REVIEWED
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February 27,

2024

2023 Fourth Quarter (4th) Groundwater Monitoring Report (October - December)
DKL Energy - Cottonwood Facility (2RF-128) OGRID: 330291
(Formally 3 Bear Energy, LLC)
Eddy County, New Mexico

Review of the Fourth Quarter Groundwater Monitoring Report for the Cottonwood Facility (2RF-128): Content Satisfactory
1. Continue to conduct quarterly groundwater monitoring.
2. Consider preparing a contingency plan for monitoring wells that remain dry; for example, going out thirty (30) days after sampling event to check for sufficient water volume, or drilling the wells to a deeper extent.
3. Submit the next annual report to NMOCD by April 1, 2025.

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1.0 EXECUTIVE SUMMARY

Larson & Associates, Inc. (LAI) has prepared this report on behalf of DKL Energy (DKL) for submittal to the New Mexico Oil Conservation Division (NMOCD) District 2 in Artesia and Santa Fe, New Mexico. The report presents the results of the 2023 fourth (4^{th}) quarter (October - December) groundwater monitoring performed on December 18, 2023, at the Cottonwood Facility (Site). The Site is a produced water recycling facility permitted by the NMOCD (2RF-128) that was previously operated by 3 Bear Energy, LLC (3 Bear), until June 1, 2022, when DKL acquired operations. The Site is located in Unit N (SE/4, SW/4), Section 20, Township 26 South, and Range 26 East in Eddy County, New Mexico. The geodetic position is North 32.02104° and West -104.31879°. The surface and mineral owner is the U.S. Government administered by the Bureau of Land Management (BLM).

The following activities occurred on December 18, 2023:

- Gauged four (4) monitoring wells (MW-1 through MW-4) for light non-aqueous phase liquid (LNAPL) and depth to groundwater.
- Collected groundwater samples from four (4) wells (MW-1, MW-2, MW-3, and MW-4).
- Analyzed samples for benzene, toluene, ethylbenzene, xylenes (BTEX) and total petroleum hydrocarbons (TPH) by EPA SW-846 Methods 8021B and 8015, respectively, and chloride by EPA Method 300.0.

The following observations are documented in this report:

- Depth to groundwater ranged from 28.30 feet below ground surface (bgs) at MW-1 to 67.23 feet bgs at MW-4.
- Depth to groundwater increased (falling head) in wells MW-1 (0.07 feet) and MW-2 (0.05 feet) from the previous monitoring event on September 12, 2023.
- Depth to groundwater decreased (rising head) in wells MW-3 (1.68 feet) and MW-4 (0.06 feet) from the previous monitoring event on September 12, 2023.
- The groundwater potentiometric surface elevation ranged from 3,431.99 feet above mean sea level (MSL) at well MW-1 (up gradient) to 3,388.83 feet above MSL at MW-4 (cross gradient and down gradient).
- The rising and lowering groundwater conditions are likely result of seasonal fluctuations in the aquifer.
- An apparent groundwater divide occurs in the area between monitoring wells MW-1 and MW-3 that causes groundwater to flow to the northeast towards well MW-2, east towards MW-3, and southeast towards well MW-4 at gradients between 0.029 and 0.192 feet per foot (ft/ft).
- No significant change in the groundwater flow direction, or gradient was observed during the fourth quarter 2023 groundwater monitoring event.
- BTEX and TPH were below the analytical method reporting limit (RL) in samples from all monitoring wells.
- Monitoring well MW-2 contained insufficient water to collect samples for TPH.
- Chloride exceeded the NMWQCC domestic water quality standard of 250 mg/L in the groundwater sample MW-4 (20,200 mg/L) and is consistent with the previous monitoring events.

- The Site does not appear to be the source for the chloride reported in samples from monitoring well MW-4 based on the initial laboratory results from the groundwater samples collected on January 29, 2019.
- DKL routinely monitors the leak detection system and has found no fluid to indicate a leak from the pond.

DKL will continue to monitor the leak detection system, as required by the permit conditions, and immediately report any changes to the NMOCD. DKL will also continue monitoring groundwater on a quarterly (4 times per year) schedule. Notification will be provided to the NMOCD at least 7 working days prior to each monitoring event, and as soon as possible upon any significant change in analyte concentrations.

2.0 INTRODUCTION

LAI has prepared this report on behalf DKL for submittal to the NMOCD District 2 in Artesia and Santa Fe, New Mexico. The report presents the results of the 2023 fourth (4th) quarter (October - December) groundwater monitoring at the Cottonwood Facility (Site) performed on December 18, 2023. Notification of the groundwater sampling event was submitted to the NMOCD on December 11, 2023. A follow up email was received from Nelson Velez on December 11, 2023, stating that "Since this is a groundwater release, OCD recommends placing within the data entry box "…Please provide any information necessary for observers to contact samples", the wording "Groundwater abatement per 19.15.30.14B NMAC". Please note that groundwater sampling notification required 4 working days per the aforementioned provision. A follow up email was sent to Nelson Velez on December 11, 2023, stating "In the case of Delek – Cottonwood Facility (2RF-12), a recycling facility, how would Delek submit the groundwater sampling notification on the portal as there is no incident number for this Site?". Appendix A presents NMOCD communications.

2.1 Background

The Site is a produced water recycling facility permitted by the NMOCD (2RF-128) that was owned and operated by 3 Bear Energy LLC, until June 1, 2022, when DKL acquired operations. The Site is located in Unit N (SE 1/4, SW 1/4), Section 20, Township 26 South, and Range 26 East, in Eddy County, New Mexico. The surface and mineral owner is the U.S. Government administered by the Bureau of Land Management (BLM). The geodetic position is North 32.02104° and West -104.31879°. Figure 1 presents a location and topographic map. Figure 2 presents an aerial map.

3.0 DEPTH TO GROUNDWATER AND GROUNDWATER ELEVATION

On December 18, 2023, LAI personnel gauged monitoring wells MW-1 through MW-4 for LNAPL and depth to groundwater. LNAPL was not present in the monitoring wells. Groundwater was gauged at 31.06 (MW-1), 56.89 (MW-2), 47.29 (MW-3) and 70.21 (MW-4) feet below top of casing (TOC). Depth to groundwater decreased (rising conditions) in monitoring wells MW-3 (1.68 feet) and MW-4 (0.06 feet) and increased (falling conditions) in MW-1 (0.07 feet) and MW-2 (0.05 feet) compared to the previous monitoring period on September 18, 2023. The rising and lowering groundwater conditions are likely the result of seasonal fluctuation in the aquifer.

The groundwater potentiometric surface elevation ranged from 3,431.99 feet above mean sea level (MSL) at well MW-1 (upgradient) to 3,388.33 feet above MSL at MW-4 (cross and down gradient). An apparent groundwater divide causes groundwater to flow to the northeast and east towards wells MW-2 and MW-3, respectively, and southeast towards well MW-4 at gradients between 0.029 and 0.192 ft/ft. No significant change in the groundwater flow direction or gradient was observed on December 18, 2023.

The groundwater potentiometric surface in well MW-2 and MW-3 has steadily declined over time from 3,415.74 to 3,401.37 feet above MSL or approximately 14.37 feet in well MW-2 and 3,416.17 to 3,411.04 feet above MSL or approximately 5.13 feet in well MW-3, between December 12, 2018, and December

18, 2023. The decline is likely due to decreased aquifer recharge in the fractured bedrock. Table 1 presents the groundwater gauging summary. Figure 3 presents the groundwater potentiometric map for December 18, 2023. Appendix B presents a control chart for groundwater elevation over time.

4.0 GROUNDWATER SAMPLES AND ANALYSIS

On December 18, 2023, LAI personnel collected groundwater samples from monitoring wells MW-1, MW-2, MW-3, and MW-4. LAI was not able to collect the sample for TPH from monitoring well MW-2 due to insufficient water. A duplicate sample (MW-1) was collected for laboratory quality assurance and quality control (QA/QC). The samples from MW-1 were collected using the low stress or low flow method, according to EPA protocol (EQASOP-GW4, Revision 4, September 19, 2017). The low stress or low flow method where an environmental pump was submerged near the middle of the water column and the well was pumped at a low rate until environmental parameters stabilized. Groundwater samples were collected from the discharge of the dedicated disposable Tygon® tubing. The tubing was discarded after each use and the pump was thoroughly cleaned with a solution potable water and laboratory grade detergent (Alconox®) and rinsed with distilled water. Samples from MW-2 through MW-4 were collected using dedicated disposable polyethylene bailers that were discarded after each use.

The samples were carefully transferred to labeled laboratory containers and delivered under preservation and chain-of-custody to DHL Analytical, Inc. (DHL), a National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory, located in Round Rock, Texas. DHL analyzed the samples BTEX according to EPA SW-846 Method 8021B, by EPA SW-846 Method 8015M, including gasoline range organics (C6 to C10), diesel range organics (>C10 to C28) and oil range organics (>C28 to C35), and chloride by EPA Method 300. Table 2 presents the laboratory analytical data summary. Appendix C presents the laboratory report.

4.1 Organic Analysis

BTEX and TPH concentrations were below the analytical method reporting limit (RL) in the groundwater samples from MW-1, MW-2, MW-3, and MW-4. Monitoring well MW-2 contained insufficient water for TPH analysis.

