

TABLE 1
GROUNDWATER ANALYTICAL RESULTS

LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
COGCC REMEDIATION #8952
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Monitoring Well	Date	Depth to Water (feet btoc)	Groundwater Elevation (AMSL)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW01	8/22/2014	6.22	4,732.91	17,800	2,920	745	11,500
	11/20/2014	9.79	4,729.34	32,900	751	673	10,500
	1/9/2015	7.87	4,731.26	30,000	190	1,300	20,000
	4/10/2015	8.72	4,730.41	25,000	220	640	13,000
	7/16/2015	6.16	4,732.97	22,000	1,800	690	11,000
	10/6/2015	7.02	4,732.11	33,000	150	830	13,000
	1/15/2016	7.56	4,731.57	1,600	1.8	<1.0	2,000
	4/29/2016	7.50	4,731.63	<1.0	<1.0	<1.0	<1.0
	7/15/2016	7.60	4,731.53	<1.0	<1.0	<1.0	<1.0
	10/26/2016	7.65	4,731.48	2,000	<1.0	<1.0	27
	1/19/2017	8.70	4,730.43	1,400	<1.0	64	460
	4/20/2017	9.83	4,729.12	3,100	<1.0	220	2,500
	8/9/2017	7.05	4,731.90	2,100	1.3	210	2,400
	10/3/2017	7.77	4,731.18	1,900	1.1	230	35,000
	1/2/2018	7.07	4,731.88	1,520	<4.00	193	1,390
MW02	8/22/2014	8.83	4,733.58	0.33	<1.0	<1.0	3.5
	11/20/2014	9.51	4,732.90	<0.50	<1.0	<1.0	<1.0
	1/9/2015	10.25	4,732.16	<1.0	<1.0	<1.0	<1.0
	4/10/2015	11.26	4,731.15	<1.0	<1.0	<1.0	<1.0
	7/16/2015	8.71	4,733.70	<1.0	<1.0	<1.0	<1.0
	10/6/2015	9.30	4,733.11	<1.0	<1.0	<1.0	<1.0
	1/15/2016	10.42	4,731.99	<1.0	<1.0	<1.0	<1.0
	4/29/2016	9.80	4,732.61	<1.0	<1.0	<1.0	<1.0
	7/15/2016	10.15	4,732.26	<1.0	<1.0	<1.0	<1.0
	10/26/2016	10.30	4,732.11	<1.0	<1.0	<1.0	<1.0
	1/19/2017	10.25	4,732.16	<1.0	<1.0	<1.0	<1.0
	4/20/2017	12.71	4,729.70	<1.0	<1.0	<1.0	<2.0
	8/9/2017		NM -REMOVED FROM MONITORING				
MW03	8/22/2014	12.74	4,729.52	<1.0	<1.0	0.68	1.4
	11/20/2014	9.29	4,732.97	<0.50	<1.0	<1.0	<1.0
	1/9/2015	10.08	4,732.18	<1.0	<1.0	<1.0	<1.0
	4/10/2015	11.50	4,730.76	1.1	<1.0	<1.0	<1.0
	7/24/2015	8.04	4,734.22	<1.0	<1.0	<1.0	<1.0
	10/6/2015	8.44	4,733.82	<1.0	<1.0	<1.0	<1.0
	1/15/2016	9.46	4,732.80	<1.0	<1.0	<1.0	<1.0
	4/29/2016	8.83	4,733.43	<1.0	<1.0	<1.0	<1.0
	7/15/2016	9.29	4,732.97	<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)	Groundwater Elevation (AMSL)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW03	10/26/2016	9.40	4,732.86	<1.0	<1.0	<1.0	<1.0
	1/19/2017	9.20	4,733.06	<1.0	<1.0	<1.0	<1.0
	4/20/2017	11.68	4,730.58	<1.0	<1.0	<1.0	<2.0
	8/9/2017	NM -REMOVED FROM MONITORING					
MW04	8/22/2014	9.20	4,733.02	<1.0	<1.0	<1.0	<2.0
	11/20/2014	9.89	4,732.33	<0.50	<1.0	<1.0	<1.0
	1/9/2015	10.45	4,731.77	<1.0	<1.0	<1.0	<1.0
	4/10/2015	11.50	4,730.72	<1.0	<1.0	<1.0	<1.0
	7/16/2015	8.83	4,733.39	<1.0	<1.0	<1.0	<1.0
	10/6/2015	9.46	4,732.76	<1.0	<1.0	<1.0	<1.0
	1/15/2016	10.60	4,731.62	<1.0	<1.0	<1.0	<1.0
	4/29/2016	10.06	4,732.16	<1.0	<1.0	<1.0	<1.0
	7/15/2016	10.29	4,731.93	<1.0	<1.0	<1.0	<1.0
	10/26/2016	10.48	4,731.74	<1.0	<1.0	<1.0	<1.0
	1/19/2017	10.40	4,731.82	<1.0	<1.0	<1.0	<1.0
	4/20/2017	12.87	4,729.35	<1.0	<1.0	<1.0	<2.0
	8/9/2017	NM -REMOVED FROM MONITORING					
MW05	8/22/2014	9.19	4,733.25	869	<1.0	3.7	5.0
	11/20/2014	9.81	4,732.63	7.2	<1.0	<1.0	<1.0
	1/9/2015	10.35	4,732.09	2.6	<1.0	<1.0	<1.0
	4/10/2015	11.05	4,731.39	<1.0	<1.0	<1.0	<1.0
	7/16/2015	9.72	4,732.72	220	<1.0	<1.0	<1.0
	10/6/2015	8.23	4,734.21	<1.0	<1.0	<1.0	<1.0
	1/15/2016	NM	NM	Not sampled - monitoring well frozen/blocked			
	4/29/2016	10.48	4,731.96	<1.0	<1.0	<1.0	<1.0
	7/15/2016	10.13	4,732.31	<1.0	<1.0	<1.0	<1.0
	10/26/2016	8.92	4,733.52	<1.0	<1.0	<1.0	<1.0
	1/19/2017	8.70	4,733.74	<1.0	<1.0	<1.0	<1.0
	4/20/2017	10.82	4,730.23	<1.0	<1.0	<1.0	<2.0
	8/9/2017	7.81	4,733.24	<1.0	<1.0	<1.0	<2.0
	10/3/2017	8.00	4,733.05	<1.0	<1.0	<1.0	<2.0
	1/2/2018	8.25	4,732.80	<1.00	<1.00	<1.00	<1.00

