

**TABLE 1  
GROUNDWATER ANALYTICAL RESULTS**

**KARCH BLUE DD 30-3J FLOW LINE - SOUTH  
COGCC REMEDIATION #8110  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

<b>Monitoring Well</b>	<b>Date</b>	<b>Depth to Water (feet btoc)</b>	<b>Relative Groundwater Elevation (feet)</b>	<b>Benzene (µg/L)</b>	<b>Toluene (µg/L)</b>	<b>Ethylbenzene (µg/L)</b>	<b>Total Xylenes (µg/L)</b>
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
	4/28/2017	2.50	92.34	<1.00	<1.00	<1.00	<1.00
8/15/2017	2.80	92.04	<1.00	<1.00	<1.00	<1.00	
10/30/2017	2.60	92.24	<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**  
**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)
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
	4/28/2017	2.70	92.36	<b>36.1</b>	<1.00	45.6	13.2
8/15/2017	3.00	92.06	<b>20.7</b>	<1.00	31.2	7.8	
10/30/2017	2.82	92.24	<b>17.0</b>	<1.00	34.6	<1.00	
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
	4/28/2017	2.95	92.25	<1.00	<1.00	<1.00	<1.00
8/15/2017	3.20	92.00	<1.00	<1.00	<1.00	<1.00	
10/30/2017	3.07	92.13	<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

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**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)
MW06	4/30/2014	4.45	90.76	<1.0	<1.0	<1.0	<1.0
	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
	4/28/2017	2.95	92.26	<1.00	<1.00	<1.00	<1.00
	8/15/2017	3.22	91.99	<1.00	<1.00	<1.00	<1.00
	10/30/2017	3.08	92.13	<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
	4/28/2017	3.17	91.91	<1.00	<1.00	<1.00	<1.00
8/15/2017	3.45	91.63	<1.00	<1.00	<1.00	<1.00	
10/30/2017	3.28	91.80	<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

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COGCC REMEDIATION #8110  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

<b>Monitoring Well</b>	<b>Date</b>	<b>Depth to Water (feet btoc)</b>	<b>Relative Groundwater Elevation (feet)</b>	<b>Benzene (µg/L)</b>	<b>Toluene (µg/L)</b>	<b>Ethylbenzene (µg/L)</b>	<b>Total Xylenes (µg/L)</b>
MW08	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
	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
	4/28/2017	2.80	92.18	<1.00	<1.00	<1.00	<1.00
	8/15/2017	3.10	91.88	<1.00	<1.00	<1.00	<1.00
	10/30/2017	2.93	92.05	<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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**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)
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

