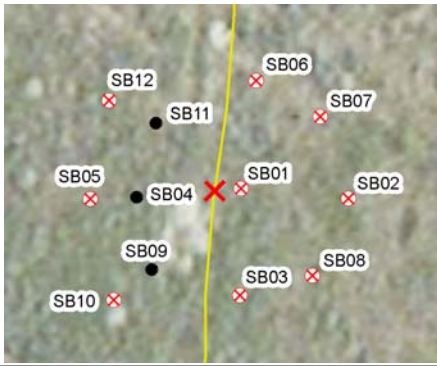
SCREEN TYPE: SCH. 40 PVC

SCREEN SLOT: 0.010"

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction	
	Dry	0.0		SB02 @ 7'	5/5	0	SP		SP: Sand - 0'-12' - fine grained, dry, wet @8', medium brown, poorly graded, no odor		
		0.0									
		0.0									
		0.0									
		0.0									
		0.0									
		Wet	0.0			5/5	5	CL			CL: Sandy Clay - 12'-15' - moist, rust-brown, high cohesion, high plasticity, no odor
		0.0									
		0.0									
		0.0									
		0.0									
		0.0									
	Moist	0.0		5/5	10			Flushmount			
	0.0				15						

Location Map



Compliance • Engineering • Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: SB03
DATE: 5/21/13
LOGGED BY: Chris Roy
DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11
PROJECT NO.: 008313023
DRILLED BY: Site Services
SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: SCH. 40 PVC

SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: 1"

SCREEN SLOT: 0.010"

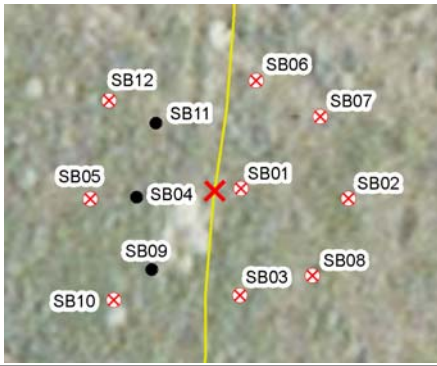
TD: 15' **DTW:** 7.5'

GROUT: Concrete

CASING LENGTH: 5'

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-10' - fine grained, dry, wet @7.5', medium brown and olive, poorly graded, no odor	
		0.0								
		0.0								
		0.0				5				
		0.0								
	Wet	0.0		SB03 @7'	5/5					
		0.0								
		0.0								
		0.0				10	CL		CL: Sandy Clay - 10'-15' - wet, moist @12', medium brown turning light brown, high cohesion, high plasticity, no odor	
		0.0								
	Moist	0.0			5/5					
		0.0								
		0.0								
		0.0				15			Flushmount	

Location Map


Compliance • Engineering • Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003
BORING LOG/MONITORING WELL COMPLETION DIAGRAM
BORING/WELL NO.: SB04

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: None

SCREEN TYPE: None

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: NA

SCREEN SLOT: NA

TD: 15' **DTW:** 9'

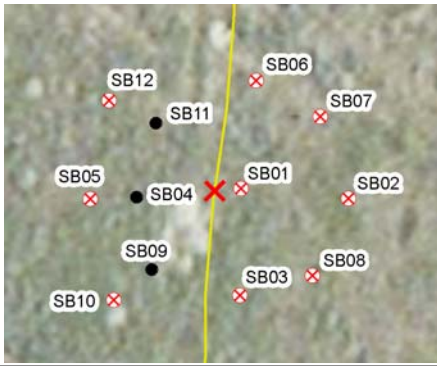
GROUT: None

CASING LENGTH: NA

SCREEN LENGTH: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-12.5' - fine grained, intermittent clay layers, dry, wet @9', medium brown turning to olive, poorly graded, odor from 10'-11'	
		0.0								
		0.0				5				
		0.0		SB04 @8'	5/5					
	Wet	681.6				10				
		112.3								
					5/5		CL		CL: Sandy Clay - 12.5'-15' - moist, light brown-yellow, high cohesion, high plasticity, no odor	
	Moist	0.0				15				
		0.0								

Location Map



Compliance • Engineering • Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: SB05

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: SCH. 40 PVC

SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: 1"

SCREEN SLOT: 0.010"

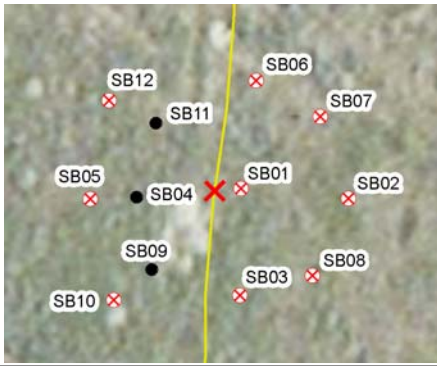
TD: 15' **DTW:** 8'

GROUT: Concrete

CASING LENGTH: 5'

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-12.5' - fine grained, dry, wet @8', medium brown, poorly graded, no odor	
		0.0								
		0.0								
		0.0				5				
		0.0		SB05 @7'	5/5					
	Wet	0.0								
		0.0								
		0.0				10				
		0.0								
		0.0			5/5		CL		CL: Sandy Clay - 12.5'-15' - moist, medium to light brown with white crystalline mottles, high cohesion, high plasticity, no odor	
	Moist	0.0								
		0.0								
		0.0				15			Flushmount	

Location Map


Compliance • Engineering • Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003
BORING LOG/MONITORING WELL COMPLETION DIAGRAM
BORING/WELL NO.: SB06