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Monitoring Well	Date	Depth to Water (feet btoc)	Groundwater Elevation (AMSL)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW06	9/25/2014	6.82	4,732.38	<1.0	<1.0	<1.0	<1.0
	11/20/2014	7.10	4,732.10	<0.50	<1.0	<1.0	<1.0
	1/9/2015	7.87	4,731.33	<1.0	<1.0	<1.0	<1.0
	4/10/2015	9.00	4,730.20	<1.0	<1.0	<1.0	<1.0
	7/16/2015	6.41	4,732.79	<1.0	<1.0	<1.0	<1.0
	10/6/2015	6.92	4,732.28	<1.0	<1.0	<1.0	<1.0
	1/15/2016	8.10	4,731.10	<1.0	<1.0	<1.0	<1.0
	4/29/2016	7.57	4,731.63	<1.0	<1.0	<1.0	<1.0
	7/15/2016	7.97	4,731.23	<1.0	<1.0	<1.0	<1.0
	10/26/2016	7.90	4,731.30	<1.0	<1.0	<1.0	<1.0
	1/19/2017	7.98	4,731.22	<1.0	<1.0	<1.0	<1.0
	4/20/2017	10.46	4,728.74	<1.0	<1.0	<1.0	<2.0
	8/9/2017	NM -REMOVED FROM MONITORING					
MW07	9/25/2014	7.05	4,732.48	<1.0	<1.0	<1.0	<1.0
	11/20/2014	7.41	4,732.12	<0.50	<1.0	<1.0	<1.0
	1/9/2015	8.14	4,731.39	<1.0	<1.0	<1.0	<1.0
	4/10/2015	9.31	4,730.22	<1.0	<1.0	<1.0	<1.0
	7/16/2015	6.70	4,732.83	<1.0	<1.0	<1.0	<1.0
	10/6/2015	7.20	4,732.33	<1.0	<1.0	<1.0	<1.0
	1/15/2016	8.32	4,731.21	<1.0	<1.0	<1.0	<1.0
	4/29/2016	7.80	4,731.73	<1.0	<1.0	<1.0	<1.0
	7/15/2016	8.18	4,731.35	<1.0	<1.0	<1.0	<1.0
	10/26/2016	8.20	4,731.33	<1.0	<1.0	<1.0	<1.0
	1/19/2017	8.20	4,731.33	<1.0	<1.0	<1.0	<1.0
	4/20/2017	10.62	4,728.91	<1.0	<1.0	<1.0	<2.0
	8/9/2017	NM -REMOVED FROM MONITORING					
MW08	9/25/2014	8.10	4,732.92	117	12.6	238	4,860
	11/20/2014	8.67	4,732.35	<0.50	<1.0	<1.0	298
	1/9/2015	9.50	4,731.52	87	39	60	2,200
	4/10/2015	10.58	4,730.44	89	45	<1.0	3,300
	7/16/2015	7.33	4,733.69	<1.0	<1.0	<1.0	<1.0
	10/6/2015	8.07	4,732.66	<1.0	<1.0	<1.0	<1.0
	1/15/2016	9.63	4,731.10	<1.0	<1.0	<1.0	<1.0
	4/29/2016	9.10	4,731.63	<1.0	<1.0	<1.0	<1.0
	7/15/2016	8.88	4,731.85	<1.0	<1.0	<1.0	<1.0
	10/26/2016	9.51	4,731.22	<1.0	<1.0	<1.0	<1.0
	1/19/2017	9.47	4,731.26	<1.0	<1.0	<1.0	<1.0
	4/20/2017	11.91	4,728.82	<1.0	<1.0	<1.0	<2.0
	8/9/2017	7.72	4,733.01	<1.0	<1.0	<1.0	<2.0
	10/3/2017	8.43	4,732.30	<1.0	<1.0	<1.0	<2.0
	1/2/2018	8.90	4,731.83	3.70	<1.00	12.1	66.1

