

TABLE 1

**GROUNDWATER ANALYTICAL RESULTS**  
**KARCH BLUE DD 30-3J FLOW LINE - SOUTH**  
**COGCC REMEDIATION #8110**  
**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)
MW01	10/15/2013	4.30	90.54	1.08	1.21	43.8	60.9
	1/30/2014	4.95	89.89	<1.0	<1.0	9.22	<1.0
	4/30/2014	3.90	90.94	<1.0	<1.0	6.4	<1.0
	7/25/2014	4.18	90.66	<1.0	<1.0	<1.0	<1.0
	10/22/2014	4.75	90.09	<1.0	<1.0	1.1	<1.0
	1/30/2015	4.65	90.19	<1.0	<1.0	2.4	<1.0
	4/13/2015	3.82	91.02	<1.0	<1.0	1.2	<1.0
	7/29/2015	3.63	91.21	<1.0	<1.0	<1.0	<1.0
	10/26/2015	3.50	91.34	<1.0	<1.0	1.2	<1.0
	1/25/2016	2.81	92.03	<1.0	<1.0	<1.0	<1.0
	4/29/2016	1.28	93.56	<1.0	<1.0	<1.0	<1.0
	8/25/2016	3.42	91.42	<1.00	<1.00	<1.00	<1.00
	10/27/2016	3.10	91.74	<1.00	<1.00	<1.00	<1.00
	1/27/2017	2.61	92.23	<1.00	<1.00	<1.00	<1.00
MW02	10/15/2013	4.05	90.55	<1.0	<1.0	<1.0	<1.0
	1/30/2014	4.62	89.98	<1.0	<1.0	<1.0	<1.0
	4/30/2014	3.65	90.95	<1.0	<1.0	<1.0	<1.0
	7/25/2014	3.96	90.64	<1.0	<1.0	<1.0	<1.0
	10/22/2014	4.50	90.10	<1.0	<1.0	<1.0	<1.0
	1/30/2015	4.32	90.28	<1.0	<1.0	<1.0	<1.0
	4/13/2015	3.52	91.08	<1.0	<1.0	<1.0	<1.0
	7/29/2015	--	--	Removed from monitoring program			
MW03	10/15/2013	4.45	90.49	<1.0	<1.0	<1.0	<1.0
	1/30/2014	5.00	89.94	<1.0	<1.0	<1.0	<1.0
	4/30/2014	4.02	90.92	<1.0	<1.0	<1.0	<1.0
	7/25/2014	4.32	90.62	<1.0	<1.0	<1.0	<1.0
	10/22/2014	4.90	90.04	<1.0	<1.0	<1.0	<1.0
	1/30/2015	4.66	90.28	<1.0	<1.0	<1.0	<1.0
	4/13/2015	3.89	91.05	<1.0	<1.0	<1.0	<1.0
	7/29/2015	--	--	Removed from monitoring program			