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: SCH. 40 PVC

SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: 1"

SCREEN SLOT: 0.010"

TD: 15' **DTW:** 8'

GROUT: Concrete

CASING LENGTH: 5'

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-3.5' - fine grained, dry, medium brown, poorly graded, no odor	
		0.0					SC		SC: Clayey Sand - 3.5'-5' - dry, light brown, low-moderate cohesion, moderate plasticity, no odor	
		0.0		SB06 @ 7'		5	SP		SP: Sand - 5'-11.5' - fine grained, dry, wet @ 8', medium brown, poorly graded, no odor	
	Wet	0.0			5/5					
		0.0				10	CL		CL: Sandy Clay - 11.5'-15' - moist, medium brown, high cohesion, high plasticity, no odor	
	Moist	0.0			5/5					
		0.0				15			Flushmount	

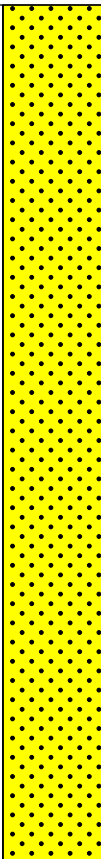
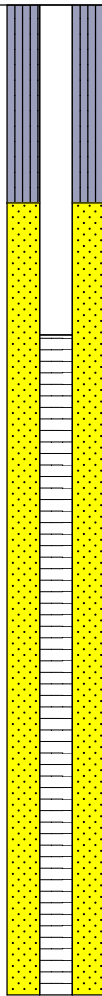

Location Map

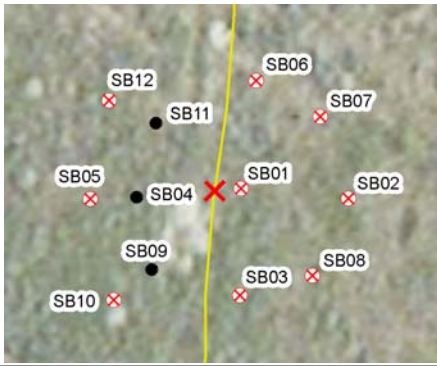
The map shows a yellow road running vertically. Sampling points are distributed on both sides of the road. SB01, SB02, SB03, SB04, SB05, SB06, SB07, SB08, SB09, and SB10 are marked with red 'X's. SB11 and SB12 are marked with black dots. A north arrow is located in the bottom right corner of the map.



PROJECT:Karch Blue D 24-11
PROJECT NO.: 008313023
DRILLED BY: Site Services
SAMPLE MTHD: Continuous

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction		
	Dry	0.0		SB07 @ 7'	5/5	0	SP		SP: Sand - 0'-13' - fine grained, intermittent layers of clayey sand, dry, wet @8', medium brown, poorly graded, no odor			
		0.0										
		0.0										
		0.0										
		0.0										
		Wet	0.0			5/5	5	CL			CL: Sandy Clay - 13'-15' - moist, light brown with white mottles, high cohesion, high plasticity, no odor	
		0.0										
		0.0										
		0.0										
		0.0										
		Moist	0.0			5/5	10					
			0.0									
		0.0										
		0.0				15			Flushmount			

Location Map


Compliance • Engineering • Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003
BORING LOG/MONITORING WELL COMPLETION DIAGRAM
BORING/WELL NO.: SB08

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: SCH. 40 PVC

SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: 1"

SCREEN SLOT: 0.010"

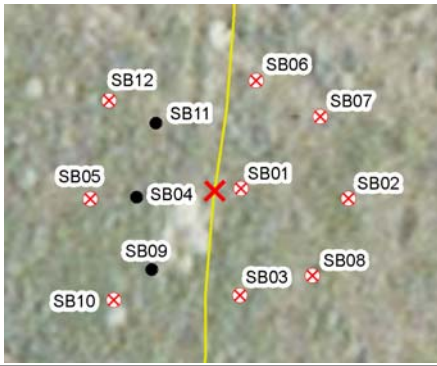
TD: 15' **DTW:** 7.5'

GROUT: Concrete

CASING LENGTH: 5'

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-13' - fine grained, dry, wet @ 7.5', medium brown, poorly graded, no odor	
		0.0								
		0.0								
		0.0				5				
		0.0		SB08 @ 7'						
		0.0			5/5					
	Wet	0.0								
		0.0								
		0.0				10				
		0.0								
		0.0			5/5					
		0.0					CL		CL: Sandy Clay - 13'-15' - moist, tan to light brown with white mottles, high cohesion, high plasticity, no odor	
	Moist	0.0								
		0.0				15			Flushmount	
		0.0								

Location Map


Compliance • Engineering • Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003
BORING LOG/MONITORING WELL COMPLETION DIAGRAM
BORING/WELL NO.: SB09

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: None

SCREEN TYPE: None

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: NA

SCREEN SLOT: NA

TD: 15' **DTW:** 8'

GROUT: None

CASING LENGTH: NA

SCREEN LENGTH: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-12.5' - fine grained, dry, wet @8', dark brown turning to light brown, poorly graded, slight odor from 10'-11'	
		0.0								
		0.0				5				
		0.0		SB09 @7'	5/5					
	Wet	399.7				10				
		487.0								
					5/5		CL		CL: Sandy Clay - 12.5'-15' - moist, medium brown, high cohesion, high plasticity, no odor	
	Moist	0.0				15				
		0.0								