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Monitoring Well	Date	Depth to Water (feet btoc)	Groundwater Elevation (AMSL)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW09	9/25/2014	9.42	4,732.81	207	6,740	299	5,160
	11/20/2014	9.60	4,732.63	38.4	70.6	<1.0	782
	1/9/2015	7.90	4,731.67	34	2.7	120	5,000
	4/10/2015	11.60	4,727.97	<1.0	<1.0	<1.0	<1.0
	7/16/2015	9.32	4,730.25	14	48	<1.0	100
	10/6/2015	9.51	4,732.57	<1.0	<1.0	<1.0	<1.0
	1/15/2016	9.63	4,732.45	<1.0	<1.0	<1.0	<1.0
	4/29/2016	10.15	4,731.93	<1.0	<1.0	<1.0	9.6
	7/15/2016	10.44	4,731.64	<1.0	<1.0	<1.0	<1.0
	10/26/2016	10.55	4,731.53	170	1.8	23	900
	1/19/2017	10.50	4,731.58	<1.0	<1.0	<1.0	<1.0
	4/20/2017	12.73	4,729.35	<1.0	<1.0	<1.0	<2.0
	8/9/2017	9.52	4,732.56	<1.0	<1.0	<1.0	<2.0
	10/3/2017	9.71	4,732.37	<1.0	<1.0	<1.0	<2.0
	1/2/2018	9.91	4,732.17	<1.00	<1.00	1.26	17.0
MW10	1/9/2015	9.17	4,731.94	<1.0	<1.0	<1.0	<1.0
	4/10/2015	10.19	4,730.92	<1.0	<1.0	<1.0	<1.0
	7/16/2015	7.65	4,733.46	<1.0	<1.0	<1.0	<1.0
	10/6/2015	8.21	4,732.90	<1.0	<1.0	<1.0	<1.0
	1/15/2016	9.38	4,731.73	<1.0	<1.0	<1.0	<1.0
	4/29/2016	8.79	4,732.32	<1.0	<1.0	<1.0	<1.0
	7/15/2016	9.08	4,732.03	<1.0	<1.0	<1.0	<1.0
	10/26/2016	9.70	4,731.41	<1.0	<1.0	<1.0	<1.0
	1/19/2017	9.70	4,731.41	<1.0	<1.0	<1.0	<1.0
	4/20/2017	11.78	4,729.57	<1.0	<1.0	<1.0	<2.0
	8/9/2017	NM -REMOVED FROM MONITORING					
MW11	1/9/2015	9.05	4,732.03	<1.0	<1.0	<1.0	2.1
	4/10/2015	10.03	4,731.05	<1.0	<1.0	<1.0	<1.0
	7/16/2015	7.80	4,733.28	<1.0	<1.0	<1.0	<1.0
	10/6/2015	8.10	4,732.98	<1.0	<1.0	<1.0	<1.0
	1/15/2016	9.34	4,731.74	<1.0	<1.0	<1.0	<1.0
	4/29/2016	9.60	4,731.48	<1.0	<1.0	<1.0	<1.0
	7/15/2016	8.93	4,732.15	<1.0	<1.0	<1.0	<1.0
	10/26/2016	9.10	4,731.98	<1.0	<1.0	<1.0	<1.0
	1/19/2017	9.10	4,731.98	<1.0	<1.0	<1.0	<1.0
	4/20/2017	11.52	4,729.56	<1.0	<1.0	<1.0	<2.0
	8/9/2017	NM -REMOVED FROM MONITORING					