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COGCC REMEDIATION #8110  
WELD COUNTY, COLORADO  
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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)
MW04	10/15/2013	4.56	90.50	<b>177</b>	1.53	159	240
	1/30/2014	5.12	89.94	<b>101</b>	<1.0	81.2	44.7
	4/30/2014	4.18	90.88	<b>102</b>	<1.0	64.6	108
	7/25/2014	4.51	90.55	<b>48.9</b>	<1.0	78.0	67.8
	10/22/2014	4.97	90.09	<b>39.8</b>	<1.0	34.4	39.7
	1/30/2015	4.85	90.21	<b>44.5</b>	<1.0	20.4	41.1
	4/13/2015	4.04	91.02	<b>54.6</b>	<1.0	35.3	44.3
	7/29/2015	3.87	91.19	<b>33.3</b>	<1.0	47.7	5.0
	10/26/2015	3.80	91.26	<b>6.6</b>	<1.0	7.9	<1.0
	1/25/2016	3.05	92.01	<b>25.7</b>	<1.0	33.6	2.2
	4/29/2016	1.52	93.54	<b>24.6</b>	<1.0	58.5	11.8
	8/25/2016	3.67	91.39	<b>31.0</b>	<1.00	35.3	11.1
	10/27/2016	3.38	91.68	<b>15.8</b>	<1.00	30.3	5.08
	1/27/2017	2.92	92.14	<b>25.0</b>	<1.00	37.3	8.61
MW05	10/15/2013	4.83	90.37	<1.0	<1.0	<1.0	<1.0
	1/30/2014	5.40	89.80	<1.0	<1.0	<1.0	<1.0
	4/30/2014	4.43	90.77	<1.0	<1.0	<1.0	<1.0
	7/25/2014	4.79	90.41	<1.0	<1.0	<1.0	<1.0
	10/22/2014	5.15	90.05	<1.0	<1.0	<1.0	<1.0
	1/30/2015	5.05	90.15	<1.0	<1.0	<1.0	<1.0
	4/13/2015	4.31	90.89	<1.0	<1.0	<1.0	<1.0
	7/29/2015	4.13	91.07	<1.0	<1.0	<1.0	<1.0
	10/26/2015	4.01	91.19	<1.0	<1.0	<1.0	<1.0
	1/25/2016	3.28	91.92	<1.0	<1.0	<1.0	<1.0
	4/29/2016	1.82	93.38	<1.0	<1.0	<1.0	<1.0
	8/25/2016	3.90	91.30	<1.00	<1.00	<1.00	<1.00
	10/27/2016	3.60	91.60	<1.00	<1.00	<1.00	<1.00
	1/27/2017	3.20	92.00	<1.00	<1.00	<1.00	<1.00
MW06	10/15/2013	4.91	90.30	<1.0	1.02	<1.0	<1.0
	1/30/2014	5.26	89.95	<1.0	<1.0	<1.0	<1.0
	4/30/2014	4.45	90.76	<1.0	<1.0	<1.0	<1.0

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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)
MW06	7/25/2014	4.78	90.43	<1.0	<1.0	<1.0	<1.0
	10/22/2014	4.95	90.26	<1.0	<1.0	<1.0	<1.0
	1/30/2015	5.97	89.24	<1.0	<1.0	<1.0	<1.0
	4/13/2015	4.35	90.86	<1.0	<1.0	<1.0	<1.0
	7/29/2015	4.18	91.03	<1.0	<1.0	<1.0	<1.0
	10/26/2015	4.04	91.17	<1.0	<1.0	<1.0	<1.0
	1/25/2016	3.30	91.91	<1.0	<1.0	<1.0	<1.0
	4/29/2016	1.78	93.43	<1.0	<1.0	<1.0	<1.0
	8/25/2016	3.92	91.29	<1.00	<1.00	<1.00	<1.00
	10/27/2016	3.63	91.58	<1.00	<1.00	<1.00	<1.00
	1/27/2017	3.25	91.96	<1.00	<1.00	<1.00	<1.00
MW07	10/15/2013	5.02	90.06	<1.0	<1.0	<1.0	<1.0
	1/30/2014	5.35	89.73	<1.0	<1.0	<1.0	<1.0
	4/30/2014	4.61	90.47	2.6	<1.0	2.0	<1.0
	7/25/2014	4.67	90.41	<1.0	<1.0	<1.0	<1.0
	10/22/2014	5.15	89.93	<1.0	<1.0	<1.0	<1.0
	1/30/2015	5.00	90.08	<1.0	<1.0	<1.0	<1.0
	4/13/2015	4.49	90.59	<1.0	<1.0	<1.0	<1.0
	7/29/2015	4.30	90.78	<1.0	<1.0	<1.0	<1.0
	10/26/2015	4.22	90.86	<1.0	<1.0	<1.0	<1.0
	1/25/2016	3.47	91.61	<1.0	<1.0	<1.0	<1.0
	4/29/2016	1.97	93.11	<b>29.3</b>	<1.0	1.4	<1.0
	8/25/2016	4.10	90.98	<1.00	<1.00	<1.00	<1.00
	10/27/2016	3.82	91.26	<1.00	<1.00	<1.00	<1.00
	1/27/2017	3.40	91.68	<1.00	<1.00	<1.00	<1.00
MW08	10/15/2013	4.66	90.32	<1.0	<1.0	<1.0	<1.0
	1/30/2014	5.20	89.78	<1.0	<1.0	<1.0	<1.0
	4/30/2014	4.25	90.73	<1.0	<1.0	<1.0	<1.0
	7/25/2014	4.66	90.32	<1.0	<1.0	<1.0	<1.0
	10/22/2014	4.91	90.07	<1.0	<1.0	<1.0	<1.0
	1/30/2015	4.87	90.11	<1.0	<1.0	<1.0	<1.0