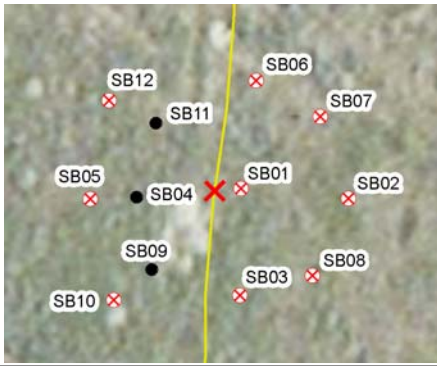
Location Map

The map shows a central road (yellow line) with sampling points SB01 through SB12. SB01, SB02, SB03, SB04, SB05, SB06, SB07, SB08, SB09, SB10, SB11, and SB12 are marked with red 'X's. SB01, SB02, SB03, SB04, SB05, SB06, SB07, SB08, SB09, SB10, SB11, and SB12 are marked with black dots. A north arrow is located in the bottom right corner.



Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0 0.0 0.0 0.0			5/5	0	SP		SP: Sand - 0'-11' - fine grained, dry, wet @8', medium brown turning to olive, poorly graded, no odor	
	Wet	0.0		SB10 @7'	5/5	5				
	Moist	0.0 0.0 0.0			5/5	10	CL		CL: Sandy Clay - 11'-15' - moist, olive, high cohesion, high plasticity, no odor	
						15			Flushmount	

Location Map



Compliance • Engineering • Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: SB11

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: None

SCREEN TYPE: None

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: NA

SCREEN SLOT: NA

TD: 15' **DTW:** 8'

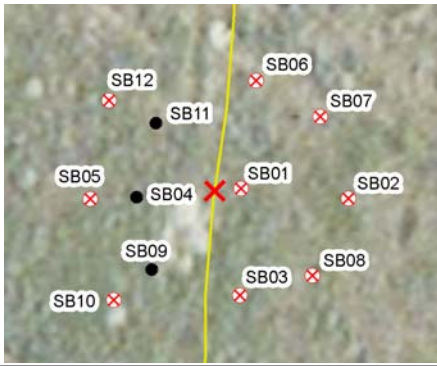
GROUT: None

CASING LENGTH: NA

SCREEN LENGTH: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-12.5' - fine grained, dry, wet @8', medium brown, poorly graded, slight odor from 9.5'-10'	
		0.0								
		0.0				5				
		0.0		SB11 @7'	5/5					
	Wet	460.2				10				
		0.0								
	Moist	0.0			5/5		CL		CL: Sandy Clay - 12.5'-15' - moist, light brown, high cohesion, high plasticity, no odor	
		0.0				15			Flushmount	

Location Map



Compliance • Engineering • Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: SB12

DATE: 5/21/13

LOGGED BY: Chris Roy

DRILL MTHD: Direct Push

PROJECT: Karch Blue D 24-11

PROJECT NO.: 008313023

DRILLED BY: Site Services

SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000

GRAVEL PACK: 10-20 Silica Sand

CASING TYPE: SCH. 40 PVC

SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"

SEAL: Bent. Chips

CASING DIA.: 1"

SCREEN SLOT: 0.010"

TD: 15' **DTW:** 8'

GROUT: Concrete

CASING LENGTH: 5'

SCREEN LENGTH: 10'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
	Dry	0.0			5/5	0	SP		SP: Sand - 0'-5' - fine grained, dry, rust-brown, poorly graded, no odor	
		0.0								
		0.0								
		0.0				5	SC		SC: Clayey Sand - 5'-7.5' - dry, tan and olive-brown, no odor	
		0.0		SB12 @ 7'	5/5					
	Wet	0.0					SP		SP: Sand - 7.5'-12.5' - fine grained, dry, wet @ 8', olivet-brown, poorly graded, no odor	
		0.0								
		0.0				10				
		0.0								
	Moist	0.0			5/5		CL		CL: Sandy Clay - 12.5'-15' - moist, light brown, high cohesion, high plasticity, no odor	
		0.0								
		0.0				15			Flushmount	

ATTACHMENT 2
LABORATORY ANALYTICAL REPORTS



May 30, 2013

LT Environmental, Inc.

Chris Roy

4600 West 60th Avenue

Arvada CO 80003

Project Name - Noble - Karch Blue 24-11

Project Number - 008313023

Attached are you analytical results for Noble - Karch Blue 24-11 received by Origins Laboratory, Inc. May 23, 2013. This project is associated with Origins project number X305130-01.

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01	X305130-01	Water	May 23, 2013 12:30	05/23/2013 14:45
SB02	X305130-02	Water	May 23, 2013 12:00	05/23/2013 14:45
SB03	X305130-03	Water	May 23, 2013 12:15	05/23/2013 14:45
SB05	X305130-04	Water	May 23, 2013 13:45	05/23/2013 14:45
SB06	X305130-05	Water	May 23, 2013 13:15	05/23/2013 14:45
SB07	X305130-06	Water	May 23, 2013 13:30	05/23/2013 14:45
SB08	X305130-07	Water	May 23, 2013 14:00	05/23/2013 14:45
SB10	X305130-08	Water	May 23, 2013 13:00	05/23/2013 14:45
SB12	X305130-09	Water	May 23, 2013 12:45	05/23/2013 14:45

Origins Laboratory, Inc.