< - 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

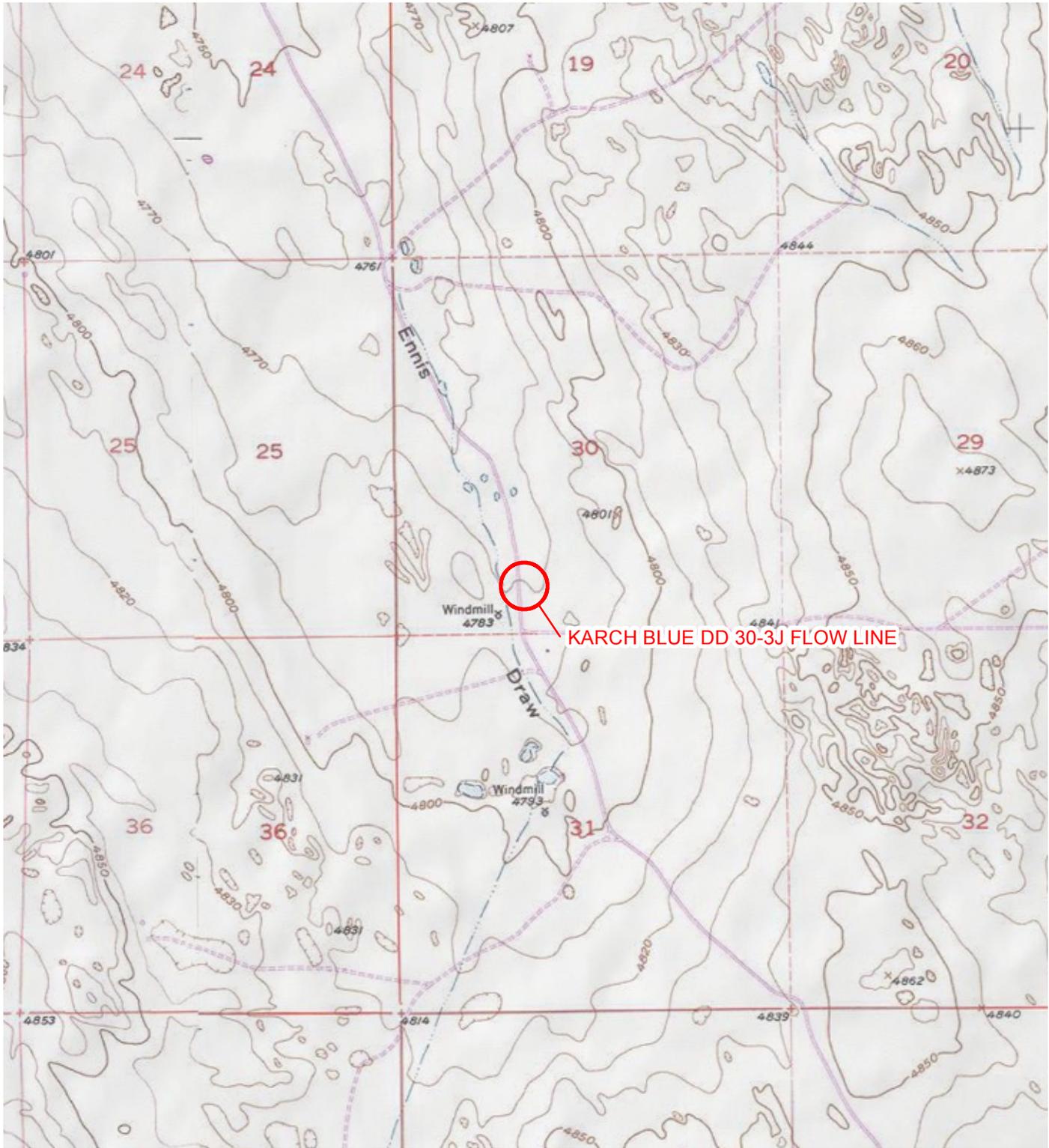
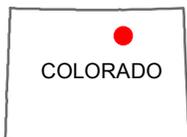
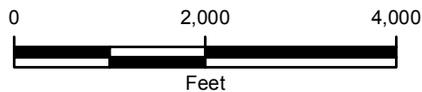


