



## **GROUNDWATER MONITORING REPORT NOVEMBER 2014**

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### **KARCH BLUE D 24-11 FLOW LINE COGCC TRACKING #2232915**

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), conducted groundwater monitoring activities at the Karch Blue D 24-11 Flow Line (Site). The Site is located approximately 1.6 miles south of County Road 34 and 3.4 miles east of County Road 53 in Weld County, Colorado. The legal site description is the northeast quarter of the southwest quarter of Section 24, Township 3 North, Range 64 West, 6<sup>th</sup> Principal Meridian. The Site Location Map is included as Figure 1.

Soil borings SB01 through SB12 were advanced on May 21, 2013. Soil borings SB01, SB02, SB03, SB05, SB06, SB07, SB08, SB10, and SB12 were completed as temporary groundwater monitoring wells to delineate the extent of dissolved-phase petroleum hydrocarbon impact. The current monitoring program includes one source monitoring well (SB01), one upgradient monitoring well (SB03), and two downgradient monitoring wells (SB06 and SB12).

On November 7, 2014, under the direction of Noble, LTE personnel collected a total of four groundwater samples from monitoring wells SB01, SB03, SB06, and SB12. Prior to purging, depth to groundwater was measured and recorded to calculate well-specific target purge volumes and relative groundwater elevations. During the November 2014 monitoring event, depth to groundwater ranged from 7.63 feet below top of casing (btoc) in monitoring well SB03 to 8.94 feet btoc in monitoring well SB12. Groundwater was calculated to flow north with an average hydraulic gradient of 0.013 feet per foot. Relative groundwater elevations are presented on Figure 2 and summarized in Table 1. Following purging, samples were collected, placed on ice, then submitted with a completed chain of custody form to Summit Scientific of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency Method 8260B.

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 5.0 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. Laboratory analytical results indicated all monitoring wells were in compliance with applicable WQCC Reg 41 standards. Laboratory groundwater analytical results are presented on Figure 3 and summarized in Table 1. The laboratory analytical report is attached.

LTE, under the direction of Noble, will continue to conduct quarterly groundwater monitoring with the goal of obtaining four consecutive quarters with analytical results in compliance with applicable WQCC Reg 41 standards. The next quarterly groundwater monitoring event is scheduled for February 2015.