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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)
MW08	4/13/2015	4.13	90.85	<1.0	<1.0	<1.0	<1.0
	7/29/2015	3.96	91.02	<1.0	<1.0	<1.0	<1.0
	10/26/2015	3.88	91.10	<1.0	<1.0	<1.0	<1.0
	1/25/2016	3.15	91.83	<1.0	<1.0	<1.0	<1.0
	4/29/2016	1.62	93.36	<1.0	<1.0	<1.0	<1.0
	8/25/2016	3.70	91.28	<1.00	<1.00	<1.00	<1.00
	10/27/2016	3.55	91.43	<1.00	<1.00	<1.00	<1.00
	1/27/2017	3.05	91.93	<1.00	<1.00	<1.00	<1.00
MW09	10/15/2013	4.29	90.33	<1.0	<1.0	<1.0	<1.0
	1/30/2014	4.85	89.77	<1.0	<1.0	<1.0	<1.0
	4/30/2014	3.90	90.72	<1.0	<1.0	<1.0	<1.0
	7/25/2014	4.39	90.23	<1.0	<1.0	<1.0	<1.0
	10/22/2014	4.65	89.97	<1.0	<1.0	<1.0	<1.0
	1/30/2015	4.50	90.12	<1.0	<1.0	<1.0	<1.0
	4/13/2015	3.76	90.86	<1.0	<1.0	<1.0	<1.0
	7/29/2015	--	--	Removed from monitoring program			
MW10	10/15/2013	4.30	90.32	<1.0	<1.0	<1.0	<1.0
	1/30/2014	4.75	89.87	<1.0	<1.0	<1.0	<1.0
	4/30/2014	3.85	90.77	<1.0	<1.0	<1.0	<1.0
	7/25/2014	4.23	90.39	<1.0	<1.0	<1.0	<1.0
	10/22/2014	5.60	89.02	<1.0	<1.0	<1.0	<1.0
	1/30/2015	4.45	90.17	<1.0	<1.0	<1.0	<1.0
	4/13/2015	3.78	90.84	<1.0	<1.0	<1.0	<1.0
	7/29/2015	--	--	Removed from monitoring program			
MW11	10/15/2013	4.57	90.26	<1.0	<1.0	<1.0	<1.0
	1/30/2014	4.95	89.88	<1.0	<1.0	<1.0	<1.0
	4/30/2014	4.15	90.68	<1.0	<1.0	<1.0	<1.0
	7/25/2014	4.51	90.32	<1.0	<1.0	<1.0	<1.0
	10/22/2014	4.91	89.92	<1.0	<1.0	<1.0	<1.0
	1/30/2015	4.65	90.18	<1.0	<1.0	<1.0	<1.0

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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)
MW11	4/13/2015	4.02	90.81	<1.0	<1.0	<1.0	<1.0
	7/29/2015	--	--	Removed from monitoring program			
MW12	10/15/2013	4.60	90.46	<1.0	<1.0	<1.0	<1.0
	1/30/2014	5.15	89.91	<1.0	<1.0	<1.0	<1.0
	4/30/2014	4.20	90.86	<1.0	<1.0	<1.0	<1.0
	7/25/2014	4.72	90.34	<1.0	<1.0	<1.0	<1.0
	10/22/2014	5.07	89.99	<1.0	<1.0	<1.0	<1.0
	1/30/2015	4.92	90.14	<1.0	<1.0	<1.0	<1.0
	4/13/2015	4.11	90.95	<1.0	<1.0	<1.0	<1.0
	7/29/2015	--	--	Removed from monitoring program			
<b>CDPHE WQCC Reg 41</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 reporting limit