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Monitoring Well	Date	Depth to Water (feet btoc)	Groundwater Elevation (AMSL)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW12	1/9/2015	9.15	4,731.32	<1.0	<1.0	<1.0	<1.0
	4/10/2015	10.25	4,730.22	<1.0	<1.0	<1.0	<1.0
	7/16/2015	7.35	4,733.12	<1.0	<1.0	<1.0	<1.0
	10/6/2015	7.98	4,732.49	<1.0	<1.0	<1.0	<1.0
	1/15/2016	9.29	4,731.18	<1.0	<1.0	<1.0	<1.0
	4/29/2016	8.75	4,731.72	<1.0	<1.0	<1.0	<1.0
	7/15/2016	8.83	4,731.64	<1.0	<1.0	<1.0	<1.0
	10/26/2016	9.10	4,731.37	<1.0	<1.0	<1.0	<1.0
	1/19/2017	9.02	4,731.45	<1.0	<1.0	<1.0	<1.0
	4/20/2017	11.41	4,729.06	<1.0	<1.0	<1.0	<2.0
	8/9/2017	NM -REMOVED FROM MONITORING					
MW13	1/9/2015	9.80	4,731.35	990	220	130	3,900
	4/10/2015	10.85	4,730.30	1,100	25	<1.0	2,400
	7/16/2015	8.21	4,732.94	620	1,200	150	4,600
	10/6/2015	8.56	4,732.50	290	2,600	460	6,300
	1/15/2016	9.90	4,731.16	210	240	<1.0	3,700
	4/29/2016	9.40	4,731.66	71	59	<1.0	2,200
	7/15/2016	9.54	4,731.52	17	40	<1.0	3,100
	10/26/2016	9.75	4,731.31	3.8	2.5	7.6	3,300
	1/19/2017	9.66	4,731.40	21	1.8	<1.0	4,500
	4/20/2017	11.92	4,729.14	16	<1.0	<1.0	7,300
	8/9/2017	8.68	4,732.38	14	1.2	140	3,100
	10/3/2017	8.85	4,732.21	4.5	<1.0	<1.0	970
	1/2/2018	9.22	4,731.84	<4.00	<4.00	86.1	895
CDPHE WQCC Reg 41				5.0	560	700	1,400

NOTES:

AMSL - above mean sea level

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

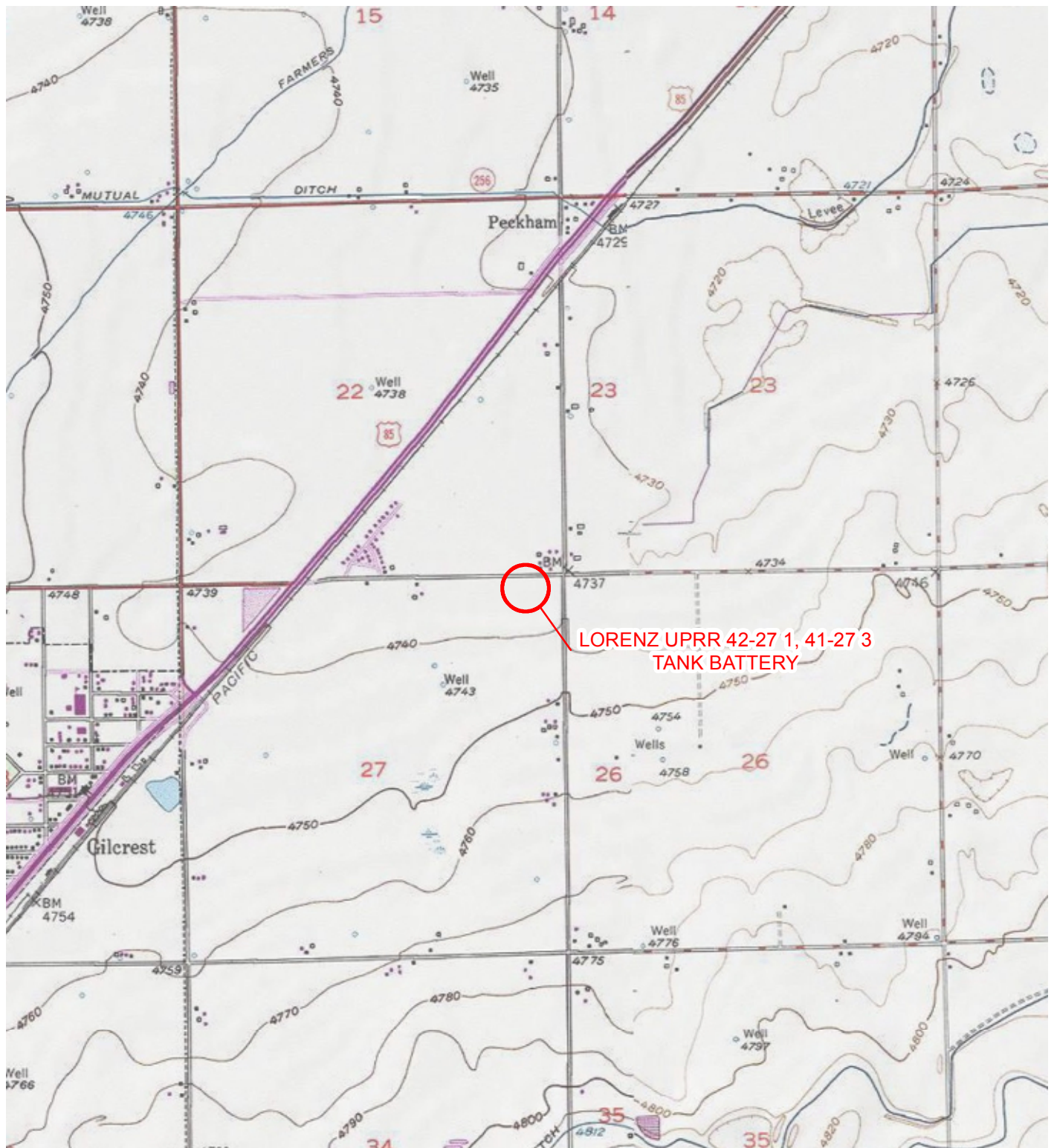
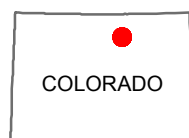
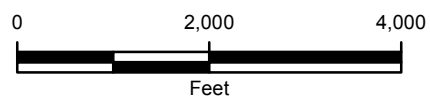


IMAGE COURTESY OF ESRI/USGS

LEGEND

○ SITE LOCATION



COLORADO

FIGURE 1
SITE LOCATION MAP
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
NENE SEC 27-T4N-R66W
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.