## FIGURES

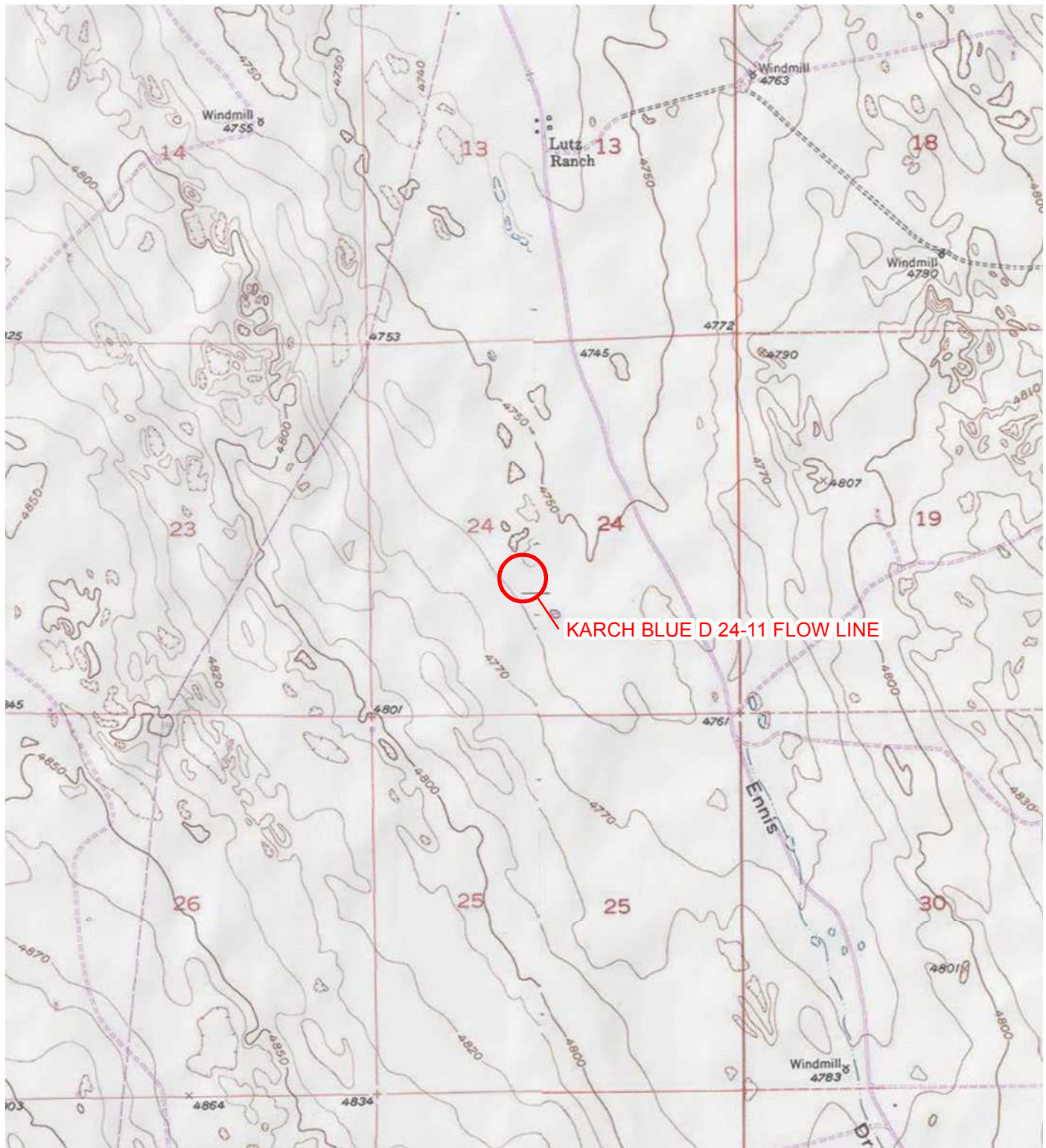
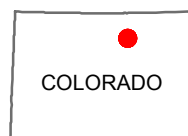
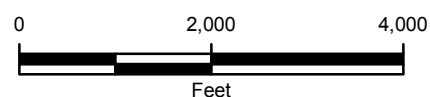