IMAGE COURTESY OF ESRI/USGS

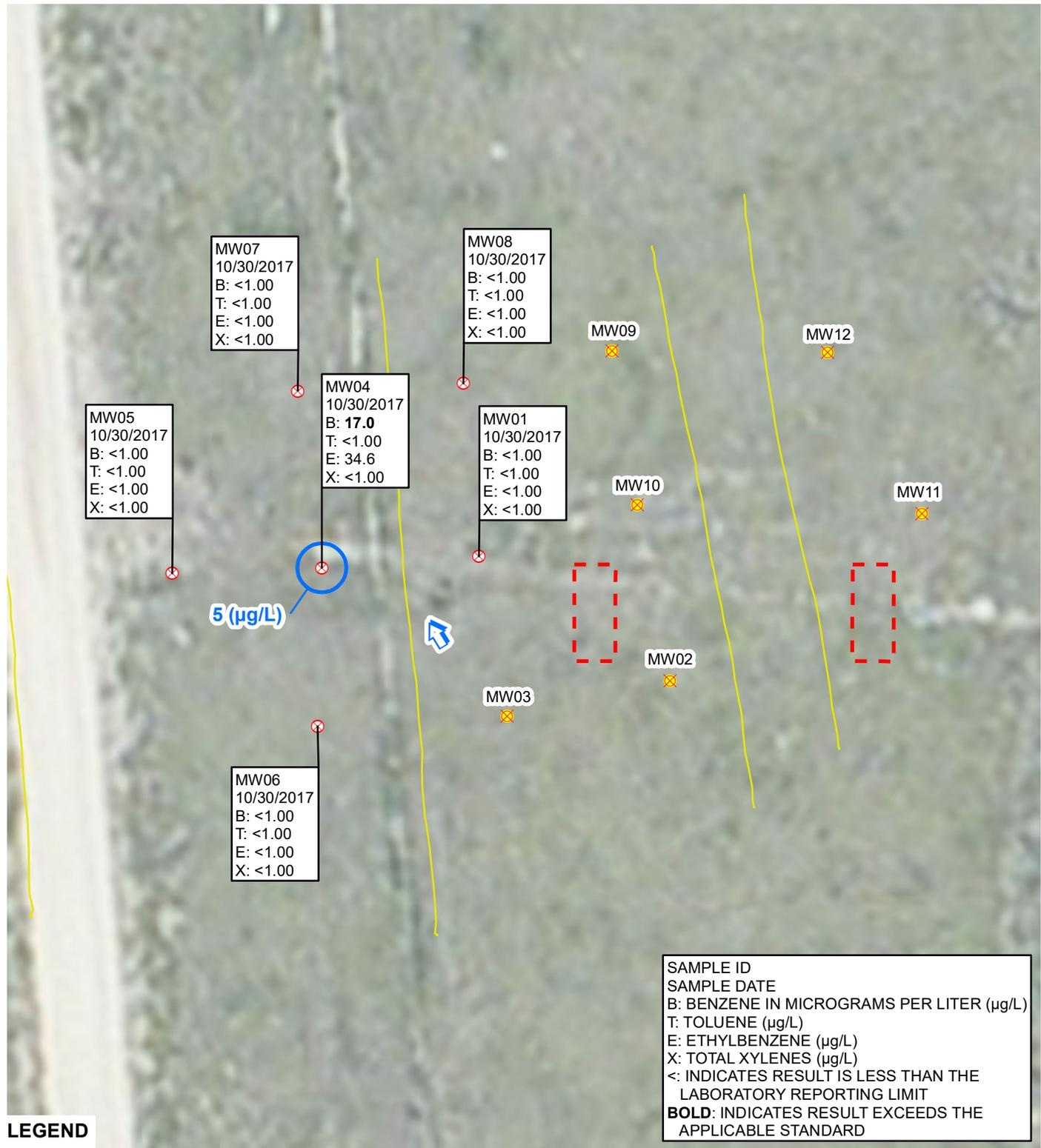
**LEGEND**

 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.**



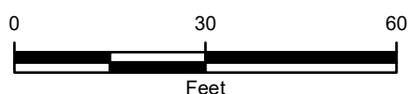


SAMPLE ID  
 SAMPLE DATE  
 B: BENZENE IN MICROGRAMS PER LITER (µg/L)  
 T: TOLUENE (µg/L)  
 E: ETHYLBENZENE (µg/L)  
 X: TOTAL XYLENES (µg/L)  
 <: INDICATES RESULT IS LESS THAN THE LABORATORY REPORTING LIMIT  
**BOLD**: INDICATES RESULT EXCEEDS THE APPLICABLE STANDARD