IMAGE COURTESY OF GOOGLE EARTH 2017

LEGEND

- ⊗ MONITORING WELL
- ⊗ MONITORING WELL REMOVED FROM MONITORING
- PIPELINE MARKER
- ↑ CALCULATED GROUNDWATER FLOW DIRECTION
- UNDERGROUND UTILITIES
- OE — OVERHEAD POWER LINE
- - - EXCAVATION EXTENT
- x — x FENCE
- GROUNDWATER ELEVATION CONTOUR;

CONTOUR INTERVAL = 0.25 FEET

GRADIENT = 0.032 FEET/FOOT

GROUNDWATER ELEVATIONS WERE MEASURED ON JANUARY 2, 2018

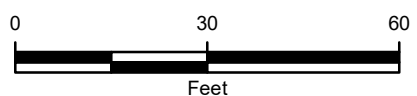
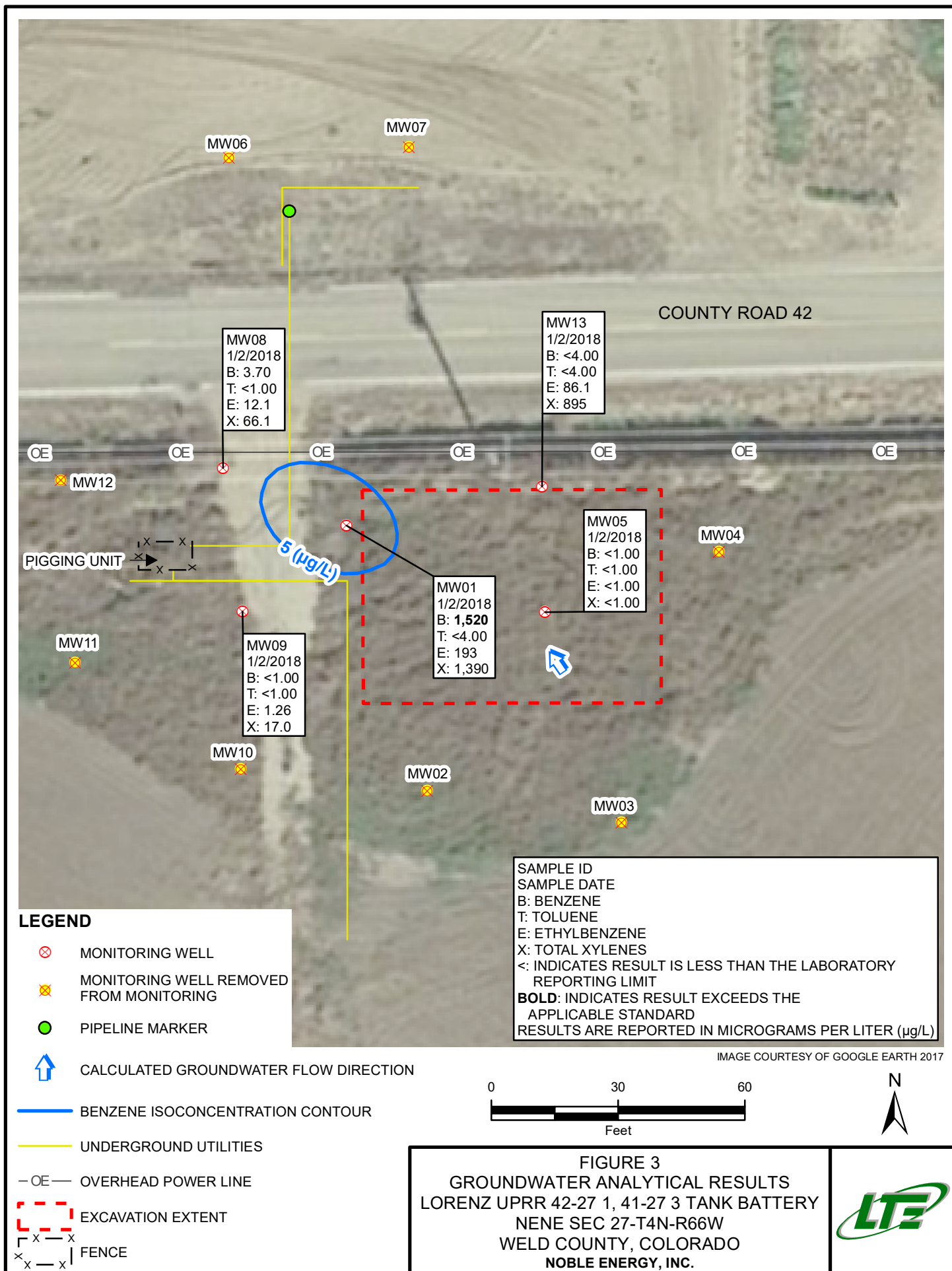


FIGURE 2
GROUNDWATER ELEVATION MAP
 LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
 NENE SEC 27-T4N-R66W
 WELD COUNTY, COLORADO
 NOBLE ENERGY, INC.