IMAGE COURTESY OF ESRI/USGS

# LEGEND

○ SITE LOCATION



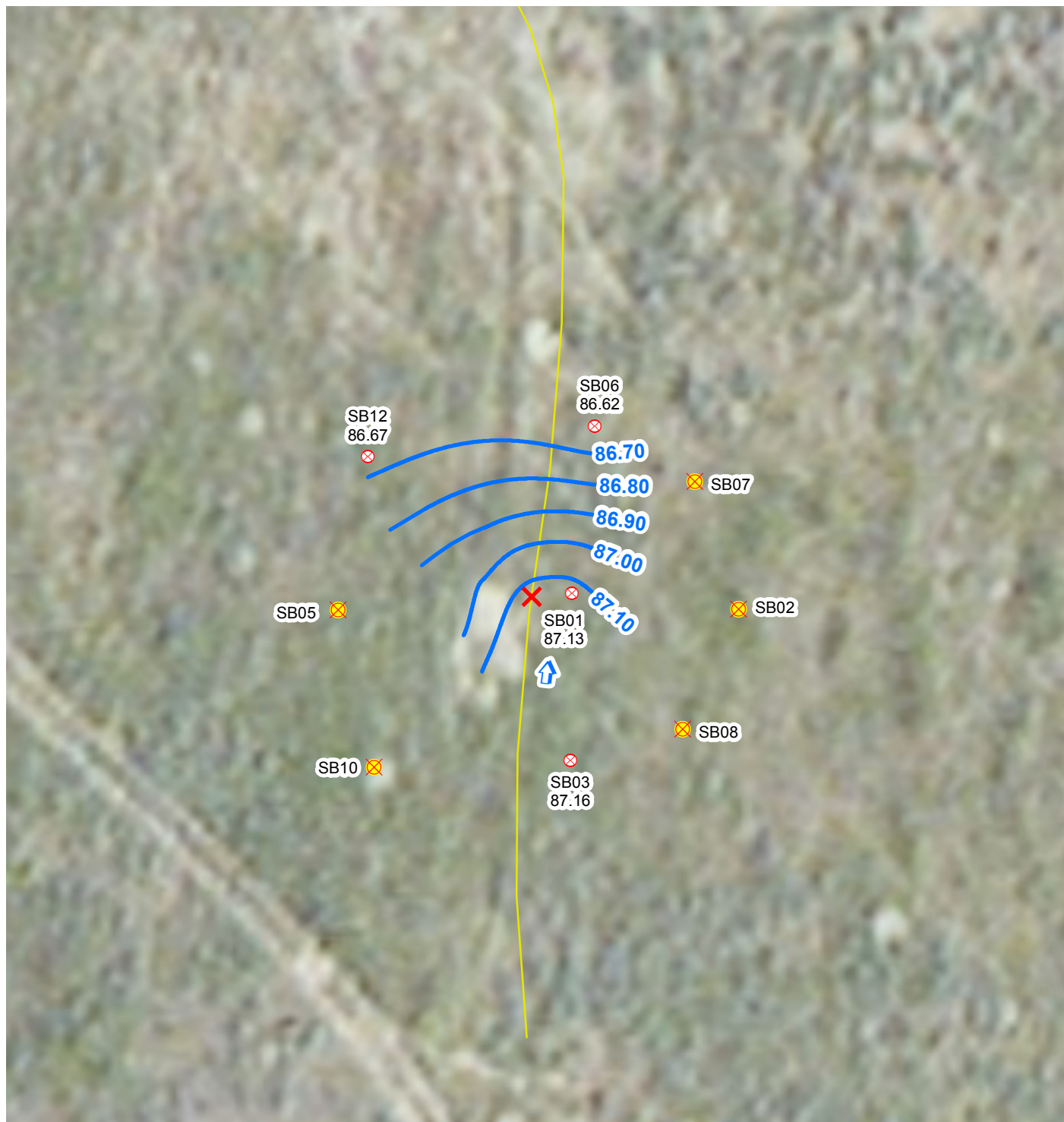
COLORADO

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

NOBLE ENERGY, INC.







# LEGEND

- X MONITORING WELL REMOVED FROM MONITORING PROGRAM
- X MONITORING WELL
- X RELEASE
- ↑ CALCULATED GROUNDWATER FLOW DIRECTION
- FLOW LINE
- RELATIVE GROUNDWATER ELEVATION CONTOUR  
CONTOUR INTERVAL = 0.10 FEET  
GRADIENT = 0.013 FEET/FOOT

IMAGE COURTESY OF ESRI

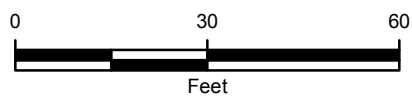


FIGURE 2  
RELATIVE GROUNDWATER ELEVATION MAP  
NOVEMBER 7, 2014  
KARCH BLUE D 24-11 FLOW LINE  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.