Noelle E Doyle, President

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

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

www.originslaboratory.com

page 1 of 1

X305130

ORIGINS

LABORATORY, INC

Client: LT
Address: 4600 W. 60th Ave.
Telephone Number: 303-433-9788
Email Address: C.Roy@Henvu.com

Project Manager: Chris Roy
Project Name: Karch Blue 24-11
Project Number: 008313023
Samples Collected By: Vegan Krutzbergel

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other			
S801	5/23/13	12:30	3	X				X						1
S802	5/23/13	12:00	3	X				X						2
S803	5/23/13	12:15	3	X				X						3
S805	5/23/13	13:45	3	X				X						4
S806	5/23/13	13:45	3	X				X						5
S807	5/23/13	13:30	3	X				X						6
S808	5/23/13	14:00	3	X				X						7
S810	5/23/13	13:00	3	X				X						8
S812	5/23/13	12:45	3	X				X						9
														10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<u>Chris Roy</u>	<u>5/23/13</u>	<u>14:45</u>	<u>[Signature]</u>	<u>5/23/13</u>	<u>14:45</u>	Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>

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

Origins Laboratory, Inc.

Noelle E Doyle, President

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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X305130

Client: LTE

Client Project ID: Karch Blue 24-11

Checklist Completed by: Jeff Smith

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

Date/time completed: 5/23/13 14:40

Airbill #: NA

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

Cooler Number/Temperature: 14.4 °C 1 °C 1 °C 1 °C

Thermometer ID: T002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)		X		Samples will be analyzed within 7 Days of collection
Additional Comments (if any):				

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

Reviewed by (Project Manager)

Date/Time Reviewed

Origins Laboratory, Inc.

Noelle E Doyle, President

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

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

SB01

5/23/2013 12:30:00PM

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

Origins Laboratory, Inc.
X305130-01 (Water)

BTEX by EPA 8260C

Benzene	205	50.0	ug/L	50	3E24006	05/24/2013	05/30/2013
Toluene	23.3	1.0	"	1	"	"	05/28/2013
Ethylbenzene	275	50.0	"	50	"	"	05/30/2013
Xylenes, total	192	1.0	"	1	"	"	05/28/2013

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

98.8 % 84-121
99.9 % 85-115
94.6 % 84-114

" " "
" " "
" " "

Origins Laboratory, Inc.



Noelle E Doyle, President

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

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

SB02**5/23/2013 12:00:00PM**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.
X305130-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/30/2013
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	103 %	84-121	"	"	05/28/2013
Surrogate: Toluene-d8	97.1 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	95.7 %	84-114	"	"	"

Origins Laboratory, Inc.



Noelle E Doyle, President

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

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

SB03**5/23/2013 12:15:00PM**

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

Origins Laboratory, Inc.
X305130-03 (Water)**BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/28/2013
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

102 % 84-121
97.1 % 85-115
96.2 % 84-114

" " "
" " "
" " "

Origins Laboratory, Inc.



Noelle E Doyle, President

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

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

SB05

5/23/2013 1:45:00PM

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

Origins Laboratory, Inc.
X305130-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/28/2013
Toluene	1.23	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	115 %	84-121			"	"	05/30/2013
Surrogate: Toluene-d8	95.4 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	108 %	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.

Noelle E Doyle, President

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

SB06

5/23/2013 1:15:00PM

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

Origins Laboratory, Inc.
X305130-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/28/2013
Toluene	0.960	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	4.43	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"
Surrogate: Toluene-d8	97.0 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	96.2 %	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.

Noelle E Doyle, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

SB07

5/23/2013 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X305130-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/28/2013
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	2.42	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"
Surrogate: Toluene-d8	98.0 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	97.8 %	84-114			"	"	"

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

SB08

5/23/2013 2:00:00PM

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.
X305130-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/28/2013
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121	"	"	"
Surrogate: Toluene-d8	97.5 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	97.5 %	84-114	"	"	"

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

SB10

5/23/2013 1:00:00PM

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.
X305130-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/28/2013
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	102 %	84-121	"	"	"
Surrogate: Toluene-d8	97.8 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	97.4 %	84-114	"	"	"

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

SB12**5/23/2013 12:45:00PM**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.
X305130-09 (Water)**BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	3E24006	05/24/2013	05/28/2013
Toluene	1.24	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121	"	"	"
Surrogate: Toluene-d8	97.9 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	97.4 %	84-114	"	"	"

Origins Laboratory, Inc.



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Noelle E Doyle, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

Blank (3E24006-BLK1)

Prepared: 05/24/2013 Analyzed: 05/24/2013

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5	101		84-121			
Surrogate: Toluene-d8	61		"	62.5	97.8		85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	97.8		84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

Blank (3E24006-BLK2)

Prepared: 05/24/2013 Analyzed: 05/24/2013

Benzene	ND	1.0	ug/L
Toluene	ND	1.0	"
Ethylbenzene	ND	1.0	"
Xylenes, total	ND	1.0	"

Surrogate: 1,2-Dichloroethane-d4	63	"	62.5	101	84-121
Surrogate: Toluene-d8	62	"	62.5	98.8	85-115
Surrogate: 4-Bromofluorobenzene	61	"	62.5	97.4	84-114

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4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

LCS (3E24006-BS1)

Prepared: 05/24/2013 Analyzed: 05/24/2013

Benzene	103	1.0	ug/L	100	103	74-130
Toluene	101	1.0	"	100	101	76-128
Ethylbenzene	106	1.0	"	100	106	78-130
m,p-Xylene	207	2.0	"	200	104	75-134
o-Xylene	102	1.0	"	100	102	76-129
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5	96.2	84-121
Surrogate: Toluene-d8	61		"	62.5	97.6	85-115
Surrogate: 4-Bromofluorobenzene	62		"	62.5	98.7	84-114

Origins Laboratory, Inc.