January 09, 2018

LT Environmental, Inc.

Jeremy Pike

4600 West 60th Avenue

Arvada

CO 80003

Project Name - Noble - Lorenz

Project Number - 008314023

Attached are your analytical results for Noble - Lorenz received by Origins Laboratory, Inc. January 02, 2018. This project is associated with Origins project number Y801009-01.

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.

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Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW05	Y801009-01	Water	January 2, 2018 13:21	01/02/2018 15:00
MW08	Y801009-02	Water	January 2, 2018 12:55	01/02/2018 15:00
MW09	Y801009-03	Water	January 2, 2018 13:11	01/02/2018 15:00
MW13	Y801009-04	Water	January 2, 2018 13:34	01/02/2018 15:00
MW01	Y801009-05	Water	January 2, 2018 13:49	01/02/2018 15:00

Origins Laboratory, Inc.



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Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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980106

page | of |

Client: LT Environmental
 Address: _____
 Telephone Number: Noble Remediation Team
 Email Address: _____

Project Manager: Jeremy Pice
 Project Name: Lorenz
 Project Number: 008314023
 Samples Collected By: Glen Thompson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summary & Counter #	Other	BTEX			
MW05	1/2/18	1321	3	X				X					X	Lab Filter all	1
MW08	1/2/18	1355	3	X				X					X		2
MW09	1/2/18	1311	3	X				X					X		3
MW13	1/2/18	1334	3	X				X					X		4
MW05	1/2/18	1344	3	X				X					X		5
															6
															7
															8
															9
															10
Relinquished By:	Date: 1/2/18	Time: 1500		Received By:				Date: 1-2-18				Time: 1500	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:			

Temp Received: 5.8 Date Results Needed

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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y801009

Client: LT E

Client Project ID: Noble - Lorenz

Checklist Completed by: [Signature]

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 1-2-12

Airbill #: NR

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

Cooler Number/Temperature: 1 5.5 °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 ⁽¹⁾ ?	<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>SAV 01 13-11</u>
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water — Is there headspace (≥ 1/4 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 ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

Date/Time Reviewed

Origins Laboratory, Inc.



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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

MW05

1/2/2018 1:21:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y801009-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8A0301	01/03/2018	01/03/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

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

96.0 % 84-121
100 % 85-115
100 % 84-114

" " "
" " "
" " "

Origins Laboratory, Inc.



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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

MW08

1/2/2018 12:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y801009-02 (Water)

BTEX by EPA 8260C

Benzene	3.70	1.00	ug/L	1	B8A0301	01/03/2018	01/03/2018	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	12.1	1.00	"	"	"	"	"	
Xylenes, total	66.1	1.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	97.5 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.9 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.1 %	84-114			"	"	"	

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LT Environmental, Inc.
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Arvada CO 80003

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

MW09

1/2/2018 1:11:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y801009-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8A0301	01/03/2018	01/03/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	1.26	1.00	"	"	"	"	"	
Xylenes, total	17.0	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.1 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.7 %	84-114			"	"	"	

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Arvada CO 80003

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

MW13

1/2/2018 1:34:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y801009-04 (Water)

BTEX by EPA 8260C

Benzene	ND	4.00	ug/L	4	B8A0301	01/03/2018	01/03/2018	U
Toluene	ND	4.00	"	"	"	"	"	U
Ethylbenzene	86.1	4.00	"	"	"	"	"	
Xylenes, total	895	4.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.4 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.9 %	84-114			"	"	"	

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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

MW01

1/2/2018 1:49:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y801009-05 (Water)

BTEX by EPA 8260C

Benzene	1520	50.0	ug/L	50	B8A0301	01/03/2018	01/04/2018	
Toluene	ND	4.00	"	4	"	"	01/03/2018	U
Ethylbenzene	193	4.00	"	"	"	"	"	
Xylenes, total	1390	4.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	99.3 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.4 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.8 %	84-114			"	"	"	

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LT Environmental, Inc.
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Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

Blank (B8A0301-BLK1)

Prepared: 01/03/2018 Analyzed: 01/03/2018

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	59		"	62.5		94.1	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

Blank (B8A0301-BLK2)

Prepared: 01/03/2018 Analyzed: 01/03/2018

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	61		"	62.5		97.6	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.4	84-114			

Origins Laboratory, Inc.