**LEGEND**

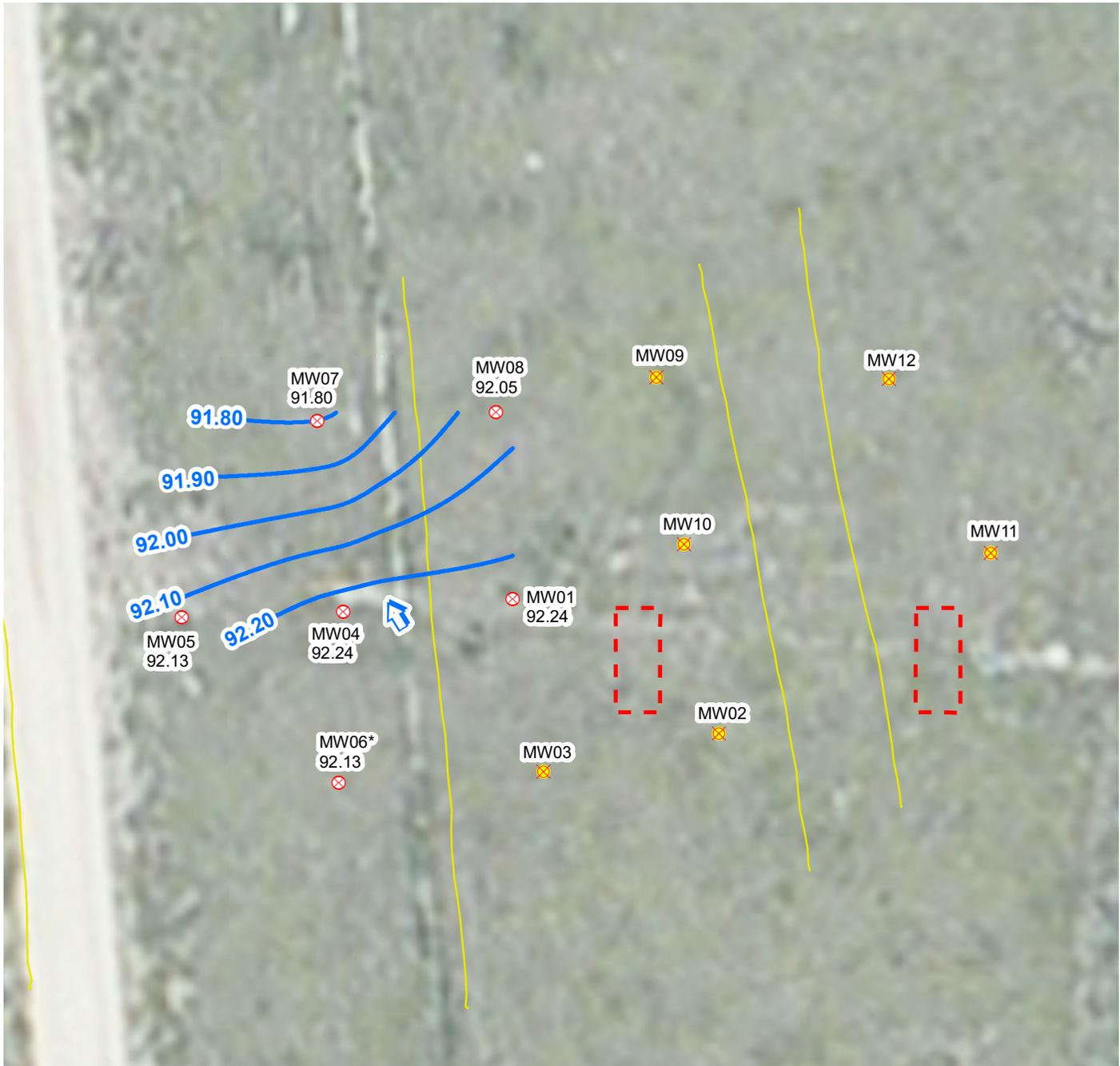
- MONITORING WELL
- MONITORING WELL REMOVED FROM MONITORING PROGRAM
- CALCULATED GROUNDWATER FLOW DIRECTION
- UNDERGROUND UTILITIES
- BENZENE ISOCONCENTRATION CONTOUR
- EXCAVATION EXTENT

IMAGE COURTESY OF ESRI



**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.**





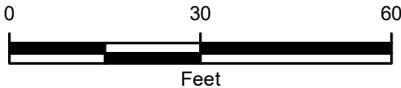
**LEGEND**

- 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 = 0.011 FEET/FOOT
- UNDERGROUND UTILITIES
- EXCAVATION EXTENT



GROUNDWATER ELEVATIONS WERE MEASURED OCTOBER 30, 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.**



November 06, 2017

LT Environmental, Inc.

Jeremy Pike

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. October 30, 2017. This project is associated with Origins project number Y710440-01.