4.2 Inorganic Analysis

Chloride was reported above the NMWQCC domestic water quality standard of 250 mg/L in the groundwater sample from monitoring well MW-4 (20,200 mg/L) and is consistent with the previous and initial chloride concentration (22,300 mg/L) reported on January 29, 2019. DKL monitors the leak detection system and has not found any leaks in the system, therefore the source for the chloride is unknown. The QA/QC sample (Dup-1) from monitoring well MW-1 had a chloride concentration of 188 mg/L, and 0.53 percent difference of the original chloride value of 187 mg/L reported for MW-1. No data quality exceptions were noted in DHL case narratives. Figure 4 presents a chloride concentration in groundwater map on December 18, 2023.

On January 29, 2019, and May 15, 2019, the laboratory analyzed a precipitate layer that was observed in the groundwater samples from monitoring well MW-4. DHL analyzed the precipitate material and reported chloride at 87,700 mg/L and 25,900 mg/L, on January 29, 2019, and May 15, 2019, respectively. The precipitate is considered naturally occurring and is likely associated with evaporites (chloride) in the formation. Table 3 presents the precipitate sample analytical data summary.

5.0 CONCLUSIONS

The following observations are documented in this report:

- A hydrologic divide in the vicinity of monitoring well MW-1 causing groundwater to flow to the northeast, east and southeast at gradients between 0.029 and 0.192 ft/ft.
- No significant changes in the groundwater flow direction and gradient were observed on December 18, 2023.
- BTEX and TPH were below the laboratory method RLs in MW-1, MW-2, MW-3, and MW-4.
- MW-2 did not contain sufficient water to analyze TPH.
- Chloride was above the NMWQCC domestic water quality standard in the sample collected from MW-4 (20,200 mg/L).
- Rising and lowering groundwater conditions are likely the result of seasonal fluctuation in the aquifer.
- The Site does not appear to be the source for the chloride reported in samples from monitoring well MW-4 based on laboratory results that are consistent with the initial groundwater sample results on January 29, 2019.
- DKL continues to monitor the leak detection system and has found no leaks in the system.

6.0 RECOMMENDATIONS

DKL will continue quarterly (4 times per year) groundwater monitoring at the Site. LAI will gauge and sample monitoring wells in the following order: MW-2, MW-3, MW-1, and MW-4. Groundwater samples will be collected using the low stress or low flow method and dedicated Tygon® tubing. Wells demonstrating insufficient water volume will not be sampled. Notification will be provided to the NMOCD at least 4 working days prior to each monitoring event, and as soon as possible upon any significant change in analyte concentrations.

Tables

Table 1
Monitoring Well Completion and Gauging Summary
DKL Energy, Cottonwood Facilty
Eddy County, New Mexico

Well Information									Groundwater Information				
Well	Date	Well Depth (Feet TOC)	Drilled Depth (Feet BGS)	Well Diameter (Inches)	Surface Elevation (Feet AMSL)	Screen Interval (Feet BGS)	Casing Stickup (Feet)	TOC Elevation (Feet AMSL)	Date Gauged	Depth to Groundwater (Feet TOC)	Depth to Groundwater (Feet BGS)	Water Column (Feet)	Grounwater Elevation (Feet AMSL)
MW-1	08/15/2018	92.40	89.40	2	3,460.29	74.40 - 89.40	2.76	3,463.05	09/25/2018	31.85	29.09	60.55	3,431.20
									11/13/2018	31.81	29.05	60.59	3,431.24
									12/12/2018	31.69	28.93	60.71	3,431.36
									01/29/2019	32.62	29.86	59.78	3,430.43
									05/15/2019	32.50	29.74	59.90	3,430.55
									09/12/2019	31.51	28.75	60.89	3,431.54
									09/20/2019	32.40	29.64	60.00	3,430.65
									12/04/2019	31.73	28.97	60.67	3,431.32
									02/18/2020	31.50	28.74	60.90	3,431.55
									05/07/2020	31.72	28.96	60.68	3,431.33
									08/13/2020	31.82	29.06	60.58	3,431.23
									10/06/2020	31.89	29.13	60.51	3,431.16
									01/05/2021	31.47	28.71	60.93	3,431.58
									04/29/2021	31.45	28.69	60.95	3,431.60
									06/25/2021	31.84	29.08	60.56	3,431.21
									09/01/2021	31.31	28.55	61.09	3,431.74
									11/18/2021	31.48	28.72	60.92	3,431.57
									02/24/2022	31.40	28.64	61.00	3,431.65
									05/19/2022	30.74	27.98	61.66	3,432.31
									09/23/2022	31.02	28.26	61.38	3,432.03
									12/13/2022	30.42	27.66	61.98	3,432.63
									03/16/2023	31.62	28.86	60.78	3,431.43
									06/08/2023	31.02	28.26	61.38	3,432.03
									09/12/2023	30.99	28.23	61.41	3,432.06
									12/18/2023	31.06	28.30	61.34	3,431.99
MW-2	08/16/2018	58.7	61.70	2	3,455.22	40.70 - 55.70	3.04	3,458.26	09/25/2018 *	--	--	--	--
									11/13/2018 *	--	--	--	--
									12/12/2018	42.52	39.48	16.18	3,415.74
									01/29/2019	42.07	39.03	16.63	3,416.19
									05/15/2019	42.70	39.66	16.00	3,415.56

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									09/12/2019	43.98	40.94	14.72	3,414.28
									09/20/2019	44.78	41.74	13.92	3,413.48
									12/04/2019	45.01	41.97	13.69	3,413.25
									02/18/2020	45.10	42.06	13.60	3,413.16
									05/07/2020	49.30	46.26	9.40	3,408.96
									08/13/2020	51.69	48.65	7.01	3,406.57
									10/06/2020	52.00	48.96	6.70	3,406.26
									01/05/2021	52.21	49.17	6.49	3,406.05
									04/29/2021	54.75	51.71	3.95	3,403.51
									09/01/2021	56.93	53.89	1.77	3,401.33
									11/18/2021	57.94	54.90	0.76	3,400.32
									02/24/2022	56.88	53.84	1.82	3,401.38
									05/19/2022	56.93	53.89	1.77	3,401.33
									09/23/2022	56.44	53.40	2.26	3,401.82
									12/13/2022	56.62	53.58	2.08	3,401.64
									03/16/2023	56.32	53.28	2.38	3,401.94
									06/08/2023	56.71	53.67	1.99	3,401.55
									09/12/2023	56.84	53.80	1.86	3,401.42
									12/18/2023	56.89	53.85	1.81	3,401.37
MW-3	08/16/2018	52.9	49.90	2	3,455.52	34.90 - 49.90	3.00	3,458.33	09/25/2018	43.55	40.55	9.40	3,414.78
									11/13/2018	42.65	39.65	10.25	3,415.68
									12/12/2018	42.16	39.16	10.74	3,416.17
									01/29/2019	41.85	38.85	11.05	3,416.48
									05/15/2019	42.61	39.61	10.29	3,415.72
									09/12/2019	44.3	41.30	8.60	3,414.03
									09/20/2019	44.1	41.10	8.80	3,414.23
									12/04/2019	44.83	41.83	8.07	3,413.50
									02/18/2020	45.6	42.60	7.30	3,412.73
									05/07/2020	45.68	42.68	7.22	3,412.65
									08/13/2020	45.64	42.64	7.26	3,412.69

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									10/06/2020	46.19	43.19	6.71	3,412.14
									01/05/2021	46.66	43.66	6.24	3,411.67
									04/29/2021 *	--	--	--	--
									09/01/2021	47.59	44.59	5.31	3,410.74
									11/18/2021	46.98	43.98	5.92	3,411.35
									02/24/2022	45.85	42.85	7.05	3,412.48
									05/19/2022	47.88	44.88	5.02	3,410.45
									09/23/2022	47.76	44.76	5.14	3,410.57
									12/13/2022	46.51	43.51	6.39	3,411.82
									03/16/2023	48.11	45.11	4.79	3,410.22
									06/08/2023	46.45	43.45	6.45	3,411.88
									09/12/2023	48.97	45.97	3.93	3,409.36
									12/18/2023	47.29	44.29	5.61	3,411.04
MW-4	08/14/2018	78.1	75.10	2	3,456.06	60.10 - 75.00	2.98	3,459.04	09/25/2018 *	--	--	--	--
									11/13/2018 *	--	--	--	--
									12/12/2018	74.36	71.38	3.74	3,384.68
									01/29/2019	71.34	68.36	6.76	3,387.70
									05/15/2019	71.50	68.52	6.60	3,387.54
									09/12/2019	67.38	64.40	10.72	3,391.66
									09/20/2019	71.41	68.43	6.69	3,387.63
									12/04/2019	66.31	63.33	11.79	3,392.73
									02/18/2020	71.80	68.82	6.30	3,387.24
									05/07/2020	72.20	69.22	5.90	3,386.84
									08/13/2020	70.10	67.12	8.00	3,388.94
									10/06/2020	68.09	65.11	10.01	3,390.95
									01/05/2021	68.88	65.90	9.22	3,390.16
									04/29/2021	70.14	67.16	7.96	3,388.90
									06/25/2021	69.92	66.94	8.18	3,389.12
									09/01/2021	72.55	69.57	5.55	3,386.49
									11/18/2021	71.61	68.63	6.49	3,387.43