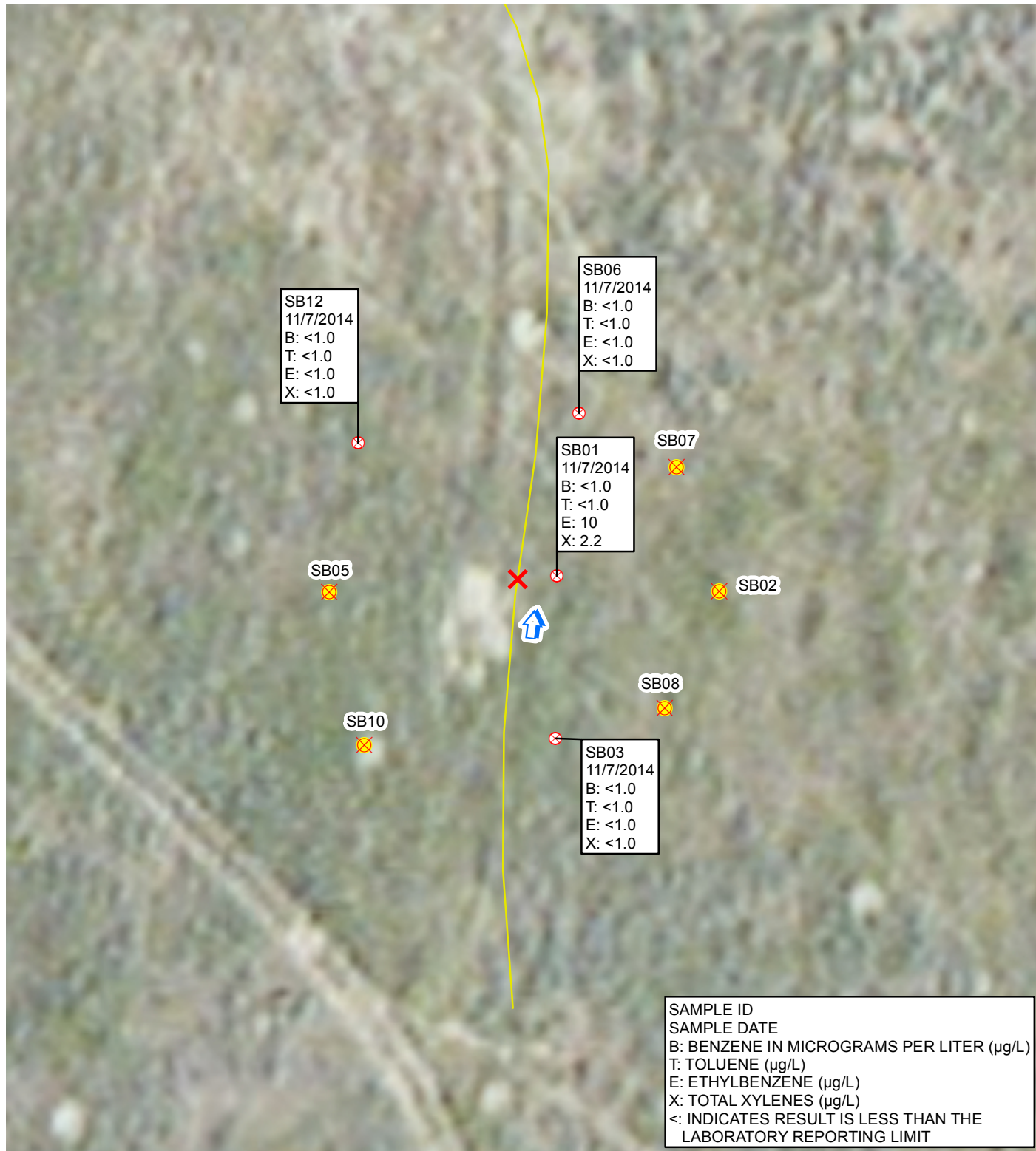
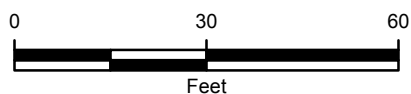


IMAGE COURTESY OF ESRI

## LEGEND

- MONITORING WELL REMOVED FROM MONITORING PROGRAM
- RELEASE
- MONITORING WELL
- CALCULATED GROUNDWATER FLOW DIRECTION
- FLOW LINE