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

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

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

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

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

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



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

Jeremy Pike  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y710440-01	Water	October 30, 2017 11:35	10/30/2017 15:30
MW05	Y710440-02	Water	October 30, 2017 12:22	10/30/2017 15:30
MW06	Y710440-03	Water	October 30, 2017 11:50	10/30/2017 15:30
MW07	Y710440-04	Water	October 30, 2017 12:13	10/30/2017 15:30
MW08	Y710440-05	Water	October 30, 2017 11:20	10/30/2017 15:30
MW04	Y710440-06	Water	October 30, 2017 12:02	10/30/2017 15:30

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

Jeremy Pike  
 Project Number: 008313054  
 Project: Noble - Karch Blue DD 30-3J (South)

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1710416

**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: Jeremy Pike  
 Project Name: Karch Blue DD 30-3J (South)  
 Project Number: 008313054  
 Samples Collected By: Glenn 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	10/30/17	1135	3	X				X				BTEX	1
MW05	10/30/17	1222	3	X				X				BTEX	2
MW06	10/30/17	1150	3	X				X				BTEX	3
MW07	10/30/17	1213	3	X				X				BTEX	4
MW08	10/30/17	1120	3	X				X				BTEX	5
MW04	10/30/17	1222	3	X				X				BTEX	6
													7
													8
													9
													10
Relinquished By:	Date: 10/30/17	Time: 1530	Received By:	Date: 10/30/17	Time: 1530	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>							
Relinquished By:	Date:	Time:	Received By:	Date:	Time:								

Origins Laboratory, Inc.

*Jefe Pellegrini*

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

Jeremy Pike  
 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: 7210440

Client: LTE

Client Project ID: Noble - Karch Blue DD 30-3J (90-8)

Checklist Completed by: Don Lee

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

Date/time completed: 10-30-12 1536

Airbill #: N/A

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

Cooler Number/Temperature: 1 7.4 °C 1 °C 1 °C 1 °C

Thermometer ID: 1003

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"/>		<u>Sampled same Day</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>		<input checked="" 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 checked="" 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.

[Signature]  
 Reviewed by (Project Manager)

10/31/12  
 Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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

Jeremy Pike  
 Project Number: 008313054  
 Project: Noble - Karch Blue DD 30-3J (South)

**MW01**  
**10/30/2017 11:35:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y710440-01 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7K0201	11/02/2017	11/02/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.  
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 Arvada CO 80003

Jeremy Pike  
 Project Number: 008313054  
 Project: Noble - Karch Blue DD 30-3J (South)

**MW05**  
**10/30/2017 12:22:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y710440-02 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7K0201	11/02/2017	11/02/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	103 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Jeremy Pike  
 Project Number: 008313054  
 Project: Noble - Karch Blue DD 30-3J (South)

**MW06**  
**10/30/2017 11:50:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y710440-03 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7K0201	11/02/2017	11/02/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.9 %	84-114			"	"	"	

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LT Environmental, Inc.  
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 Arvada CO 80003

Jeremy Pike  
 Project Number: 008313054  
 Project: Noble - Karch Blue DD 30-3J (South)

**MW07**  
**10/30/2017 12:13:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y710440-04 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7K0201	11/02/2017	11/03/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.9 %	84-114			"	"	"	

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Jeremy Pike  
 Project Number: 008313054  
 Project: Noble - Karch Blue DD 30-3J (South)

**MW08**  
**10/30/2017 11:20:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y710440-05 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7K0201	11/02/2017	11/03/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.2 %	84-114			"	"	"	

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Jeremy Pike  
 Project Number: 008313054  
 Project: Noble - Karch Blue DD 30-3J (South)

**MW04**  
**10/30/2017 12:02:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y710440-06 (Water)**

**BTEX by EPA 8260C**

Benzene	17.0	1.00	ug/L	1	B7K0201	11/02/2017	11/03/2017	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	34.6	1.00	"	"	"	"	"	
Xylenes, total	ND	1.00	"	"	"	"	"	U

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

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Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

**Blank (B7K0201-BLK1)**

Prepared: 11/02/2017 Analyzed: 11/02/2017

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	72		"	62.5	116		84-121			
Surrogate: Toluene-d8	60		"	62.5	95.5		85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5	103		84-114			

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 4600 West 60th Avenue  
 Arvada CO 80003

Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

**Blank (B7K0201-BLK2)**

Prepared: 11/02/2017 Analyzed: 11/02/2017

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	68		"	62.5	108		84-121			
Surrogate: Toluene-d8	62		"	62.5	99.4		85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5	105		84-114			