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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

LCS (3E24006-BS2)

Prepared: 05/24/2013 Analyzed: 05/24/2013

Benzene	95.8	1.0	ug/L	100		95.8	74-130			
Toluene	94.2	1.0	"	100		94.2	76-128			
Ethylbenzene	97.1	1.0	"	100		97.1	78-130			
m,p-Xylene	191	2.0	"	200		95.6	75-134			
o-Xylene	97.1	1.0	"	100		97.1	76-129			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		98.4	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.0	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.0	84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

Matrix Spike (3E24006-MS1)		Source: X305125-11			Prepared: 05/24/2013 Analyzed: 05/24/2013					
Benzene	99.6	1.0	ug/L	100	ND	99.6	74-130			
Toluene	96.4	1.0	"	100	ND	96.4	73-131			
Ethylbenzene	99.6	1.0	"	100	ND	99.6	76-132			
m,p-Xylene	124	2.0	"	200	0.2	62.1	69-139			QM-05
o-Xylene	94.7	1.0	"	100	ND	94.7	74-131			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.0	84-121			
Surrogate: Toluene-d8	61		"	62.5		98.4	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.0	84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

Matrix Spike (3E24006-MS2)		Source: X305125-12			Prepared: 05/24/2013 Analyzed: 05/24/2013					
Benzene	97.2	1.0	ug/L	100	ND	97.2	74-130			
Toluene	95.6	1.0	"	100	ND	95.6	73-131			
Ethylbenzene	100	1.0	"	100	ND	100	76-132			
m,p-Xylene	197	2.0	"	200	ND	98.5	69-139			
o-Xylene	98.5	1.0	"	100	ND	98.5	74-131			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		98.9	84-121			
Surrogate: Toluene-d8	61		"	62.5		98.1	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.5	84-114			

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Noelle E Doyle, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

Matrix Spike Dup (3E24006-MSD1)		Source: X305125-11			Prepared: 05/24/2013 Analyzed: 05/24/2013					
Benzene	97.1	1.0	ug/L	100	ND	97.1	74-130	2.54	20	
Toluene	94.7	1.0	"	100	ND	94.7	73-131	1.79	20	
Ethylbenzene	98.9	1.0	"	100	ND	98.9	76-132	0.655	20	
m,p-Xylene	113	2.0	"	200	0.2	56.5	69-139	9.36	20	QM-05
o-Xylene	93.2	1.0	"	100	ND	93.2	74-131	1.60	20	
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		98.6	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.0	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	84-114			

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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: 008313023

Project: Noble - Karch Blue 24-11

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 3E24006 - EPA 5030B (Water)

Matrix Spike Dup (3E24006-MSD2)		Source: X305125-12			Prepared: 05/24/2013 Analyzed: 05/24/2013					
Benzene	98.0	1.0	ug/L	100	ND	98.0	74-130	0.850	20	
Toluene	95.2	1.0	"	100	ND	95.2	73-131	0.377	20	
Ethylbenzene	99.0	1.0	"	100	ND	99.0	76-132	1.46	20	
m,p-Xylene	195	2.0	"	200	ND	97.5	69-139	1.08	20	
o-Xylene	97.6	1.0	"	100	ND	97.6	74-131	0.948	20	
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		100	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.0	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.9	84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
Project Number: 008313023
Project: Noble - Karch Blue 24-11

Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

Origins Laboratory, Inc.



Noelle E Doyle, President

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Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 28, 2013

Rob Rebel

LT Environmental, Inc.

4600 West 60th Avenue

Arvada, CO 80003

RE: NEP - Karch Blue D 24-11

Enclosed are the results of analyses for samples received by Summit Scientific on 05/22/13 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV

Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

Summit Scientific is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.



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

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@7'	R305224-01	Soil	05/21/13 00:00	05/22/13 17:00
SB02@7'	R305224-02	Soil	05/21/13 00:00	05/22/13 17:00
SB03@7'	R305224-03	Soil	05/21/13 00:00	05/22/13 17:00
SB04@8'	R305224-04	Soil	05/21/13 00:00	05/22/13 17:00
SB05@7'	R305224-05	Soil	05/21/13 00:00	05/22/13 17:00
SB06@7'	R305224-06	Soil	05/21/13 00:00	05/22/13 17:00
SB07@7'	R305224-07	Soil	05/21/13 00:00	05/22/13 17:00
SB08@7'	R305224-08	Soil	05/21/13 00:00	05/22/13 17:00
SB09@7'	R305224-09	Soil	05/21/13 00:00	05/22/13 17:00
SB10@7'	R305224-10	Soil	05/21/13 00:00	05/22/13 17:00
SB11@7'	R305224-11	Soil	05/21/13 00:00	05/22/13 17:00
SB12@7'	R305224-12	Soil	05/21/13 00:00	05/22/13 17:00

Summit Scientific

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

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

Summit Scientific
R305224-1

741 Corporate Circle, Suite 1 • Golden, Colorado 80401
303-277-5910 • 303-277-5931 Fax

Page 12 of 12

Client: LT Environmental, Inc.
Address: 4600 West 60th Avenue
City/State/Zip: Arvada, CO 80003
Phone: (303) 433-9788
Fax: (303) 374-5933
Project Name: Karch Blue D 24-11
Project Number: 0083-13023.001
Sample Name: C. Roy