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

**BOLD** indicates result exceeds the applicable standard

CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment-Water Quality Control Commission  
Regulation 41-The Basic Standards for Ground Water

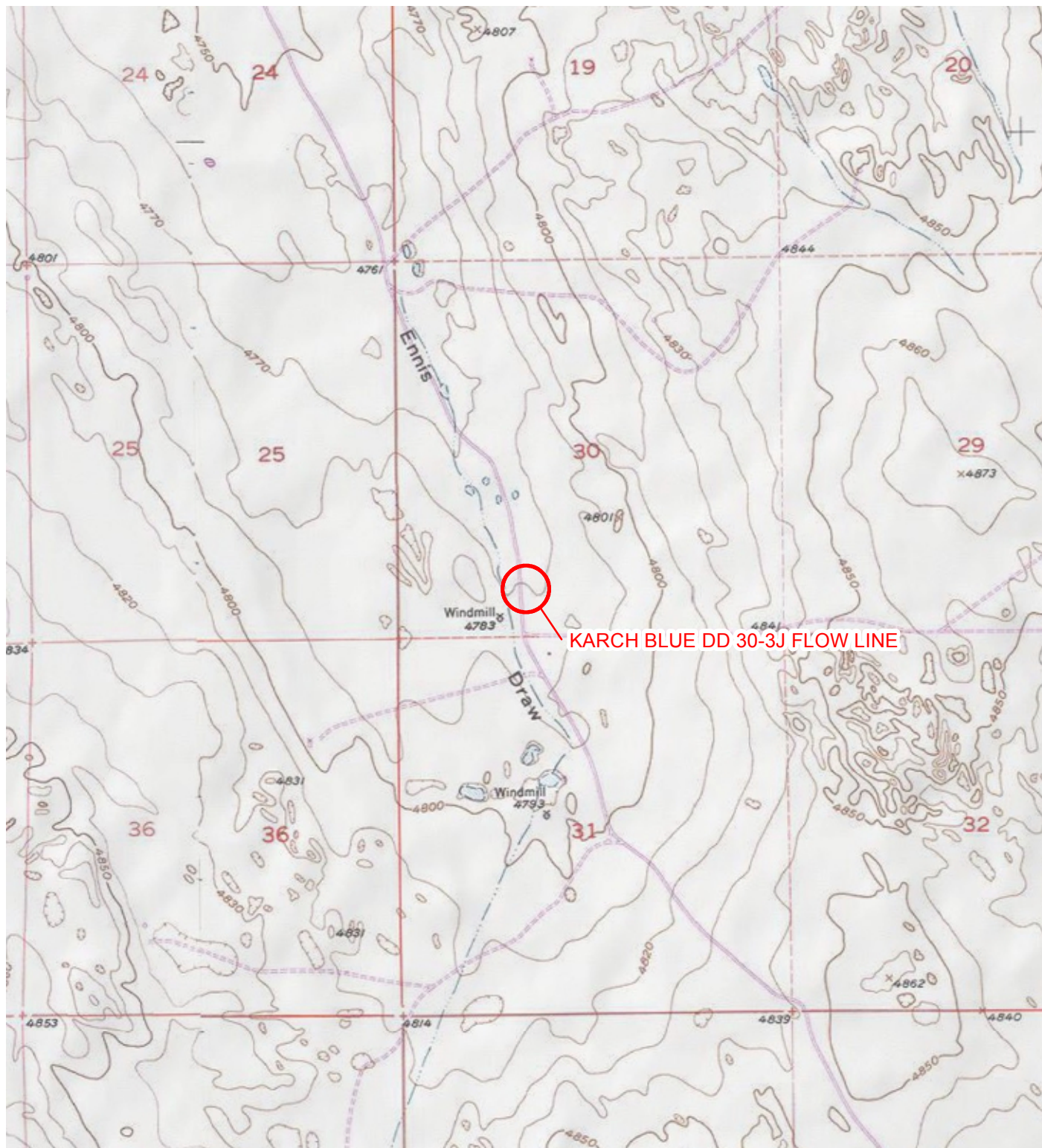
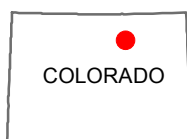
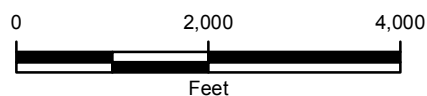