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Eddy County, New Mexico

Well Information									Groundwater Information				
Well	Date	Well Depth (Feet TOC)	Drilled Depth (Feet BGS)	Well Diameter (Inches)	Surface Elevation (Feet AMSL)	Screen Interval (Feet BGS)	Casing Stickup (Feet)	TOC Elevation (Feet AMSL)	Date Gauged	Depth to Groundwater (Feet TOC)	Depth to Groundwater (Feet BGS)	Water Column (Feet)	Grounwater Elevation (Feet AMSL)
									02/24/2022	70.05	67.07	8.05	3,388.99
									05/19/2022	68.82	65.84	9.28	3,390.22
									09/23/2022	67.95	64.97	10.15	3,391.09
									12/13/2022	68.58	65.60	9.52	3,390.46
									03/16/2023	71.71	68.73	6.39	3,387.33
									06/08/2023	71.29	68.31	6.81	3,387.75
									09/12/2023	70.27	67.29	7.83	3,388.77
									12/18/2023	70.21	67.23	7.89	3,388.83

Notes: monitoring wells installed by Environ-Drill, Albuquerque, New Mexico with 2 inch schedule 40 PVC casing and screen
bgs - below ground surface
TOC - top of casing
AMSL - denotes elevation in feet above mean sea level
* - Well bore dry

Table 2
Groundwater Sample Organic and Inorganic Analytical Data Summary
DKL Energy, Cottonwood Facility
Eddy County, New Mexico

Well	Collection Date	Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	Xylenes (mg/L)	GRO C6 - C10 (mg/L)	DRO >C10 - C28 (mg/L)	ORO >C28 - C35 (mg/L)	TPH C6 - C35 (mg/L)	Chloride (mg/L)
NMWQCC Standard:		***0.001**	***0.75**	***0.75**	***0.62**					****250**
MW-1	09/25/2018	<0.000800	<0.00200	<0.00200	<0.00200	<0.556	<0.556	<0.556	<0.556	210
	11/13/2018	0.00124	<0.00200	<0.00200	<0.00200	<0.527	<0.527	<0.527	<0.527	**1,220**
	12/12/2018	0.0013	<0.00200	<0.00200	<0.00200	<0.537	<0.537	<0.537	<0.537	**677**
	01/29/2019	0.00489	<0.00400	<0.00400	<0.00400	<0.0600	<0.0789	<0.0789	<0.2178	**1,750**
	05/15/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0749	<0.0749	<0.7498	214
	09/20/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0730	<0.0730	<0.206	248
	12/04/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0739	<0.0739	<0.2078	224
	02/18/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0772	<0.0772	<0.2144	214
	05/07/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0787	<0.0787	<0.2174	246
	08/13/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	**0.107**	<0.0758	**0.107**	228
	10/06/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0782	<0.0782	<0.2164	218
	01/05/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0785	<0.0785	<0.2170	192
	04/29/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	**2.33**	**0.783**	**3.113**	201
	06/25/2021	--	--	--	--	<0.0600	<0.0790	<0.0790	<0.218	--
	09/01/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.149	<0.149	<0.358	202
	11/18/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0836	<0.0836	<0.0836	182
	02/24/2022	<0.008000	<0.00200	<0.00200	<0.00200	<0.0600	<0.0789	<0.0789	<0.0789	228
	05/19/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0787	<0.0787	<0.0787	194
	09/23/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0742	<0.0742	<0.0742	195
	12/13/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	**0.184**	<0.0988	**0.184**	196
	03/16/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0778	<0.0778	<0.0778	**275**
	06/08/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0748	<0.0748	<0.0748	180
	09/12/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0760	<0.0760	<0.0760	183
	12/18/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0759	<0.0759	<0.0759	187
MW-2	09/25/2018 ***	--	--	--	--	--	--	--	--	--
	11/13/2018 ***	--	--	--	--	--	--	--	--	--
	01/29/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0767	<0.0767	<0.0767	136
	05/15/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0744	<0.0744	<0.2088	106
	09/20/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0748	<0.0748	<0.2096	117
	12/04/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0751	<0.0751	<0.2102	105
	02/18/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0766	<0.0766	<0.2132	120
	05/07/2020	<0.00800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0823	<0.0823	<0.2246	121

Table 2
Groundwater Sample Organic and Inorganic Analytical Data Summary
DKL Energy, Cottonwood Facility
Eddy County, New Mexico

Well	Collection Date	Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	Xylenes (mg/L)	GRO C6 - C10 (mg/L)	DRO >C10 - C28 (mg/L)	ORO >C28 - C35 (mg/L)	TPH C6 - C35 (mg/L)	Chloride (mg/L)
NMWQCC Standard:		***0.001**	***0.75**	***0.75**	***0.62**					****250**
	08/13/2020	<0.00800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0841	<0.0841	<0.2282	124
	10/06/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0789	<0.0789	<0.2178	137
	01/05/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0874	<0.0874	<0.2348	130
	04/29/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0946	<0.0946	<0.24.92	132
	09/01/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.150	<0.150	<0.360	142
	11/18 &22/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.00600	**1.07**	<0.494	**1.07**	149
	02/24/2022 ***	--	--	--	--	--	--	--	--	--
	05/19/2022 ***	--	--	--	--	--	--	--	--	--
	09/23/2022 ***	--	--	--	--	--	--	--	--	--
	12/13/2022 ***	--	--	--	--	--	--	--	--	--
	03/16/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0808	<0.0808	<0.0808	128
	06/08/2023 ***	--	--	--	--	--	--	--	--	128
	09/12/2023 ***	<0.000800	<0.00200	<0.00200	<0.00200	--	--	--	--	134
	12/18/2023 ***	<0.000800	<0.00200	<0.00200	<0.00200	--	--	--	--	133
MW-3	09/25/2018	<0.000800	<0.00200	<0.00200	<0.00200	<0.554	<0.554	<0.554	<0.554	101
	11/13/2018	<0.000800	<0.00200	<0.00200	<0.00200	<0.574	<0.574	<0.574	<0.574	103
	01/29/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0780	<0.0780	<0.0780	140
	05/15/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0758	<0.0758	<0.2116	121
	09/20/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0737	<0.0737	<0.2074	130
	12/04/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0752	<0.0752	<0.2104	111
	02/18/2020	<0.00800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0794	<0.0794	<0.2188	120
	05/07/2020	<0.00800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0997	<0.0997	<0.2594	**305**
	08/13/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0822	<0.0822	<0.2244	125
	10/06/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0787	<0.0787	<0.2174	111
	01/05/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0858	<0.0858	<0.2316	112
	04/29/2021 ***	--	--	--	--	--	--	--	--	--
	09/01/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.150	<0.150	<0.360	123
	11/18/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0878	<0.0878	<0.0878	120
	02/24/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0783	<0.0783	<0.0783	147
	05/19/2022 ***	--	--	--	--	--	--	--	--	--
	09/23/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0880	<0.0880	<0.0880	146
	12/13/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.104	<0.104	<0.104	169

Table 2
Groundwater Sample Organic and Inorganic Analytical Data Summary
DKL Energy, Cottonwood Facility
Eddy County, New Mexico

Well	Collection Date	Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	Xylenes (mg/L)	GRO C6 - C10 (mg/L)	DRO >C10 - C28 (mg/L)	ORO >C28 - C35 (mg/L)	TPH C6 - C35 (mg/L)	Chloride (mg/L)
NMWQCC Standard:		***0.001**	***0.75**	***0.75**	***0.62**					****250**
	03/16/2023 ***	--	--	--	--	--	--	--	--	--
	06/08/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0767	<0.0767	<0.0767	165
	09/12/2023 ***	--	--	--	--	--	--	--	--	--
	12/18/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0766	<0.0766	<0.0766	175
MW-4	09/25/2018 ***	--	--	--	--	--	--	--	--	--
	11/13/2018 ***	--	--	--	--	--	--	--	--	--
	01/29/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	**0.216**	<0.110	**0.216**	**22,300**
	05/15/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.762	<0.762	<0.2114	**22,900**
	09/20/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.741	<0.741	<0.082	**26,000**
	12/04/2019	<0.000800	<0.00200	<0.00200	<0.00200	<0.600	<0.752	<0.752	<2.104	**24,400**
	02/18/2020	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	<0.577	<0.577	<1.754	**25,800**
	05/07/2020	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	<0.110	<0.110	<0.820	**25,400**
	08/13/2020	<0.00800	<0.00200	<0.00200	<0.00200	<0.600	**0.137**	<0.0566	**0.137**	**19,800**
	10/06/2020	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	**0.251**	<0.0790	**0.251**	**21,000**
	01/05/2021	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	**0.126**	<0.0880	**0.126**	**16,200**
	04/29/2021	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	**0.377**	<0.0906	**0.377**	**16,100**
	06/25/2021	--	--	--	--	<0.600	<0.0900	<0.0900	<0.2400	--
	09/01/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.149	<0.149	<0.358	**23,600**
	11/18/2021	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	**0.118**	<0.0840	**0.118**	**17,500**
	02/24/2022	<0.00800	<0.0200	<0.0200	<0.0200	<0.0600	<0.0853	<0.0853	<0.0853	**20,400**
	05/19/2022	<0.00800	<0.0200	<0.0200	<0.0200	<0.6000	**0.264**	<0.0787	**0.264**	**13,400**
	09/23/2022	<0.00800	<0.0200	<0.0200	<0.0200	<0.0600	**0.272**	<0.0745	**0.272**	**19,300**
	12/13/2022	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	<0.106	<0.106	<0.106	**21,900**
	03/16/2023	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	**0.167**	<0.0935	**0.167**	**23,600**
	06/08/2023	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	<0.0820	<0.0820	<0.600	**15,500**
	09/12/2023	<0.00800	<0.0200	<0.0200	<0.0200	<0.0600	**0.144**	<0.0867	**0.144**	**17,800**
	12/18/2023	<0.00800	<0.0200	<0.0200	<0.0200	<0.600	<0.746	<0.746	<0.746	**20,200**
QA/QC (Duplicate) Samples										
Dup-1 (MW-1)	02/18/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0802	<0.0802	<0.2204	210
Dup-1 (MW-1)	05/07/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0800	<0.0800	<0.2200	221
Dup-1 (MW-1)	08/13/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0747	<0.0747	<0.2094	213
Dup-1 (MW-1)	10/06/2020	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0785	<0.0785	<0.2170	196
Dup-1 (MW-1)	01/05/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0751	<0.0751	<0.2102	194