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative	Matrix	Analyze For	Special Instructions
5601E7	5-21-13		1	HCl	Soil	DTX	
5602E7			1	HNO ₃	Groundwater	DTX	
5603E7			1	None	Other (Specify)	DTX	
5604E7			1		Air - Canister Serial #	DTX	
5605E7			1			DTX	
5606E7			1			DTX	
5607E7			1			DTX	
5608E7			1			DTX	
5609E7			1			DTX	
5610E7			1			DTX	
5611E7			1			DTX	
5612E7			1			DTX	
5613E7			1			DTX	
5614E7			1			DTX	
5615E7			1			DTX	
5616E7			1			DTX	
5617E7			1			DTX	
5618E7			1			DTX	
5619E7			1			DTX	
5620E7			1			DTX	
5621E7			1			DTX	
5622E7			1			DTX	
5623E7			1			DTX	
5624E7			1			DTX	
5625E7			1			DTX	
5626E7			1			DTX	
5627E7			1			DTX	
5628E7			1			DTX	
5629E7			1			DTX	
5630E7			1			DTX	
5631E7			1			DTX	
5632E7			1			DTX	
5633E7			1			DTX	
5634E7			1			DTX	
5635E7			1			DTX	
5636E7			1			DTX	
5637E7			1			DTX	
5638E7			1			DTX	
5639E7			1			DTX	
5640E7			1			DTX	
5641E7			1			DTX	
5642E7			1			DTX	
5643E7			1			DTX	
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5657E7			1			DTX	
5658E7			1			DTX	
5659E7			1			DTX	
5660E7			1			DTX	
5661E7			1			DTX	
5662E7			1			DTX	
5663E7			1			DTX	
5664E7			1			DTX	
5665E7			1			DTX	
5666E7			1			DTX	
5667E7			1			DTX	
5668E7			1			DTX	
5669E7			1			DTX	
5670E7			1			DTX	
5671E7			1			DTX	
5672E7			1			DTX	
5673E7			1			DTX	
5674E7			1			DTX	
5675E7			1			DTX	
5676E7			1			DTX	
5677E7			1			DTX	
5678E7			1			DTX	
5679E7			1			DTX	
5680E7			1			DTX	
5681E7			1			DTX	
5682E7			1			DTX	
5683E7			1			DTX	
5684E7			1			DTX	
5685E7			1			DTX	
5686E7			1			DTX	
5687E7			1			DTX	
5688E7			1			DTX	
5689E7			1			DTX	
5690E7			1			DTX	
5691E7			1			DTX	
5692E7			1			DTX	
5693E7			1			DTX	
5694E7			1			DTX	
5695E7			1			DTX	
5696E7			1			DTX	
5697E7			1			DTX	
5698E7			1			DTX	
5699E7			1			DTX	
5700E7			1			DTX	
5701E7			1			DTX	
5702E7			1			DTX	
5703E7			1			DTX	
5704E7			1			DTX	
5705E7			1			DTX	
5706E7			1			DTX	
5707E7			1			DTX	
5708E7			1			DTX	
5709E7			1			DTX	
5710E7			1			DTX	
5711E7			1			DTX	
5712E7			1			DTX	
5713E7			1			DTX	
5714E7			1			DTX	
5715E7			1			DTX	
5716E7			1			DTX	
5717E7			1			DTX	
5718E7			1			DTX	
5719E7			1			DTX	
5720E7			1			DTX	
5721E7			1			DTX	
5722E7			1			DTX	
5723E7			1			DTX	
5724E7			1			DTX	
5725E7			1			DTX	
5726E7			1			DTX	
5727E7			1			DTX	
5728E7			1			DTX	
5729E7			1			DTX	
5730E7			1			DTX	
5731E7			1			DTX	
5732E7			1			DTX	
5733E7			1			DTX	
5734E7			1			DTX	
5735E7			1			DTX	
5736E7			1			DTX	
5737E7			1			DTX	
5738E7			1			DTX	
5739E7			1			DTX	
5740E7			1			DTX	
5741E7			1			DTX	
5742E7			1			DTX	
5743E7			1			DTX	
5744E7			1			DTX	
5745E7			1			DTX	
5746E7			1			DTX	
5747E7			1			DTX	
5748E7			1			DTX	
5749E7			1			DTX	
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5753E7			1			DTX	
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5756E7			1			DTX	
5757E7			1			DTX	
5758E7			1			DTX	
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5760E7			1			DTX	
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5762E7			1			DTX	
5763E7			1			DTX	
5764E7			1			DTX	
5765E7			1			DTX	
5766E7			1			DTX	
5767E7			1			DTX	
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5769E7			1			DTX	
5770E7			1			DTX	
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5773E7			1			DTX	
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5779E7			1			DTX	
5780E7			1			DTX	
5781E7			1			DTX	
5782E7			1			DTX	
5783E7			1			DTX	
5784E7			1			DTX	
5785E7			1			DTX	
5786E7			1			DTX	
5787E7			1			DTX	
5788E7			1			DTX	
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5796E7			1			DTX	
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5798E7			1			DTX	
5799E7			1			DTX	
5800E7			1			DTX	
5801E7			1			DTX	
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5803E7			1			DTX	
5804E7			1			DTX	
5805E7			1			DTX	
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5807E7			1			DTX	
5808E7			1			DTX	
5809E7			1			DTX	
5810E7			1			DTX	
5811E7			1			DTX	
5812E7			1			DTX	
5813E7			1			DTX	
5814E7			1			DTX	
5815E7			1			DTX	
5816E7			1			DTX	
5817E7			1			DTX	
5818E7			1			DTX	
5819E7			1			DTX	
5820E7			1			DTX	
5821E7			1			DTX	
5822E7			1			DTX	
5823E7			1			DTX	
5824E7			1			DTX	
5825E7			1			DTX	
5826E7			1			DTX	
5827E7			1			DTX	
5828E7			1			DTX	
5829E7			1			DTX	
5830E7			1			DTX	
5831E7			1			DTX	
5832E7			1			DTX	
5833E7			1			DTX	
5834E7			1			DTX	
5835E7			1			DTX	
5836E7			1			DTX	
5837E7			1			DTX	
5838E7			1			DTX	
5839E7			1			DTX	
5840E7			1			DTX	
5841E7			1			DTX	
5842E7			1			DTX	
5843E7			1			DTX	
5844E7	</						