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

Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

**LCS (B7K0201-BS1)**

Prepared: 11/02/2017 Analyzed: 11/02/2017

Benzene	48.3	1.00	ug/L	50.0		96.6	73.3-129			
Toluene	44.8	1.00	"	50.0		89.6	76.2-123			
Ethylbenzene	50.3	1.00	"	50.0		101	73.6-130			
m,p-Xylene	101	2.00	"	100		101	76.1-126			
o-Xylene	50.7	1.00	"	50.0		101	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		109	84-121			
Surrogate: Toluene-d8	60		"	62.5		95.9	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	84-114			

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LT Environmental, Inc.  
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 Arvada CO 80003

Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

**LCS (B7K0201-BS2)**

Prepared: 11/02/2017 Analyzed: 11/02/2017

Benzene	48.8	1.00	ug/L	50.0		97.7	73.3-129			
Toluene	48.8	1.00	"	50.0		97.6	76.2-123			
Ethylbenzene	52.2	1.00	"	50.0		104	73.6-130			
m,p-Xylene	106	2.00	"	100		106	76.1-126			
o-Xylene	52.4	1.00	"	50.0		105	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		109	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.7	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	84-114			

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

Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

<b>Matrix Spike (B7K0201-MS1)</b>	<b>Source: Y710411-01</b>			<b>Prepared: 11/02/2017 Analyzed: 11/02/2017</b>						
Benzene	50.1	1.00	ug/L	50.0	ND	100	74-130			
Toluene	51.1	1.00	"	50.0	0.260	102	73-131			
Ethylbenzene	56.2	1.00	"	50.0	ND	112	76-132			
m,p-Xylene	113	2.00	"	100	ND	113	69-139			
o-Xylene	56.5	1.00	"	50.0	ND	113	74-131			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	84-114			

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

Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

<b>Matrix Spike (B7K0201-MS2)</b>	<b>Source: Y710438-01</b>			<b>Prepared: 11/02/2017 Analyzed: 11/02/2017</b>						
Benzene	47.5	1.00	ug/L	50.0	ND	95.0	74-130			
Toluene	50.6	1.00	"	50.0	0.220	101	73-131			
Ethylbenzene	54.6	1.00	"	50.0	ND	109	76-132			
m,p-Xylene	111	2.00	"	100	ND	111	69-139			
o-Xylene	55.4	1.00	"	50.0	ND	111	74-131			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		102	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.9	84-114			

Origins Laboratory, Inc.



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 Arvada CO 80003

Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

Matrix Spike Dup (B7K0201-MSD1)	Source: Y710411-01			Prepared: 11/02/2017 Analyzed: 11/02/2017						
Benzene	48.6	1.00	ug/L	50.0	ND	97.3	74-130	2.92	20	
Toluene	50.3	1.00	"	50.0	0.260	100	73-131	1.62	20	
Ethylbenzene	55.3	1.00	"	50.0	ND	111	76-132	1.63	20	
m,p-Xylene	111	2.00	"	100	ND	111	69-139	2.02	20	
o-Xylene	55.9	1.00	"	50.0	ND	112	74-131	0.996	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		105	84-121			
Surrogate: Toluene-d8	64		"	62.5		103	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Jeremy Pike  
 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 B7K0201 - EPA 5030B (Water)**

Matrix Spike Dup (B7K0201-MSD2)	Source: Y710438-01			Prepared: 11/02/2017 Analyzed: 11/02/2017						
Benzene	48.8	1.00	ug/L	50.0	ND	97.6	74-130	2.68	20	
Toluene	50.8	1.00	"	50.0	0.220	101	73-131	0.493	20	
Ethylbenzene	57.1	1.00	"	50.0	ND	114	76-132	4.44	20	
m,p-Xylene	115	2.00	"	100	ND	115	69-139	3.75	20	
o-Xylene	57.7	1.00	"	50.0	ND	115	74-131	4.05	20	
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		99.8	84-114			

Origins Laboratory, Inc.



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

Jeremy Pike  
Project Number: 008313054  
Project: Noble - Karch Blue DD 30-3J (South)

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**Notes and Definitions**

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President