Table 2
Groundwater Sample Organic and Inorganic Analytical Data Summary
DKL Energy, Cottonwood Facility
Eddy County, New Mexico

Well	Collection Date	Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	Xylenes (mg/L)	GRO C6 - C10 (mg/L)	DRO >C10 - C28 (mg/L)	ORO >C28 - C35 (mg/L)	TPH C6 - C35 (mg/L)	Chloride (mg/L)
NMWQCC Standard:		***0.001**	***0.75**	***0.75**	***0.62**					****250**
Dup-1 (MW-1)	04/29/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0918	<0.0918	<0.2436	199
Dup-1 (MW-1)	06/25/2021	--	--	--	--	<0.0600	<0.0775	<0.0775	<0.2150	--
Dup-1 (MW-1)	09/01/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.1490	<0.1490	<0.898	204
Dup-1 (MW-1)	11/18/2021	<0.000800	<0.00200	<0.00200	<0.00200	<0.00600	<0.0816	<0.0816	<0.0816	183
Dup-1 (MW-1)	02/24/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0832	<0.0832	<0.0832	198
Dup-1 (MW-1)	05/19/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0786	<0.0786	<0.0786	236
Dup-1 (MW-1)	09/23/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0768	<0.0768	<0.0768	194
Dup-1 (MW-1)	12/13/2022	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	**0.128**	<0.0997	**0.128**	196
Dup-1 (MW-1)	03/20/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0759	<0.0759	<0.0759	**280**
Dup-1 (MW-1)	06/08/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0764	<0.0764	<0.0764	177
Dup-1 (MW-1)	09/12/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0780	<0.0780	<0.0780	184
Dup-1 (MW-1)	12/18/2023	<0.000800	<0.00200	<0.00200	<0.00200	<0.0600	<0.0777	<0.0777	<0.0777	188

Notes: Analysis performed by DHL Analytical, Round Rock, Texas, by EPA SW-846 Method 8021B (BTEX), Method 8015M (TPH) and Method 300 (chloride)
All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)
-- No data available
< - denotes concentration is less than analytical method reporting limit (RL).
* - Human health standard
** - Domestic water quality standard
*** - Insufficient water for sample collection
([1]) - resampled on June 25, 2021 due to sample being collected from polyethylene tubing.

Table 3
Groundwater Precipitate Sample Analytical Data Summary
DKL Energy, LLC Cottonwood Facility
Eddy County, New Mexico

Well No.	Collection Date	Barium (mg/L)	Calcium (mg/L)	Iron (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Strontium (mg/L)
MW-4	1/29/2019	<0.463	347	46.9	20,500	894	87,700	8.87
	5/15/2019	--	333	--	50,500	2,370	25,900	--

Well No.	Collection Date	Bicarbonate mg/L	Carbonate mg/L	Hydroxide mg/L	Total mg/L			
MW-4	1/29/2019	--	--	--	--			
	5/15/2019	5140	<	<	5140			
MW-2	5/15/2019	116	<	<	116			

Notes: Analysis performed by DHL Analytical, Round Rock, Texas, by EPA SW-846 Method 8021B (BTEX), Method 8015M (TPH) and Method 300 (chloride)
Values reported in milligrams per liter (mg/L); equivalent to parts per million (ppm)
-- No data available
< - indicates parameter concentration is less than method reporting limit (RL).
* - Human health standard
** - Domestic water quality standard