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

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

Summit Scientific

5

741 Corporate Circle Suite 1 ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Client: LT Environmental, Inc.

Address: 4600 West 60th Avenue

City/State/Zip: Arvada, CO 80003

Phone: (303) 433-0788

0016-0024/90/0000-0000\$01.00/0

Sample Name: C-1004

Project Manager: Rob Rebel

E-Mail: rebel@itenv.com

Project Name: Kach Blue D 24-1

Project Number: 1003 12023 001

Project Number: 0082 [2002/01/01]

Page α of α [illegible]

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Carol Myers IV



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

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB01@7'
R305224-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/24/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		93.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		112 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	21-167		"	"	"	"	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB02@7'
R305224-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/24/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.4 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.7 %	21-167		"	"	"	"	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB03@7'
R305224-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/24/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	21-167		"	"	"	"	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB04@8'
R305224-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	100	50	mg/kg	1	3052319	05/23/13	05/24/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %	21-167		"	"	"	"	

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

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB05@7'
R305224-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/24/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.0 %	21-167		"	"	"	"	

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Arvada CO, 80003

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB06@7'
R305224-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/24/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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Arvada CO, 80003

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB07@7'
R305224-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/24/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		85.6 %	21-167		"	"	"	"	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB08@7'
R305224-08 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/25/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

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4600 West 60th Avenue
Arvada CO, 80003

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB09@7'
R305224-09 (Soil)

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Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/25/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB10@7'
R305224-10 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/25/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB11 @7'
R305224-11 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/25/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.1 %	21-167		"	"	"	"	

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Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

SB12@7'
R305224-12 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3052319	05/23/13	05/25/13	8015M	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3052318	05/23/13	05/24/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	21-167		"	"	"	"	

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Project: NEP - Karch Blue D 24-11

Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 3052319 - EPA 3550A

Blank (3052319-BLK1)				Prepared & Analyzed: 05/23/13						
C10-C28 (DRO)	ND	50	mg/kg							
Blank (3052319-BLK2)				Prepared & Analyzed: 05/23/13						
C10-C28 (DRO)	ND	50	mg/kg							
LCS (3052319-BS1)				Prepared: 05/23/13 Analyzed: 05/24/13						
C10-C28 (DRO)	470	50	mg/kg	501		93.9	73-134			
LCS (3052319-BS2)				Prepared: 05/23/13 Analyzed: 05/24/13						
C10-C28 (DRO)	470	50	mg/kg	501		93.8	73-134			
LCS Dup (3052319-BSD1)				Prepared: 05/23/13 Analyzed: 05/24/13						
C10-C28 (DRO)	475	50	mg/kg	501		94.8	73-134	1.00	11	
LCS Dup (3052319-BSD2)				Prepared: 05/23/13 Analyzed: 05/24/13						
C10-C28 (DRO)	478	50	mg/kg	501		95.3	73-134	1.58	11	
Matrix Spike (3052319-MS1)				Source: R305223-03		Prepared: 05/23/13 Analyzed: 05/24/13				
C10-C28 (DRO)	477	50	mg/kg	501	ND	95.2	50-148			
Matrix Spike (3052319-MS2)				Source: R305223-04		Prepared: 05/23/13 Analyzed: 05/24/13				
C10-C28 (DRO)	497	50	mg/kg	501	ND	99.2	50-148			
Matrix Spike Dup (3052319-MSD1)				Source: R305223-03		Prepared: 05/23/13 Analyzed: 05/24/13				
C10-C28 (DRO)	472	50	mg/kg	501	ND	94.2	50-148	1.09	13	
Matrix Spike Dup (3052319-MSD2)				Source: R305223-04		Prepared: 05/23/13 Analyzed: 05/24/13				
C10-C28 (DRO)	510	50	mg/kg	501	ND	102	50-148	2.56	13	

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Project: NEP - Karch Blue D 24-11
Project Number: 0083-13023.001
Project Manager: Rob Rebel

Reported:
05/28/13 15:12

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 3052318 - EPA 5030 Soil MS

Blank (3052318-BLK1)

Prepared & Analyzed: 05/23/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0397	91.1	23-173				
Surrogate: Toluene-d8	0.0392		"	0.0400	98.0	20-170				
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400	101	21-167				

Blank (3052318-BLK2)

Prepared & Analyzed: 05/23/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0387		"	0.0397	97.5	23-173				
Surrogate: Toluene-d8	0.0396		"	0.0400	99.1	20-170				
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400	101	21-167				

LCS (3052318-BS1)