IMAGE COURTESY OF ESRI/USGS

# LEGEND

○ SITE LOCATION



**FIGURE 1**  
**SITE LOCATION MAP**  
**KARCH BLUE DD 30-3J FLOW LINE**  
**E 1/2 SW 1/4 SEC 30-T3N-R63W**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**







# LEGEND

- ⊗ MONITORING WELL
- ⊗ MONITORING WELL REMOVED FROM MONITORING PROGRAM
- ↑ CALCULATED GROUNDWATER FLOW DIRECTION

\*MONITORING WELL MW06 WAS NOT USED TO GENERATE RELATIVE GROUNDWATER ELEVATION CONTOURS FOR THIS SAMPLING EVENT.

IMAGE COURTESY OF ESRI

— RELATIVE GROUNDWATER ELEVATION CONTOUR

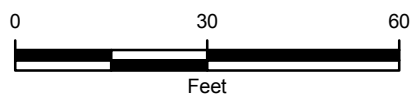
CONTOUR INTERVAL = 0.10 FEET

GRADIENT = 0.012 FEET/FOOT

— UNDERGROUND UTILITIES

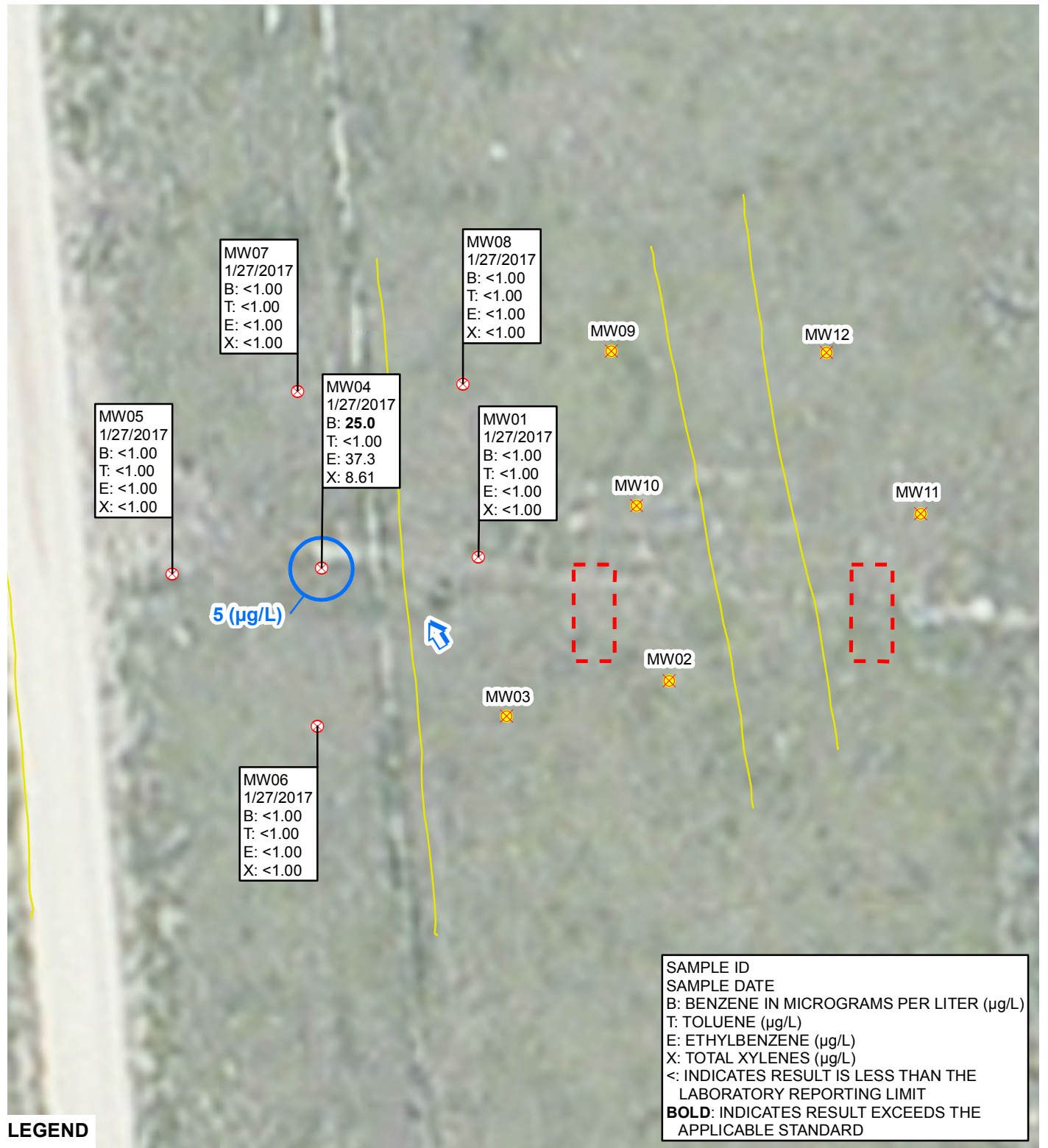
- - - EXCAVATION EXTENT

GROUNDWATER ELEVATIONS WERE MEASURED JANUARY 27, 2017



**FIGURE 2**  
**RELATIVE GROUNDWATER ELEVATION MAP - SOUTH**  
**KARCH BLUE DD 30-3J FLOW LINE**  
**E 1/2 SW 1/4 SEC 30-T3N-R63W**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**





**FIGURE 3**  
**GROUNDWATER ANALYTICAL RESULTS - SOUTH**  
**KARCH BLUE DD 30-3J FLOW LINE**  
**E 1/2 SW 1/4 SEC 30-T3N-R63W**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**







February 03, 2017

LT Environmental, Inc.

Charles Greeson

4600 West 60th Avenue

Arvada

CO 80003

**Project Name - Noble - Karch Blue DD 30-3J  
(South)**

**Project Number - 008313054**

Attached are your analytical results for Noble - Karch Blue DD 30-3J (South) received by Origins Laboratory, Inc. January 27, 2017. This project is associated with Origins project number X701316-01.

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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	X701316-01	Water	January 27, 2017 12:10	01/27/2017 14:13