Figures

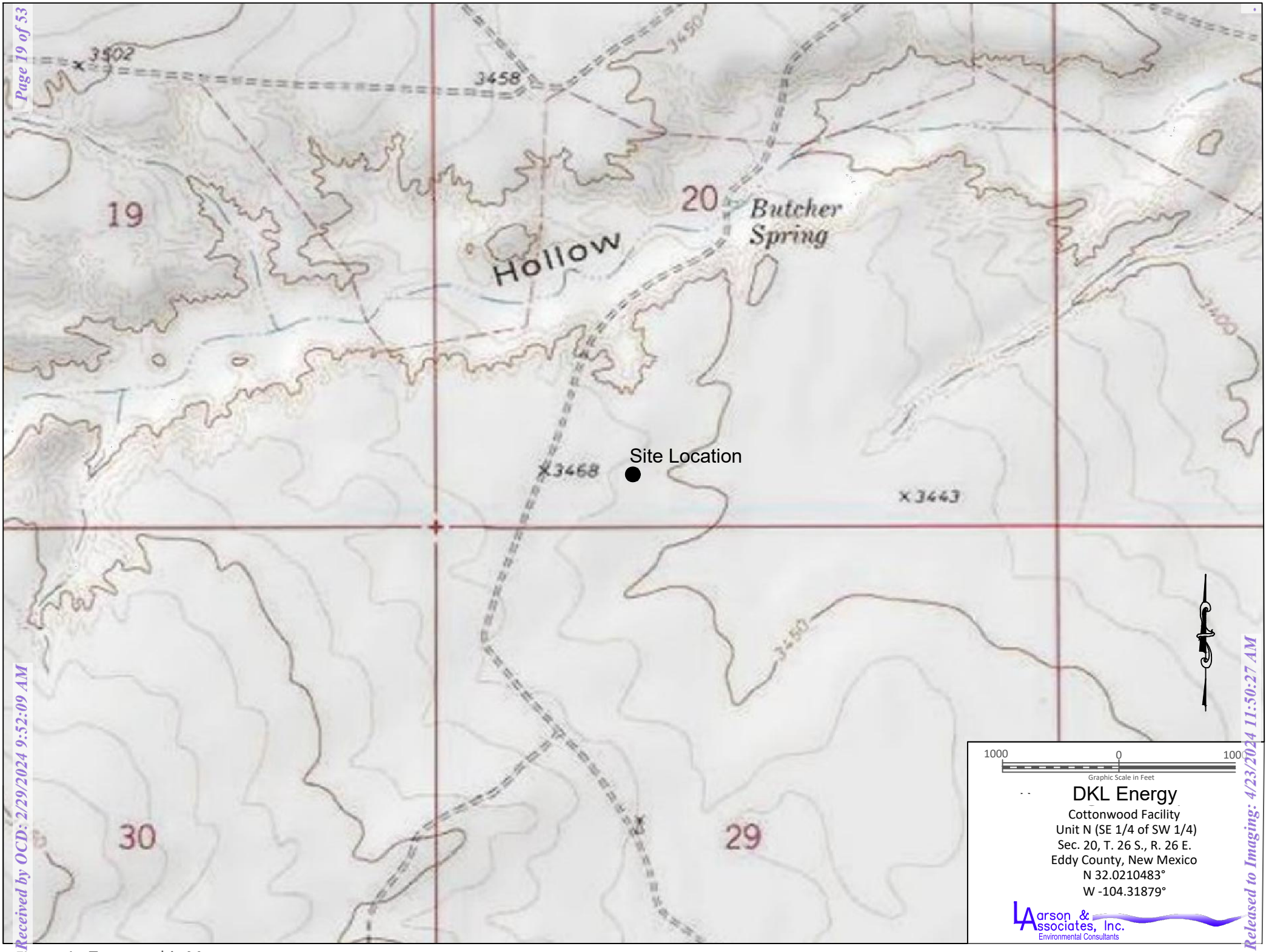


Figure 1 - Topographic Map

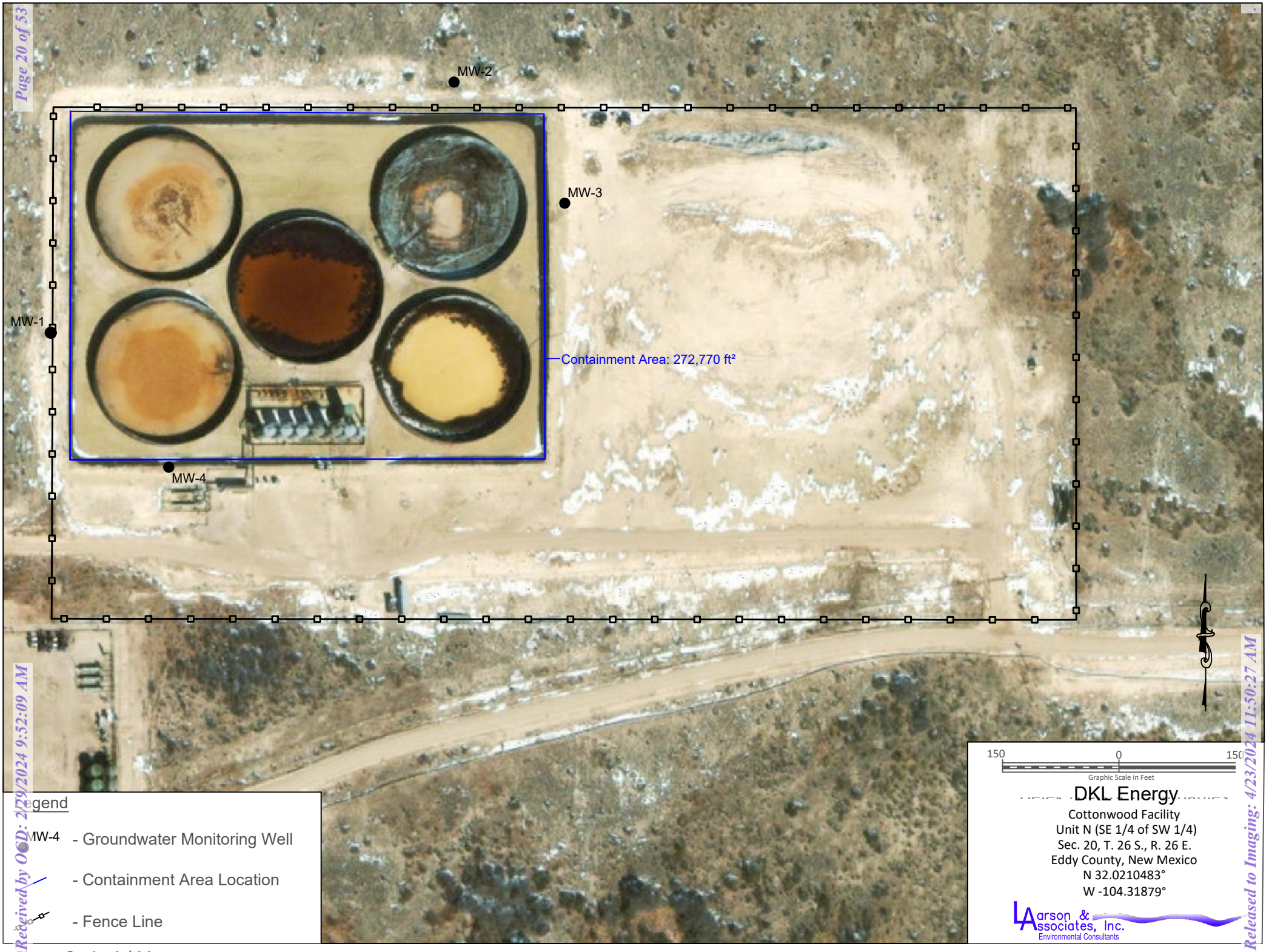
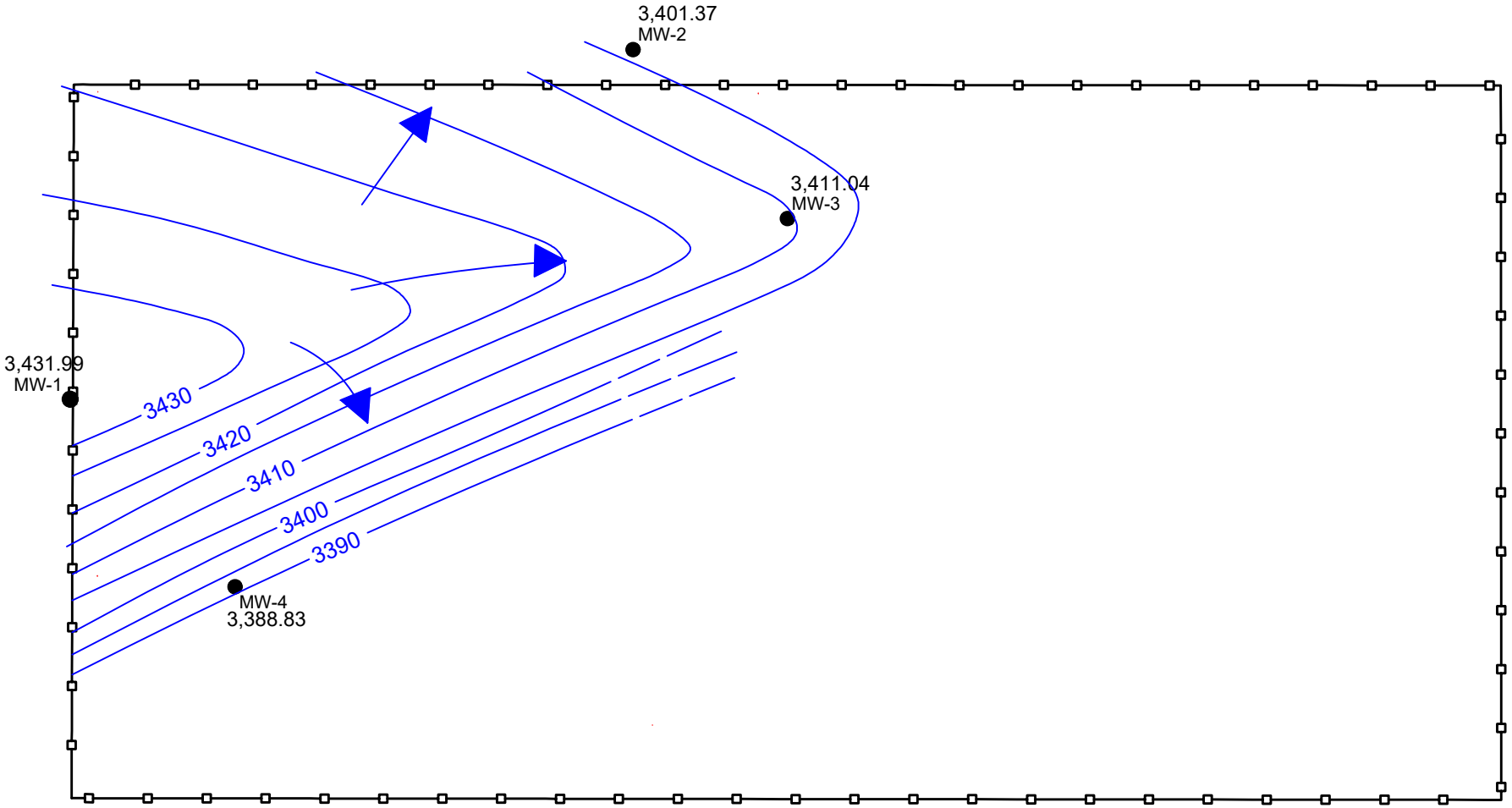


Figure 2 - Aerial Map



Legend

MW-4 - Monitoring Well Location and Groundwater Potentiometric Surface Elevation, Feet AMSL, December 18, 2023

3420 - Contour of Groundwater Potentiometric Surface Elevation, Feet AMSL, December 18, 2023

