

**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
	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
	1/31/2018	2.45	92.39	<1.00	<1.00	<1.00	<1.00
	4/16/2018	2.40	92.44	<1.00	<1.00	<1.00	<1.00
	7/20/2018	2.56	92.28	<1.00	<1.00	<1.00	<1.00
	10/25/2018	2.78	92.06	<1.00	<1.00	<1.00	<1.00
	1/21/2019	2.25	92.59	<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

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**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)
MW03	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			
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
	1/31/2018	2.63	92.43	<b>17.6</b>	<1.00	41.5	2.33
	4/16/2018	2.65	92.41	<b>10.2</b>	<1.00	14.4	<1.00
	7/20/2018	2.82	92.24	<b>15.9</b>	<1.00	36.8	4.11
	10/25/2018	3.02	92.04	<b>19.5</b>	<1.00	19.9	13.4
	1/21/2019	2.50	92.56	<b>10.5</b>	<1.00	30.2	4.29
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

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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)
MW05	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
	1/31/2018	3.05	92.15	<1.00	<1.00	<1.00	<1.00
	4/16/2018	2.91	92.29	<1.00	<1.00	<1.00	<1.00
	7/20/2018	3.08	92.12	<1.00	<1.00	<1.00	<1.00
	10/25/2018	3.29	91.91	<1.00	<1.00	<1.00	<1.00
	1/21/2019	2.75	92.45	<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
	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
	1/31/2018	2.90	92.31	<1.00	<1.00	<1.00	<1.00
	4/16/2018	2.94	92.27	<1.00	<1.00	<1.00	<1.00
	7/20/2018	3.11	92.10	<1.00	<1.00	<1.00	<1.00
	10/25/2018	3.27	91.94	<1.00	<1.00	<1.00	<1.00
	1/21/2019	2.76	92.45	<1.00	<1.00	<1.00	<1.00

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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)
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
	1/31/2018	3.07	92.01	<1.00	<1.00	<1.00	<1.00
	4/16/2018	3.11	91.97	<1.00	<1.00	<1.00	<1.00
	7/20/2018	3.25	91.83	<1.00	<1.00	<1.00	<1.00
	10/25/2018	3.48	91.60	<1.00	<1.00	<1.00	<1.00
	1/21/2019	2.94	92.14	<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
	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

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**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)
MW08	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
	1/31/2018	2.72	92.26	<1.00	<1.00	<1.00	<1.00
	4/16/2018	2.74	92.24	<1.00	<1.00	<1.00	<1.00
	7/20/2018	2.91	92.07	<1.00	<1.00	<1.00	<1.00
	10/25/2018	3.11	91.87	<1.00	<1.00	<1.00	<1.00
	1/21/2019	2.58	92.40	<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
	4/13/2015	4.02	90.81	<1.0	<1.0	<1.0	<1.0
	7/29/2015	--	--	Removed from monitoring program			

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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			
CDPHE WQCC Reg 41				5.0	560	700	1,400