MW05	X701316-02	Water	January 27, 2017 13:13	01/27/2017 14:13
MW06	X701316-03	Water	January 27, 2017 13:01	01/27/2017 14:13
MW07	X701316-04	Water	January 27, 2017 12:36	01/27/2017 14:13
MW08	X701316-05	Water	January 27, 2017 12:25	01/27/2017 14:13
MW04	X701316-06	Water	January 27, 2017 12:47	01/27/2017 14:13

Origins Laboratory, Inc.



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

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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

www.originslaboratory.com

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X-101316

**ORIGINS**  
LABORATORY, INC

Client: LT Environmental, Inc.  
Address: 4600 West 60th Ave, Arvada, CO  
Telephone Number: 303-433-9788  
Email Address: Noble Remediation Team

Project Manager: Charles Greeson  
Project Name: Karch Blue DD 30-3J (South)  
Project Number: 008313054  
Samples Collected By: C. Thompson

Invoice Jacob Evans

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix				Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #	Other			
MW01	1/27/17	1210	3	X				X				BTEX	1	
MW05	1/27/17	1313	3	X				X					2	
MW06	1/27/17	1301	3	X				X					3	
MW07	1/27/17	1236	3	X				X					4	
MW08	1/27/17	1225	3	X				X					5	
MW09	1/27/17	1247	3	X				X					6	
													7	
													8	
													9	
													10	
Relinquished By: 	Date: 1/27/17	Time: 1413						Received By: 	Date: 1-27-17	Time: 1413	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard			
Relinquished By:	Date:	Time:						Received By:	Date:	Time:				

Date Results Needed

Origins Laboratory, Inc.