- Groundwater Flow Direction

- Fence

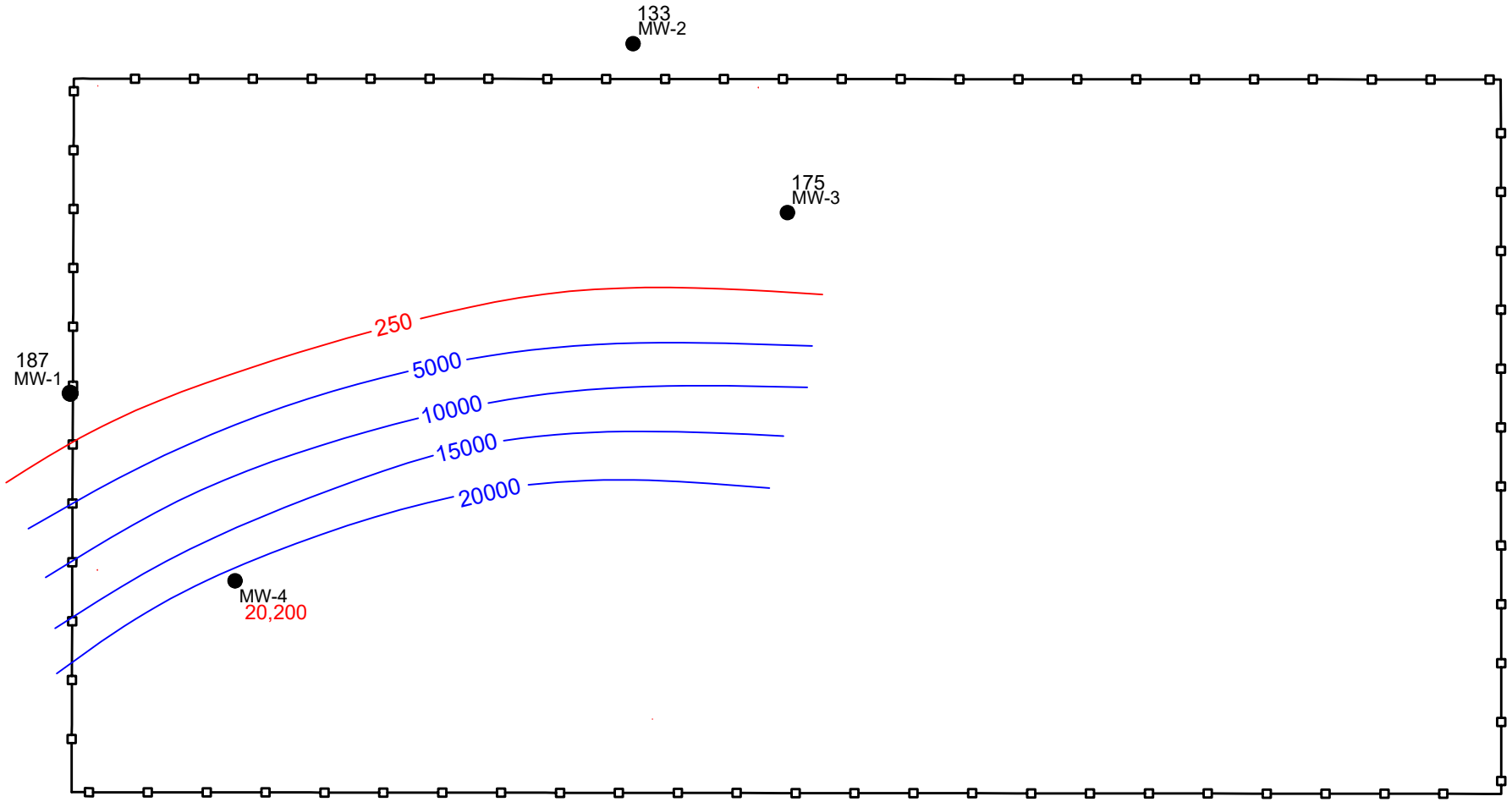
150 0 150

Graphic Scale in Feet

DKL Energy
Cottonwood Facility
Unit N (SE 1/4 of SW 1/4)
Sec. 20, T. 26 S., R. 26 E.
Eddy County, New Mexico
N 32.0210483°
W -104.31879°

Larson & Associates, Inc.
Environmental Consultants

Figure 3 - Groundwater Potentiometric Map, December 18, 2023



Legend

- 20,200 MW-4 - Monitoring Well Location and Chloride Concentration in Groundwater, mg/L, December 18, 2023
- 5000 - Contour of Chloride Concentration Elevation, mg/L, December 18, 2023
- 250 - NMWQCC Downstream Water Quality Limit: 250 mg/L
- Fence
- Insufficient Water for Sample

150 0 150
Graphic Scale in Feet

DKL Energy
Cottonwood Facility
Unit N (SE 1/4 of SW 1/4)
Sec. 20, T. 26 S., R. 26 E.
Eddy County, New Mexico
N 32.0210483°
W -104.31879°

Larson & Associates, Inc.
Environmental Consultants

Figure 4 - Chloride Concentration in Groundwater, December 18, 2023

Appendix A

NMOCD Communications

Robert Nelson

From: Robert Nelson
Sent: Monday, December 11, 2023 4:27 PM
To: Velez, Nelson, EMNRD
Cc: Harry Lewis; James Young; Brian ODell; Mark Larson; Daniel St. Germain; Bratcher, Michael, EMNRD
Subject: RE: [EXTERNAL] Delek Logistics - Cottonwood Facility (2RF-128) Groundwater Sampling Notice

Hello Nelson,

In the case of Delek – Cottonwood Facility (2RF-128), a recycling facility, how would Delek submit the groundwater sampling notification on the portal as there is no incident number for this Site?

Thank you,

Robert Nelson
Project Manager
Office – 432-687-0901
Cell – 432-664-4804
rnelson@laenvironmental.com

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Sent: Monday, December 11, 2023 11:42 AM
To: Robert Nelson <rnelson@laenvironmental.com>
Cc: Harry Lewis <Harry.Lewis@deleklogistics.com>; James Young <James.Young@deleklogistics.com>; Brian ODell <Brian.ODell@deleklogistics.com>; Mark Larson <Mark@laenvironmental.com>; Daniel St. Germain <dstgermain@laenvironmental.com>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Subject: Re: [EXTERNAL] Delek Logistics - Cottonwood Facility (2RF-128) Groundwater Sampling Notice

Good morning Robert,

Thank you for the correspondence. I have attached the new procedures for submitting both liner inspection and confirmation sampling notifications. Please refer to pages 67-74 of the attached document for the sampling notification submittal procedures. It will walk you through the process. Notifications are required to be submitted from this point forward.

Since this is a groundwater release, OCD recommends placing within the data entry box "*Please provide any information necessary for observers to contact samplers*", the wording, "**Groundwater abatement per 19.15.30.14B NMAC**". Please note that groundwater sampling notification required 4 working days per the aforementioned provision.

You may also place any other pertinent information, such as **GPS coordinates** within the box "*Please provide any information necessary for navigation to sampling site*".

Thank you and have a great day!

Regards,

Nelson Velez • Environmental Specialist - Adv

Environmental Bureau | EMNRD - Oil Conservation Division

1000 Rio Brazos Road | Aztec, NM 87410

(505) 469-6146 | nelson.velez@emnrd.nm.gov

http://www.emnrd.state.nm.us/OCD/

From: Robert Nelson <rnelson@laenvironmental.com>
Sent: Monday, December 11, 2023 9:04 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Harry Lewis <Harry.Lewis@deleklogistics.com>; James Young <James.Young@deleklogistics.com>; Brian ODell <Brian.ODell@deleklogistics.com>; Mark Larson <Mark@laenvironmental.com>; Daniel St. Germain <dstgermain@laenvironmental.com>
Subject: [EXTERNAL] Delek Logistics - Cottonwood Facility (2RF-128) Groundwater Sampling Notice

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Hello Mr. Velez,

This message is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of Delek Logistics Companies (Delek) to provide notification that personnel from Larson & Associates, Inc. (LAI) will be at the Cottonwood Facility (2RF-128) on December 18, 2023 at approximately 10:00am MST for the purpose of collecting groundwater samples from four (4) monitoring wells. Please feel free to contact Harry Lewis with Delek at (469)704-7379 or Harry.Lewis@deleklogistics.com, Mark Larson at (432)687-0901 or mark@laenvironmental.com or me if you have any questions.

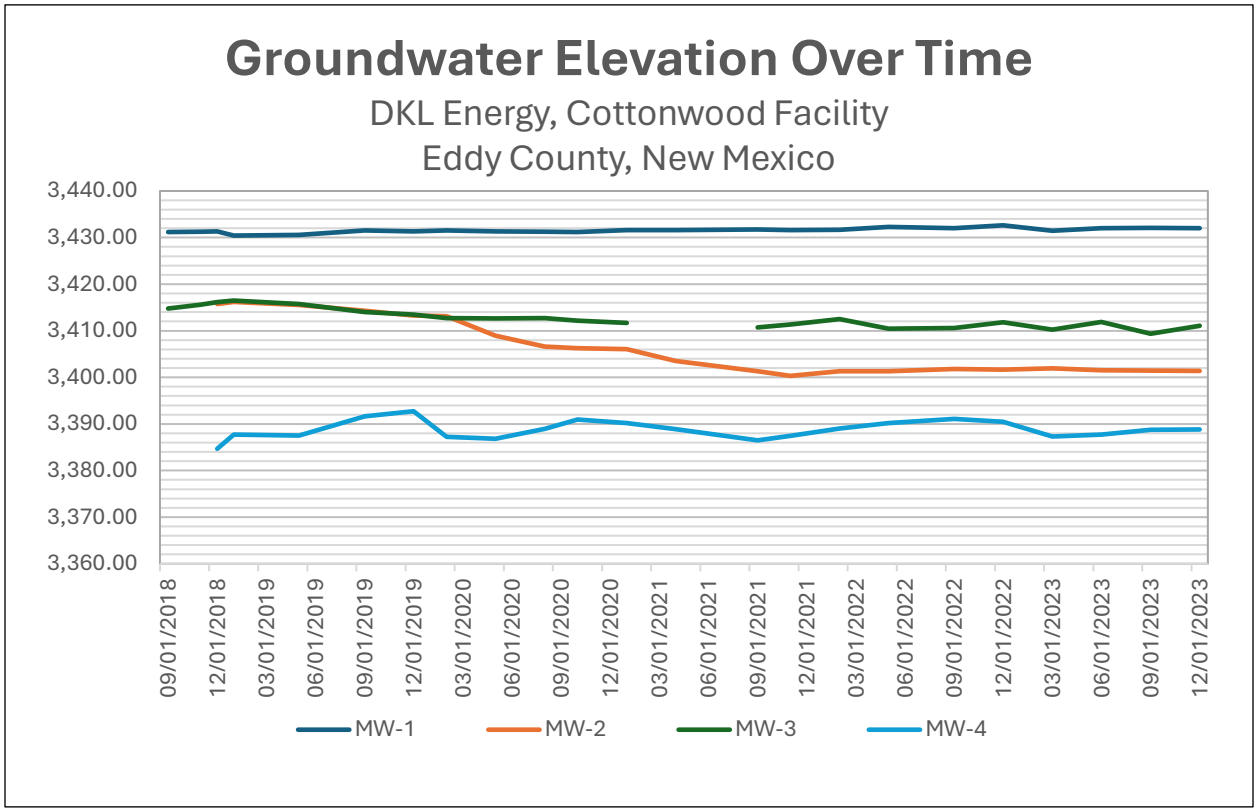
Thank you,

Robert Nelson
Project Manager
Office – 432-687-0901
Cell – 432-664-4804
rnelson@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