Prepared & Analyzed: 05/23/13

Naphthalene	ND	0.0050	mg/kg			66-138				
Benzene	0.0846	0.0050	"	0.100	84.6	58-130				
Toluene	0.0954	0.0050	"	0.100	95.4	61-134				
Ethylbenzene	0.119	0.0050	"	0.100	119	74-139				
m,p-Xylene	0.225	0.010	"	0.200	112	73-137				
o-Xylene	0.113	0.0050	"	0.100	113	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0354		"	0.0397	89.2	23-173				
Surrogate: Toluene-d8	0.0377		"	0.0400	94.4	20-170				
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400	99.2	21-167				

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Project Manager: Rob Rebel

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05/28/13 15:12

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 3052318 - EPA 5030 Soil MS

LCS (3052318-BS2)

Prepared & Analyzed: 05/23/13

Naphthalene	ND	0.0050	mg/kg				66-138			
Benzene	0.0918	0.0050	"	0.100		91.8	58-130			
Toluene	0.104	0.0050	"	0.100		104	61-134			
Ethylbenzene	0.122	0.0050	"	0.100		122	74-139			
m,p-Xylene	0.232	0.010	"	0.200		116	73-137			
o-Xylene	0.116	0.0050	"	0.100		116	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0397		93.7	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	21-167			

LCS Dup (3052318-BSD1)

Prepared & Analyzed: 05/23/13

Naphthalene	ND	0.0050	mg/kg				66-138		12	
Benzene	0.0927	0.0050	"	0.100		92.7	58-130	9.07	13	
Toluene	0.104	0.0050	"	0.100		104	61-134	8.21	16	
Ethylbenzene	0.122	0.0050	"	0.100		122	74-139	2.39	12	
m,p-Xylene	0.228	0.010	"	0.200		114	73-137	1.68	14	
o-Xylene	0.116	0.0050	"	0.100		116	73-141	2.69	12	
Surrogate: 1,2-Dichloroethane-d4	0.0367		"	0.0397		92.3	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	21-167			

LCS Dup (3052318-BSD2)

Prepared & Analyzed: 05/23/13

Naphthalene	ND	0.0050	mg/kg				66-138		12	
Benzene	0.0914	0.0050	"	0.100		91.4	58-130	0.491	13	
Toluene	0.102	0.0050	"	0.100		102	61-134	0.990	16	
Ethylbenzene	0.122	0.0050	"	0.100		122	74-139	0.368	12	
m,p-Xylene	0.230	0.010	"	0.200		115	73-137	0.818	14	
o-Xylene	0.117	0.0050	"	0.100		117	73-141	0.206	12	
Surrogate: 1,2-Dichloroethane-d4	0.0366		"	0.0397		92.3	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400		97.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 3052318 - EPA 5030 Soil MS

Matrix Spike (3052318-MS1)				Source: R305223-03		Prepared & Analyzed: 05/23/13				
Naphthalene	ND	0.0050	mg/kg		ND		10-158			
Benzene	0.0924	0.0050	"	0.100	0.00	92.4	30-131			
Toluene	0.104	0.0050	"	0.100	0.00	104	30-134			
Ethylbenzene	0.121	0.0050	"	0.100	0.00	121	22-153			
m,p-Xylene	0.229	0.010	"	0.200	0.00	115	10-159			
o-Xylene	0.115	0.0050	"	0.100	0.00	115	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0377		"	0.0397		95.1	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.0	21-167			

Matrix Spike (3052318-MS2)				Source: R305223-04		Prepared & Analyzed: 05/23/13				
Naphthalene	ND	0.0050	mg/kg		ND		10-158			
Benzene	0.0918	0.0050	"	0.100	0.00	91.8	30-131			
Toluene	0.104	0.0050	"	0.100	0.00	104	30-134			
Ethylbenzene	0.122	0.0050	"	0.100	0.00	122	22-153			
m,p-Xylene	0.232	0.010	"	0.200	0.00	116	10-159			
o-Xylene	0.116	0.0050	"	0.100	0.00	116	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0384		"	0.0397		96.7	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		98.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	21-167			

Matrix Spike Dup (3052318-MSD1)				Source: R305223-03		Prepared & Analyzed: 05/23/13				
Naphthalene	ND	0.0050	mg/kg		ND		10-158			42
Benzene	0.0881	0.0050	"	0.100	0.00	88.1	30-131	4.75		34
Toluene	0.101	0.0050	"	0.100	0.00	101	30-134	2.57		30
Ethylbenzene	0.119	0.0050	"	0.100	0.00	119	22-153	2.25		24
m,p-Xylene	0.227	0.010	"	0.200	0.00	113	10-159	1.08		68
o-Xylene	0.115	0.0050	"	0.100	0.00	115	31-151	0.288		38
Surrogate: 1,2-Dichloroethane-d4	0.0382		"	0.0397		96.3	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.0	21-167			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 3052318 - EPA 5030 Soil MS

Matrix Spike Dup (3052318-MSD2)			Source: R305223-04		Prepared & Analyzed: 05/23/13					
Naphthalene	ND	0.0050	mg/kg		ND		10-158		42	
Benzene	0.0939	0.0050	"	0.100	0.00	93.9	30-131	2.26	34	
Toluene	0.107	0.0050	"	0.100	0.00	107	30-134	2.07	30	
Ethylbenzene	0.121	0.0050	"	0.100	0.00	121	22-153	0.814	24	
m,p-Xylene	0.231	0.010	"	0.200	0.00	115	10-159	0.662	68	
o-Xylene	0.116	0.0050	"	0.100	0.00	116	31-151	0.155	38	
Surrogate: 1,2-Dichloroethane-d4	0.0393		"	0.0397		98.9	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.0	21-167			

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05/28/13 15:12

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

A handwritten signature in black ink, appearing to read 'Rob Rebel IV'.