**FIGURE 3**  
GROUNDWATER ANALYTICAL RESULTS  
KARCH BLUE D 24-11 FLOW LINE  
WELD COUNTY, COLORADO

**NOBLE ENERGY, INC.**



## **TABLES**

TABLE 1

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

Monitoring Well	Date	Depth to Water (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
SB01	5/23/2013	7.62	87.32	<b>205</b>	23.3	275	192
	8/27/2013	8.54	86.40	<b>37</b>	<1.0	164	<1.0
	11/18/2013	8.32	86.62	<b>54.4</b>	<1.0	177	<1.0
	2/20/2014	8.75	86.19	<b>14.0</b>	<2.0	103	<2.0
	5/8/2014	8.35	86.59	<1.0	<1.0	<1.0	<1.0
	8/29/2014	7.86	87.08	<b>154</b>	<1.0	220	3.7
	11/7/2014	7.81	87.13	<1.0	<1.0	10	2.2
SB02	5/23/2013	6.98	87.41	<1.0	<1.0	<1.0	<1.0
	8/27/2013	7.96	86.43	<1.0	<1.0	<1.0	<1.0
	11/18/2013	7.73	86.66	<1.0	<1.0	<1.0	<1.0
	2/20/2014	8.22	86.17	<1.0	<1.0	<1.0	<1.0
Removed from monitoring program							
SB03	5/23/2013	7.15	87.64	<1.0	<1.0	<1.0	<1.0
	8/27/2013	8.15	86.64	<1.0	<1.0	<1.0	<1.0
	11/18/2013	7.87	86.92	<1.0	<1.0	<1.0	<1.0
	2/20/2014	8.42	86.37	<1.0	<1.0	<1.0	<1.0
	5/8/2014	7.95	86.84	<1.0	<1.0	<1.0	<1.0
	8/29/2014	7.43	87.36	<1.0	<1.0	<1.0	<1.0
	11/7/2014	7.63	87.16	<1.0	<1.0	<1.0	<1.0
SB05	5/23/2013	8.43	87.35	<1.0	1.23	<1.0	<1.0
	8/27/2013	9.43	86.35	<1.0	<1.0	<1.0	<1.0
	11/18/2013	9.25	86.53	<1.0	<1.0	<1.0	<1.0
	2/20/2014	9.65	86.13	<1.0	<1.0	<1.0	<1.0
Removed from monitoring program							
SB06	5/23/2013	7.91	87.07	<1.0	0.960	<1.0	4.43
	8/27/2013	8.84	86.14	<1.0	<1.0	<1.0	<1.0
	11/18/2013	8.62	86.36	<1.0	<1.0	<1.0	<1.0
	2/20/2014	9.05	85.93	<1.0	<1.0	<1.0	<1.0
	5/8/2014	8.60	86.38	<1.0	<1.0	<1.0	<1.0
	8/29/2014	8.14	86.84	2.5	<1.0	<1.0	<1.0
	11/7/2014	8.36	86.62	<1.0	<1.0	<1.0	<1.0

TABLE 1 (Continued)

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

Monitoring Well	Date	Depth to Water (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
SB07	5/23/2013	7.33	87.23	<1.0	<1.0	<1.0	2.42
	8/27/2013	8.30	86.26	<1.0	<1.0	<1.0	<1.0
	11/18/2013	8.02	86.54	<1.0	<1.0	<1.0	<1.0
	2/20/2014	8.50	86.06	<1.0	<1.0	<1.0	<1.0
Removed from monitoring program							
SB08	5/23/2013	7.33	87.41	<1.0	<1.0	<1.0	<1.0
	8/27/2013	8.31	86.43	<1.0	<1.0	<1.0	<1.0
	11/18/2013	8.07	86.67	<1.0	<1.0	<1.0	<1.0
	2/20/2014	8.36	86.38	<1.0	<1.0	<1.0	<1.0
Removed from monitoring program							
SB10	5/23/2013	7.80	87.57	<1.0	<1.0	<1.0	<1.0
	8/27/2013	8.82	86.55	<1.0	<1.0	<1.0	<1.0
	11/18/2013	8.60	86.77	<1.0	<1.0	<1.0	<1.0
	2/20/2014	9.10	86.27	<1.0	<1.0	<1.0	<1.0
Removed from monitoring program							
SB12	5/23/2013	8.37	87.24	<1.0	1.24	<1.0	<1.0
	8/27/2013	9.56	86.05	<1.0	<1.0	<1.0	<1.0
	11/18/2013	9.20	86.41	<1.0	<1.0	<1.0	<1.0
	2/20/2014	9.71	85.90	<1.0	<1.0	<1.0	<1.0
	5/8/2014	9.31	86.30	<1.0	<1.0	<1.0	<1.0
	8/29/2014	8.64	86.97	<1.0	<1.0	<1.0	<1.0
	11/7/2014	8.94	86.67	<1.0	<1.0	<1.0	<1.0
<b>CDPHE WQCC Reg 41 Standard</b>				<b>5.0</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