Appendix B

Groundwater Elevation of Time Control Chart


Groundwater Elevation Over Time
DKL Energy, Cottonwood Facility
Eddy County, New Mexico
3,440.00
3,430.00
3,420.00
3,410.00
3,400.00
3,390.00
3,380.00
3,370.00
3,360.00
09/01/2018
12/01/2018
03/01/2019
06/01/2019
09/01/2019
12/01/2019
03/01/2020
06/01/2020
09/01/2020
12/01/2020
03/01/2021
06/01/2021
09/01/2021
12/01/2021
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06/01/2022
09/01/2022
12/01/2022
03/01/2023
06/01/2023
09/01/2023
12/01/2023
MW-1
MW-2
MW-3
MW-4

Appendix C

Laboratory Report

DHL ANALYTICAL

December 29, 2023

Mark Larson
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701
TEL: (432) 687-0901
FAX: (432) 687-0456

Order No.: 2312224

RE: Eddy Co. NM/Cottonwood

Dear Mark Larson:

DHL Analytical, Inc. received 5 sample(s) on 12/21/2023 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAP except where noted in the Case Narrative. All non-NELAP methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-23-29

Table of Contents

No. 3251

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 202
Midland, TX 79701
432-687-0901

Data Reported to: Mark Larson/Robert Nelson

DATE: 12-19-2023 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 2312224

PROJECT LOCATION OR NAME: Eddy Co, NM / Cottonwood

LAI PROJECT #: 22-0135-01 COLLECTOR: ML

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: Mtn / NM

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESSERVED

ANALYSES: BTEX ☒ MTBE ☐ 8021B | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 | DIESEL - MOD 8015 | OIL - MOD 8015 | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ 300 ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESSERVED	BTEX 8021B	TRPH 418.1	GASOLINE MOD 8015	DIESEL - MOD 8015	OIL - MOD 8015	VOC 8260	CHLORIDE 300	FIELD NOTES
MW-1	01	12/19/23	11:18	W	9	X			X		X	X	X	X			X	
MW-2	02	"	10:37	W	4	X			X		X						X	
MW-3	03	"	10:11	W	9	X			X		X	X	X	X			X	
MW-4	04	"	12:14	W	9	X			X		X	X	X	X			X	
Dup-1	05	↓	—	W	9	X			X		X	X	X	X			X	
TOTAL					40													

RELINQUISHED BY:(Signature) DATE/TIME 12/19/2023/15:30 RECEIVED BY: (Signature) Fedex

RELINQUISHED BY:(Signature) Fedex DATE/TIME 12/21/23 0902 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: DHL

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 5.5°C THERM#: 78
CUSTODY SEALS - ☐ BROKEN ☑ INTACT ☐ NOT USED
☒ CARRIER BILL # Fedex
☐ HAND DELIVERED

ORIGIN ID:MAFA (432) 687-0901
MARK LARSON

507 N MARIENFELD ST STE 202

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 19DEC23
ACTWGT: 45.00 LB
CAD: 7074331/INET4535
DIMS: 21x15x17 IN

BILL SENDER

TO **SAMPLE LOGIN**
DHL ANALYTICAL, INC
2300 DOUBLE CREEK DRIVE

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

5834J4/2BE4/9AE3

FedEx Express

J234023101501uv

WED - 20 DEC 12:00P
PRIORITY OVERNIGHT

TRK# 0201 **7745 4549 2940**

A8 BSMA

78664
TX-US AUS

DHL ANALYTICAL

CUSTODY SEAL

DATE 12/20/23

SIGNATURE

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name: **Larson & Associates** Date Received: **12/21/2023**

Work Order Number: **2312224** Received by: **KAO**

Checklist completed by: _____ 12/21/2023 Reviewed by: SH 12/21/2023

Signature | Date | Initials | Date

Carrier name: FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐ NA ☐
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by
Water - ph>9 (S) or ph>10 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Cooler # 1

Temp °C 5.5

Seal Intact Y

Any No response must be detailed in the comments section below.

Client contacted: _____ Date contacted: _____ Person contacted: _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action: _____

Page 1 of 1

DHL Analytical, Inc. **Date:** *29-Dec-23*

CLIENT: Larson & Associates
Project: Eddy Co. NM/Cottonwood
Lab Order: 2312224

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW8260D - Volatile Aromatics Analysis
Method M8015D - DRO Analysis
Method M8015V - GRO Analysis
Method E300 - Anions Analysis

LOG IN

The samples were received and log-in performed on 12/21/2023. A total of 5 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

ANIONS ANALYSIS

For Anions Analysis, the recovery of Chloride for the Matrix Spike and Matrix Spike Duplicate (2312198-01 MS/MSD) was below the method control limits. These are flagged accordingly in the QC Summary Report. This anion was within method control limits in the associated LCS. No further corrective action was taken.

GRO ANALYSIS

For GRO Analysis, the recovery and RPD of the Matrix Spike Duplicate (2312224-05 MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. The associated LCS/MS was within method control limits. No further corrective action was taken.

VOLATILE AROMATICS ANALYSIS

For Volatile Aromatics Analysis, the recovery of Benzene for the Matrix Spike (2312224-04 MS) was marginally above the method control limits. This is flagged accordingly in the QC Summary Report. This compound was within method control limits in the associated LCS/MSD. No further corrective action was taken.

DHL Analytical, Inc.

Date: *29-Dec-23*

CLIENT: Larson & Associates
Project: Eddy Co. NM/Cottonwood
Lab Order: 2312224

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
2312224-01	MW-1		12/18/23 11:18 AM	12/21/2023
2312224-02	MW-2		12/18/23 10:37 AM	12/21/2023
2312224-03	MW-3		12/18/23 10:11 AM	12/21/2023
2312224-04	MW-4		12/18/23 12:14 PM	12/21/2023
2312224-05	Dup-1		12/18/23	12/21/2023

DHL Analytical, Inc.

29-Dec-23

Lab Order: 2312224
Client: Larson & Associates
Project: Eddy Co. NM/Cottonwood

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2312224-01A	MW-1	12/18/23 11:18 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/23 02:38 PM	113426
2312224-01B	MW-1	12/18/23 11:18 AM	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/28/23 08:20 AM	113436
2312224-01C	MW-1	12/18/23 11:18 AM	Aqueous	E300	Anion Preparation	12/22/23 01:09 PM	113381
2312224-01D	MW-1	12/18/23 11:18 AM	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/23/23 11:31 AM	113390
2312224-02A	MW-2	12/18/23 10:37 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/23 02:38 PM	113426
2312224-02B	MW-2	12/18/23 10:37 AM	Aqueous	E300	Anion Preparation	12/22/23 01:09 PM	113381
2312224-03A	MW-3	12/18/23 10:11 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/23 02:38 PM	113426
2312224-03B	MW-3	12/18/23 10:11 AM	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/28/23 08:20 AM	113436
2312224-03C	MW-3	12/18/23 10:11 AM	Aqueous	E300	Anion Preparation	12/22/23 01:09 PM	113381
2312224-03D	MW-3	12/18/23 10:11 AM	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/23/23 11:31 AM	113390
2312224-04A	MW-4	12/18/23 12:14 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/23 02:38 PM	113426
2312224-04B	MW-4	12/18/23 12:14 PM	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/28/23 08:20 AM	113436
2312224-04C	MW-4	12/18/23 12:14 PM	Aqueous	E300	Anion Preparation	12/22/23 01:09 PM	113381
2312224-04D	MW-4	12/18/23 12:14 PM	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/23/23 11:31 AM	113390
2312224-05A	Dup-1	12/18/23	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/23 02:38 PM	113426
2312224-05B	Dup-1	12/18/23	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/28/23 08:20 AM	113436
2312224-05C	Dup-1	12/18/23	Aqueous	E300	Anion Preparation	12/22/23 01:09 PM	113381
2312224-05D	Dup-1	12/18/23	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/23/23 11:31 AM	113390

Lab Order: 2312224
Client: Larson & Associates
Project: Eddy Co. NM/Cottonwood

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2312224-01A	MW-1	Aqueous	SW8260D	Volatile Aromatics by GC/MS	113426	1	12/27/23 05:38 PM	GCMS3_231227A
2312224-01B	MW-1	Aqueous	M8015V	TPH Purgeable by GC - Water	113436	1	12/28/23 01:36 PM	GC4_231228A
2312224-01C	MW-1	Aqueous	E300	Anions by IC method - Water	113381	10	12/22/23 08:40 PM	IC2_231222B
2312224-01D	MW-1	Aqueous	M8015D	TPH Extractable by GC - Water	113390	1	12/28/23 11:22 AM	GC15_231228A
2312224-02A	MW-2	Aqueous	SW8260D	Volatile Aromatics by GC/MS	113426	1	12/27/23 06:02 PM	GCMS3_231227A
2312224-02B	MW-2	Aqueous	E300	Anions by IC method - Water	113381	10	12/22/23 08:58 PM	IC2_231222B
2312224-03A	MW-3	Aqueous	SW8260D	Volatile Aromatics by GC/MS	113426	1	12/27/23 06:27 PM	GCMS3_231227A
2312224-03B	MW-3	Aqueous	M8015V	TPH Purgeable by GC - Water	113436	1	12/28/23 01:59 PM	GC4_231228A
2312224-03C	MW-3	Aqueous	E300	Anions by IC method - Water	113381	10	12/22/23 09:16 PM	IC2_231222B
2312224-03D	MW-3	Aqueous	M8015D	TPH Extractable by GC - Water	113390	1	12/28/23 11:31 AM	GC15_231228A
2312224-04A	MW-4	Aqueous	SW8260D	Volatile Aromatics by GC/MS	113426	10	12/27/23 06:51 PM	GCMS3_231227A
2312224-04B	MW-4	Aqueous	M8015V	TPH Purgeable by GC - Water	113436	10	12/28/23 02:23 PM	GC4_231228A
2312224-04C	MW-4	Aqueous	E300	Anions by IC method - Water	113381	1000	12/22/23 06:52 PM	IC2_231222B
2312224-04D	MW-4	Aqueous	M8015D	TPH Extractable by GC - Water	113390	1	12/28/23 11:40 AM	GC15_231228A
2312224-05A	Dup-1	Aqueous	SW8260D	Volatile Aromatics by GC/MS	113426	1	12/27/23 07:15 PM	GCMS3_231227A
2312224-05B	Dup-1	Aqueous	M8015V	TPH Purgeable by GC - Water	113436	1	12/28/23 02:45 PM	GC4_231228A
2312224-05C	Dup-1	Aqueous	E300	Anions by IC method - Water	113381	10	12/22/23 09:34 PM	IC2_231222B
2312224-05D	Dup-1	Aqueous	M8015D	TPH Extractable by GC - Water	113390	1	12/28/23 11:49 AM	GC15_231228A

DHL Analytical, Inc.