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

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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X70131C

Client: LTE

Client Project ID: Karch Blue DD 30-3J (South)

Checklist Completed by: Jeff Smith

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

Date/time completed: 1-30-17

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 6.0 °C 1 / °C 1 / °C (Describe)

Thermometer ID:

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

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

Reviewed by (Project Manager) Jeff Smith

Date/Time Reviewed 1-30-17

Origins Laboratory, Inc.

*Jeff Pellegrini*

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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

MW01

1/27/2017 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X701316-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B7B0104	02/01/2017	02/01/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	97.4 %	84-121	"	"	"
Surrogate: Toluene-d8	102 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	84-114	"	"	"

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

**MW05**  
**1/27/2017 1:13:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X701316-02 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7B0104	02/01/2017	02/02/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.8 %	84-121	"	"	"
Surrogate: Toluene-d8	102 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	84-114	"	"	"

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

**MW06**  
**1/27/2017 1:01:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X701316-03 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7B0104	02/01/2017	02/02/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121	"	"	"
Surrogate: Toluene-d8	104 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.7 %	84-114	"	"	"

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

## MW07

1/27/2017 12:36:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. X701316-04 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B7B0104	02/01/2017	02/02/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.1 %	84-121			"	"	"
Surrogate: Toluene-d8	100 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	98.8 %	84-114			"	"	"

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

MW08

1/27/2017 12:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X701316-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B7B0104	02/01/2017	02/02/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121	"	"	"
Surrogate: Toluene-d8	103 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	84-114	"	"	"

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

## MW04

1/27/2017 12:47:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. X701316-06 (Water)

### BTEX by EPA 8260C

Benzene	25.0	1.00	ug/L	1	B7B0104	02/01/2017	02/02/2017	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	37.3	1.00	"	"	"	"	"	
Xylenes, total	8.61	1.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7B0104 - EPA 5030B (Water)**

**Blank (B7B0104-BLK1)**

Prepared: 02/01/2017 Analyzed: 02/01/2017

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5	99.6		84-121			
Surrogate: Toluene-d8	64		"	62.5	102		85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		84-114			

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7B0104 - EPA 5030B (Water)**

**LCS (B7B0104-BS1)**

Prepared: 02/01/2017 Analyzed: 02/01/2017

Benzene	49.6	1.00	ug/L	50.0		99.1	73.3-129
Toluene	48.5	1.00	"	50.0		97.0	76.2-123
Ethylbenzene	47.2	1.00	"	50.0		94.4	73.6-130
m,p-Xylene	95.9	2.00	"	100		95.9	76.1-126
o-Xylene	47.2	1.00	"	50.0		94.5	76.6-124
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.6	84-121
Surrogate: Toluene-d8	64		"	62.5		102	85-115
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114

Origins Laboratory, Inc.



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4600 West 60th Avenue  
Arvada CO 80003

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7B0104 - EPA 5030B (Water)**

Matrix Spike (B7B0104-MS1)		Source: X701316-01			Prepared: 02/01/2017 Analyzed: 02/01/2017					
Benzene	48.6	1.00	ug/L	50.0	ND	97.1	74-130			
Toluene	47.9	1.00	"	50.0	ND	95.9	73-131			
Ethylbenzene	46.3	1.00	"	50.0	ND	92.6	76-132			
m,p-Xylene	93.3	2.00	"	100	ND	93.3	69-139			
o-Xylene	46.8	1.00	"	50.0	ND	93.5	74-131			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	84-114			

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7B0104 - EPA 5030B (Water)**

Matrix Spike Dup (B7B0104-MSD1)		Source: X701316-01			Prepared: 02/01/2017 Analyzed: 02/01/2017					
Benzene	52.2	1.00	ug/L	50.0	ND	104	74-130	7.13	20	
Toluene	51.8	1.00	"	50.0	ND	104	73-131	7.84	20	
Ethylbenzene	50.5	1.00	"	50.0	ND	101	76-132	8.62	20	
m,p-Xylene	101	2.00	"	100	ND	101	69-139	8.33	20	
o-Xylene	51.1	1.00	"	50.0	ND	102	74-131	8.85	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.0	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	84-114			

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

### Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President