**NOTES:**

btoc - below top of casing

µg/L - micrograms per liter

&lt; - 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 8260B and 8260C

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

Control Commission Regulation 41-The Basic Standards for Ground Water



**ATTACHMENT**  
**LABORATORY ANALYTICAL REPORT**

# Summit Scientific

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741 Corporate Circle – Suite J ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.374.5933 - fax

November 11, 2014

Charles Greeson  
LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada, CO 80003  
RE: Karch Blue D 24-11

Enclosed are the results of analyses for samples received by Summit Scientific on 11/10/14 11:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph J Egry IV".

Joseph J Egry IV For Paul Shrewsbury  
President

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: Karch Blue D 24-11

Project Number: 0083-13023  
Project Manager: Charles Greeson

**Reported:**  
11/11/14 20:03

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB03	1411055-01	Water	11/07/14 15:45	11/10/14 11:30
SB06	1411055-02	Water	11/07/14 15:55	11/10/14 11:30
SB12	1411055-03	Water	11/07/14 16:10	11/10/14 11:30
SB01	1411055-04	Water	11/07/14 15:30	11/10/14 11:30

Summit Scientific

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Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

Reported:  
11/11/14 20:03

# Summit Scientific 1411055

S<sub>2</sub>

741 Corporate Circle, Suite J&K ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: LT Environmental Project Manager: Charles Greeson  
Address: \_\_\_\_\_ E-Mail: Charles Greeson, Chris Roy, Steve Kahn, Raul Sanchez,  
City/State/Zip: \_\_\_\_\_ Jacob Evans, Todd Callum  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Project Name: Karch Blue D 24-11  
Sampler Name: Kris Rabida Project Number: 008313023

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BTEX					
1	SB03	11/7/14	1545	3			✓		✓					✓				
2	SB06	↓	1555	↓			↓		↓					↓				
3	SB12	↓	1610	↓			↓		↓					↓				
4	SB01	↓	1530	↓			↓		↓					↓				
5																		
6																		
7																		
8																		
9																		
10																		

Relinquished by: <u>[Signature]</u>	Date/Time: <u>11/10/14 1130</u>	Received by: <u>[Signature]</u>	Date/Time: <u>11/10/14 1130</u>	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	48 hours <input type="checkbox"/>	
Sample Integrity:				Temperature Upon Receipt: <u>6°C</u>	
Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No					

www.s2scientific.com

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

Summit Scientific

Joseph J Egry IV TV

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.

Joseph J Egry IV For Paul Shrewsbury, President

Page 3 of 11



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

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

Reported:  
11/11/14 20:03

#### Sample Receipt Checklist

S2 Work Order: 1411055

Client: Lt Env

Client Project ID: Karch Blue D 24-11

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

Airbill #: —

Matrix (check all that apply): — Air — Soil/Solid ✓ Water — Other: —  
(Describe)

Cooler ID	<u>1</u>				
Temp (°C)	<u>6.0</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	✓			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?		✓		
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?	✓	✓		None
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, etc.				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			✓	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Joseph J Egry IV  
Custodian Printed Name

Joseph J Egry IV  
Signature or Initials of Custodian

11/10/14  
Date/Time

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

Summit Scientific

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.