**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

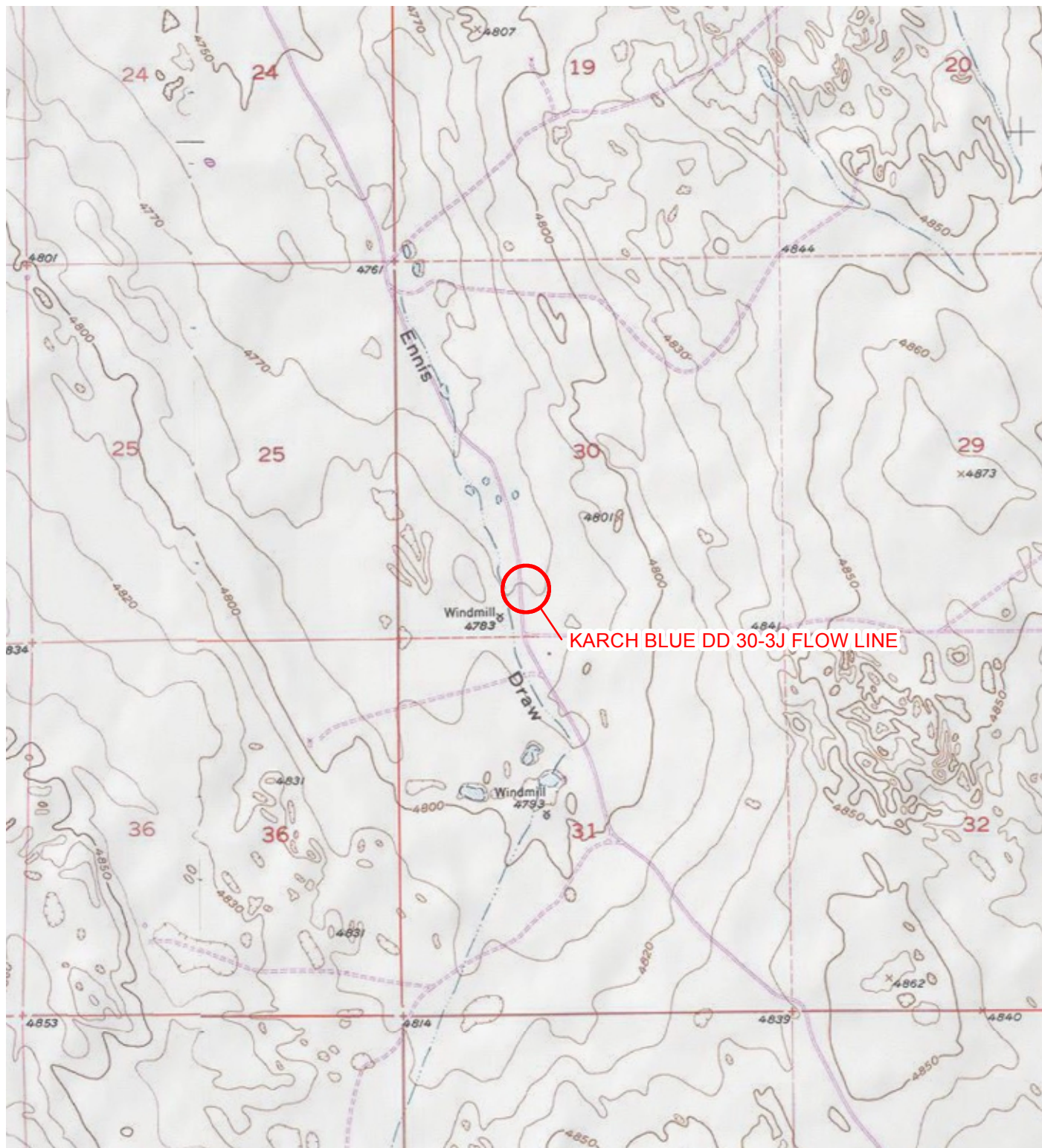
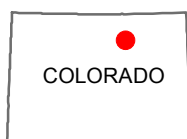
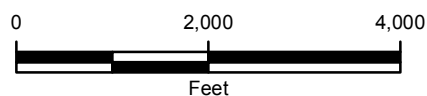


IMAGE COURTESY OF ESRI/USGS

# 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.**





# 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.

— RELATIVE GROUNDWATER ELEVATION CONTOUR

CONTOUR INTERVAL = 0.10 FEET

GRADIENT = 0.011 FEET/FOOT

— UNDERGROUND UTILITIES

- - - EXCAVATION EXTENT

GROUNDWATER ELEVATIONS WERE MEASURED JANUARY 21, 2019

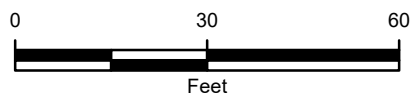


IMAGE COURTESY OF GOOGLE EARTH 2016

**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.**









January 23, 2019

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. January 21, 2019. This project is associated with Origins project number Y901252-01.

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

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	Y901252-01	Water	January 21, 2019 12:16	01/21/2019 14:08
MW05	Y901252-02	Water	January 21, 2019 11:15	01/21/2019 14:08
MW06	Y901252-03	Water	January 21, 2019 12:25	01/21/2019 14:08
MW07	Y901252-04	Water	January 21, 2019 11:40	01/21/2019 14:08
MW08	Y901252-05	Water	January 21, 2019 11:55	01/21/2019 14:08
MW04	Y901252-06	Water	January 21, 2019 12:40	01/21/2019 14:08

Origins Laboratory, Inc.



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Arvada CO 80003

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

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page 1 of 1

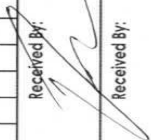
4901252

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: Drew Bullinger

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	1/21/19	12:16	3	X					X				BTEX	1
MW05	1/21/19	11:25	3	X					X				BTEX	2
MW06	1/21/19	12:25	3	X					X				BTEX	3
MW07	1/21/19	11:40	3	X					X				BTEX	4
MW08	1/21/19	11:55	3	X					X				BTEX	5
MW04	1/21/19	12:40	3	X					X				BTEX	6
														7
														8
														9
														10
Relinquished By: <i>Don Mader</i>	Date: 1/21/19	Time: 14:08		Received By: 				Date: 1-21-19	Time: 1400	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:					

36 Date Results Needed

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

Origins Laboratory, Inc.