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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

LCS (B8A0301-BS1)

Prepared: 01/03/2018 Analyzed: 01/03/2018

Benzene	41.8	1.00	ug/L	50.0		83.7	73.3-129			
Toluene	43.1	1.00	"	50.0		86.1	76.2-123			
Ethylbenzene	43.1	1.00	"	50.0		86.2	73.6-130			
m,p-Xylene	87.9	2.00	"	100		87.9	76.1-126			
o-Xylene	45.5	1.00	"	50.0		91.1	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	55		"	62.5		88.3	84-121			
Surrogate: Toluene-d8	64		"	62.5		103	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.1	84-114			

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Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

LCS (B8A0301-BS2)

Prepared: 01/03/2018 Analyzed: 01/03/2018

Benzene	46.0	1.00	ug/L	50.0		91.9	73.3-129			
Toluene	46.4	1.00	"	50.0		92.8	76.2-123			
Ethylbenzene	47.7	1.00	"	50.0		95.4	73.6-130			
m,p-Xylene	96.8	2.00	"	100		96.8	76.1-126			
o-Xylene	48.5	1.00	"	50.0		97.0	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.0	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.5	84-114			

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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

Matrix Spike (B8A0301-MS1)		Source: Y801016-01			Prepared: 01/03/2018 Analyzed: 01/03/2018					
Benzene	49.6	1.00	ug/L	50.0	ND	99.2	74-130			
Toluene	50.0	1.00	"	50.0	ND	100	73-131			
Ethylbenzene	52.3	1.00	"	50.0	ND	105	76-132			
m,p-Xylene	105	2.00	"	100	0.220	105	69-139			
o-Xylene	51.4	1.00	"	50.0	ND	103	74-131			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.2	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.7	84-114			

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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

Matrix Spike (B8A0301-MS2)		Source: Y801016-02			Prepared: 01/03/2018 Analyzed: 01/03/2018					
Benzene	50.1	1.00	ug/L	50.0	ND	100	74-130			
Toluene	50.9	1.00	"	50.0	ND	102	73-131			
Ethylbenzene	52.6	1.00	"	50.0	0.080	105	76-132			
m,p-Xylene	107	2.00	"	100	ND	107	69-139			
o-Xylene	53.1	1.00	"	50.0	ND	106	74-131			
Surrogate: 1,2-Dichloroethane-d4	56		"	62.5		90.0	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.4	84-114			

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

Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

Matrix Spike Dup (B8A0301-MSD1)		Source: Y801016-01			Prepared: 01/03/2018 Analyzed: 01/03/2018					
Benzene	48.9	1.00	ug/L	50.0	ND	97.8	74-130	1.38	20	
Toluene	50.0	1.00	"	50.0	ND	99.9	73-131	0.0400	20	
Ethylbenzene	52.0	1.00	"	50.0	ND	104	76-132	0.479	20	
m,p-Xylene	105	2.00	"	100	0.220	104	69-139	0.676	20	
o-Xylene	51.9	1.00	"	50.0	ND	104	74-131	0.948	20	
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		90.6	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.0	84-114			

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Jeremy Pike
Project Number: 008314023
Project: Noble - Lorenz

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 B8A0301 - EPA 5030B (Water)

Matrix Spike Dup (B8A0301-MSD2)		Source: Y801016-02			Prepared: 01/03/2018 Analyzed: 01/03/2018					
Benzene	50.8	1.00	ug/L	50.0	ND	102	74-130	1.33	20	
Toluene	51.8	1.00	"	50.0	ND	104	73-131	1.69	20	
Ethylbenzene	54.3	1.00	"	50.0	0.080	108	76-132	3.12	20	
m,p-Xylene	110	2.00	"	100	ND	110	69-139	2.00	20	
o-Xylene	54.1	1.00	"	50.0	ND	108	74-131	1.90	20	
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		90.4	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.6	84-114			

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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Jeremy Pike

Project Number: 008314023

Project: Noble - Lorenz

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.

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