Joseph J Egry IV

Joseph J Egry IV For Paul Shrewsbury, President





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

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

Reported:  
11/11/14 20:03

**SB03**  
**1411055-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/07/14 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1411097	11/11/14	11/11/14 03:48	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **11/07/14 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	84.2 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	93.8 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	96.2 %	45-146			"	"	"	"	

Summit Scientific

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Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

Reported:  
11/11/14 20:03

**SB06**  
**1411055-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/07/14 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1411097	11/11/14	11/11/14 04:13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **11/07/14 15:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	83.8 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	94.4 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	96.7 %	45-146			"	"	"	"	

Summit Scientific

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Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Karch Blue D 24-11

Project Number: 0083-13023  
Project Manager: Charles Greeson

Reported:  
11/11/14 20:03

**SB12**  
**1411055-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/07/14 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1411097	11/11/14	11/11/14 04:37	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **11/07/14 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	88.7 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	93.8 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	95.6 %	45-146			"	"	"	"	

Summit Scientific

*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.*

Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

**Reported:**  
11/11/14 20:03

**SB01**  
**1411055-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/07/14 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1411097	11/11/14	11/11/14 05:01	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>10</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2.2</b>	1.0	"	"	"	"	"	"	

Date Sampled: **11/07/14 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	82.8 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	89.0 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	96.5 %	45-146			"	"	"	"	

Summit Scientific

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Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

Reported:  
11/11/14 20:03

**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 1411097 - EPA 5030 Water MS**

**Blank (1411097-BLK1)**

Prepared & Analyzed: 11/10/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.5		"	13.2		87.1	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.5	45-146			

**LCS (1411097-BS1)**

Prepared & Analyzed: 11/10/14

Benzene	39.4	1.0	ug/l	33.3		118	51-132			
Toluene	38.9	1.0	"	33.3		117	51-138			
Ethylbenzene	41.1	1.0	"	33.1		124	58-146			
m,p-Xylene	80.4	2.0	"	66.5		121	57-144			
o-Xylene	40.6	1.0	"	32.8		124	53-146			
Surrogate: 1,2-Dichloroethane-d4	11.3		"	13.2		85.6	37-154			
Surrogate: Toluene-d8	12.7		"	13.3		95.2	45-149			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.8	45-146			

**Matrix Spike (1411097-MS1)**

Source: 1411014-01

Prepared & Analyzed: 11/10/14

Benzene	39.6	1.0	ug/l	33.3	ND	119	34-141			
Toluene	39.4	1.0	"	33.3	ND	118	27-151			
Ethylbenzene	41.7	1.0	"	33.1	ND	126	29-160			
m,p-Xylene	81.5	2.0	"	66.5	ND	123	20-166			
o-Xylene	41.4	1.0	"	32.8	ND	126	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.1		"	13.2		83.9	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		95.9	45-149			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		97.1	45-146			

Summit Scientific

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.

Joseph J Egry IV For Paul Shrewsbury, President





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

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

Reported:  
11/11/14 20:03

**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 1411097 - EPA 5030 Water MS**

Matrix Spike Dup (1411097-MSD1)	Source: 1411014-01			Prepared & Analyzed: 11/11/14						
Benzene	39.6	1.0	ug/l	33.3	ND	119	34-141	0.0252	32	
Toluene	39.4	1.0	"	33.3	ND	118	27-151	0.152	25	
Ethylbenzene	41.1	1.0	"	33.1	ND	124	29-160	1.42	50	
m,p-Xylene	80.7	2.0	"	66.5	ND	121	20-166	0.986	36	
o-Xylene	40.8	1.0	"	32.8	ND	124	33-159	1.27	26	
Surrogate: 1,2-Dichloroethane-d4	11.5		"	13.2		86.8	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		96.3	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.2	45-146			

Summit Scientific

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Joseph J Egry IV For Paul Shrewsbury, President



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4600 West 60th Avenue  
Arvada CO, 80003

Project: Karch Blue D 24-11  
Project Number: 0083-13023  
Project Manager: Charles Greeson

**Reported:**  
11/11/14 20:03

### 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

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Summit Scientific

A handwritten signature in black ink, appearing to read 'Joseph J Egry IV'.

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Joseph J Egry IV For Paul Shrewsbury, President