*Jefe Pellegrini*

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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: 4901252

Client: LTE

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

Checklist Completed by: Dan Lee

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

Date/time completed: 1-21-19

Airbill #: NA

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

Cooler Number/Temperature: ✓ 38 °C ✓ °C ✓ °C ✓ °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> ?	<u>✓</u>			
Is there ice present (document if blue ice is used)	<u>✓</u>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<u>✓</u>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<u>✓</u>		
Were all samples received intact <sup>(1)</sup> ?	<u>✓</u>			
Was adequate sample volume provided <sup>(1)</sup> ?	<u>✓</u>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<u>✓</u>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<u>✓</u>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<u>✓</u>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<u>✓</u>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<u>✓</u>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		<u>✓</u>		
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)			<u>✓</u>	
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) [Signature]

Date/Time Reviewed 1/22/19

Origins Laboratory, Inc.

[Signature]

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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

1/21/2019 12:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y901252-01 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2109	JTD	01/21/2019	01/21/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	114 %	84-121	"	"	"
Surrogate: Toluene-d8	93.9 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	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)

**MW05****1/21/2019 11:15:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y901252-02 (Water)****BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B9A2109	JTD	01/21/2019	01/21/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	115 %	84-121	"	"	"
Surrogate: Toluene-d8	94.4 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.6 %	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)

**MW06**

**1/21/2019 12:25:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y901252-03 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B9A2109	JTD	01/21/2019	01/22/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	91.8 %	84-121	"	"	"
Surrogate: Toluene-d8	97.7 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	96.2 %	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)

## MW07

1/21/2019 11:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y901252-04 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2109	JTD	01/21/2019	01/22/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.0 %	84-121	"	"	"
Surrogate: Toluene-d8	103 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.2 %	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)

MW08

1/21/2019 11:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y901252-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2109	JTD	01/21/2019	01/22/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.4 %	84-121	"	"	"
Surrogate: Toluene-d8	98.0 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	96.2 %	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)

## MW04

1/21/2019 12:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y901252-06 (Water)

### BTEX by EPA 8260C

Benzene	10.5	1.00	ug/L	1	B9A2109	JTD	01/21/2019	01/22/2019	
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	30.2	1.00	"	"	"	JTD	"	"	
Xylenes, total	4.29	1.00	"	"	"	JTD	"	"	
Surrogate: 1,2-Dichloroethane-d4	94.0 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	97.3 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	97.0 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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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 B9A2109 - EPA 5030B (Water)**

**Blank (B9A2109-BLK1)**

Prepared: 01/21/2019 Analyzed: 01/21/2019

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	109		84-121			
Surrogate: Toluene-d8	60		"	62.5	95.9		85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5	99.0		84-114			

Origins Laboratory, Inc.



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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
Batch B9A2109 - EPA 5030B (Water)										
LCS (B9A2109-BS1)					Prepared: 01/21/2019 Analyzed: 01/21/2019					
Benzene	53.8	1.00	ug/L	50.0		108	73.3-129			
Toluene	55.1	1.00	"	50.0		110	76.2-123			
Ethylbenzene	53.2	1.00	"	50.0		106	73.6-130			
m,p-Xylene	109	2.00	"	100		109	76.1-126			
o-Xylene	53.2	1.00	"	50.0		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	84-121			
Surrogate: Toluene-d8	60		"	62.5		95.9	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.6	84-114			

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Project Number: 008313054  
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**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 B9A2109 - EPA 5030B (Water)**

Matrix Spike (B9A2109-MS1)		Source: Y901252-01			Prepared: 01/21/2019 Analyzed: 01/22/2019					
Benzene	63.6	1.00	ug/L	50.0	0.100	127	74-130			
Toluene	59.2	1.00	"	50.0	ND	118	73-131			
Ethylbenzene	57.0	1.00	"	50.0	ND	114	76-132			
m,p-Xylene	118	2.00	"	100	ND	118	69-139			
o-Xylene	56.8	1.00	"	50.0	ND	114	74-131			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		103	84-121			
Surrogate: Toluene-d8	59		"	62.5		94.1	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	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 B9A2109 - EPA 5030B (Water)**

Matrix Spike Dup (B9A2109-MSD1)		Source: Y901252-01			Prepared: 01/21/2019 Analyzed: 01/22/2019					
Benzene	61.9	1.00	ug/L	50.0	0.100	124	74-130	2.66	20	
Toluene	56.6	1.00	"	50.0	ND	113	73-131	4.41	20	
Ethylbenzene	53.1	1.00	"	50.0	ND	106	76-132	7.07	20	
m,p-Xylene	111	2.00	"	100	ND	111	69-139	6.13	20	
o-Xylene	53.8	1.00	"	50.0	ND	108	74-131	5.41	20	
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	84-121			
Surrogate: Toluene-d8	58		"	62.5		92.8	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.4	84-114			

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4600 West 60th Avenue  
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Jeremy Pike  
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