Date: *29-Dec-23*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-1
Project:	Eddy Co. NM/Cottonwood	**Lab ID:**	2312224-01
Project No:	22-0135-01	**Collection Date:**	12/18/23 11:18 AM
Lab Order:	2312224	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	<0.0759	0.0759	0.0948		mg/L	1	12/28/23 11:22 AM
TPH-ORO >C28-C35	<0.0759	0.0759	0.0948		mg/L	1	12/28/23 11:22 AM
Surr: Isopropylbenzene	42.4	0	25-124		%REC	1	12/28/23 11:22 AM
Surr: Octacosane	121	0	51-124		%REC	1	12/28/23 11:22 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	12/27/23 05:38 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 05:38 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 05:38 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 05:38 PM
Surr: 1,2-Dichloroethane-d4	109	0	72-119		%REC	1	12/27/23 05:38 PM
Surr: 4-Bromofluorobenzene	103	0	76-119		%REC	1	12/27/23 05:38 PM
Surr: Dibromofluoromethane	108	0	85-115		%REC	1	12/27/23 05:38 PM
Surr: Toluene-d8	104	0	81-120		%REC	1	12/27/23 05:38 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.0600	0.0600	0.100		mg/L	1	12/28/23 01:36 PM
Surr: Tetrachlorethene	78.0	0	74-138		%REC	1	12/28/23 01:36 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	187	3.00	10.0		mg/L	10	12/22/23 08:40 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: *29-Dec-23*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-2
Project:	Eddy Co. NM/Cottonwood	**Lab ID:**	2312224-02
Project No:	22-0135-01	**Collection Date:**	12/18/23 10:37 AM
Lab Order:	2312224	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	12/27/23 06:02 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 06:02 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 06:02 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 06:02 PM
Surr: 1,2-Dichloroethane-d4	111	0	72-119		%REC	1	12/27/23 06:02 PM
Surr: 4-Bromofluorobenzene	104	0	76-119		%REC	1	12/27/23 06:02 PM
Surr: Dibromofluoromethane	110	0	85-115		%REC	1	12/27/23 06:02 PM
Surr: Toluene-d8	103	0	81-120		%REC	1	12/27/23 06:02 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	133	3.00	10.0		mg/L	10	12/22/23 08:58 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: *29-Dec-23*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-3
Project:	Eddy Co. NM/Cottonwood	**Lab ID:**	2312224-03
Project No:	22-0135-01	**Collection Date:**	12/18/23 10:11 AM
Lab Order:	2312224	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	<0.0766	0.0766	0.0957		mg/L	1	12/28/23 11:31 AM
TPH-ORO >C28-C35	<0.0766	0.0766	0.0957		mg/L	1	12/28/23 11:31 AM
Surr: Isopropylbenzene	41.8	0	25-124		%REC	1	12/28/23 11:31 AM
Surr: Octacosane	98.2	0	51-124		%REC	1	12/28/23 11:31 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	12/27/23 06:27 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 06:27 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 06:27 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 06:27 PM
Surr: 1,2-Dichloroethane-d4	108	0	72-119		%REC	1	12/27/23 06:27 PM
Surr: 4-Bromofluorobenzene	103	0	76-119		%REC	1	12/27/23 06:27 PM
Surr: Dibromofluoromethane	108	0	85-115		%REC	1	12/27/23 06:27 PM
Surr: Toluene-d8	102	0	81-120		%REC	1	12/27/23 06:27 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.0600	0.0600	0.100		mg/L	1	12/28/23 01:59 PM
Surr: Tetrachlorethene	82.5	0	74-138		%REC	1	12/28/23 01:59 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	175	3.00	10.0		mg/L	10	12/22/23 09:16 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: *29-Dec-23*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-4
Project:	Eddy Co. NM/Cottonwood	**Lab ID:**	2312224-04
Project No:	22-0135-01	**Collection Date:**	12/18/23 12:14 PM
Lab Order:	2312224	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	<0.746	0.746	0.933		mg/L	1	12/28/23 11:40 AM
TPH-ORO >C28-C35	<0.746	0.746	0.933		mg/L	1	12/28/23 11:40 AM
Surr: Isopropylbenzene	43.5	0	25-124		%REC	1	12/28/23 11:40 AM
Surr: Octacosane	105	0	51-124		%REC	1	12/28/23 11:40 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.00800	0.00800	0.0200		mg/L	10	12/27/23 06:51 PM
Ethylbenzene	<0.0200	0.0200	0.0600		mg/L	10	12/27/23 06:51 PM
Toluene	<0.0200	0.0200	0.0600		mg/L	10	12/27/23 06:51 PM
Total Xylenes	<0.0200	0.0200	0.0600		mg/L	10	12/27/23 06:51 PM
Surr: 1,2-Dichloroethane-d4	110	0	72-119		%REC	10	12/27/23 06:51 PM
Surr: 4-Bromofluorobenzene	103	0	76-119		%REC	10	12/27/23 06:51 PM
Surr: Dibromofluoromethane	108	0	85-115		%REC	10	12/27/23 06:51 PM
Surr: Toluene-d8	102	0	81-120		%REC	10	12/27/23 06:51 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.600	0.600	1.00		mg/L	10	12/28/23 02:23 PM
Surr: Tetrachlorethene	84.4	0	74-138		%REC	10	12/28/23 02:23 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	20200	300	1000		mg/L	1000	12/22/23 06:52 PM

Qualifiers:					
	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: *29-Dec-23*

CLIENT:	Larson & Associates	**Client Sample ID:**	Dup-1
Project:	Eddy Co. NM/Cottonwood	**Lab ID:**	2312224-05
Project No:	22-0135-01	**Collection Date:**	12/18/23
Lab Order:	2312224	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	<0.0777	0.0777	0.0971		mg/L	1	12/28/23 11:49 AM
TPH-ORO >C28-C35	<0.0777	0.0777	0.0971		mg/L	1	12/28/23 11:49 AM
Surr: Isopropylbenzene	46.4	0	25-124		%REC	1	12/28/23 11:49 AM
Surr: Octacosane	106	0	51-124		%REC	1	12/28/23 11:49 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	12/27/23 07:15 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 07:15 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 07:15 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	12/27/23 07:15 PM
Surr: 1,2-Dichloroethane-d4	109	0	72-119		%REC	1	12/27/23 07:15 PM
Surr: 4-Bromofluorobenzene	103	0	76-119		%REC	1	12/27/23 07:15 PM
Surr: Dibromofluoromethane	108	0	85-115		%REC	1	12/27/23 07:15 PM
Surr: Toluene-d8	105	0	81-120		%REC	1	12/27/23 07:15 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.0600	0.0600	0.100		mg/L	1	12/28/23 02:45 PM
Surr: Tetrachlorethene	85.3	0	74-138		%REC	1	12/28/23 02:45 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	188	3.00	10.0		mg/L	10	12/22/23 09:34 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: *29-Dec-23*

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC15_231228A

The QC data in batch 113390 applies to the following samples: 2312224-01D, 2312224-03D, 2312224-04D, 2312224-05D

Sample ID: **MB-113390** Batch ID: **113390** TestNo: **M8015D** Units: **mg/L**
SampType: **MBLK** Run ID: **GC15_231228A** Analysis Date: **12/28/2023 10:55:54 A** Prep Date: **12/23/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	<0.0800	0.100								
TPH-ORO >C28-C35	<0.0800	0.100								
Surr: Isopropylbenzene	0.00352		0.01000		35.2	25	124			
Surr: Octacosane	0.0104		0.01000		104	51	124			

Sample ID: **LCS-113390** Batch ID: **113390** TestNo: **M8015D** Units: **mg/L**
SampType: **LCS** Run ID: **GC15_231228A** Analysis Date: **12/28/2023 11:04:45 A** Prep Date: **12/23/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	0.999	0.100	1.250	0	79.9	50	114			
Surr: Isopropylbenzene	0.00479		0.01000		47.9	25	124			
Surr: Octacosane	0.0111		0.01000		111	51	124			

Sample ID: **LCSD-113390** Batch ID: **113390** TestNo: **M8015D** Units: **mg/L**
SampType: **LCSD** Run ID: **GC15_231228A** Analysis Date: **12/28/2023 11:13:37 A** Prep Date: **12/23/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	1.04	0.100	1.250	0	83.0	50	114	3.71	30	
Surr: Isopropylbenzene	0.00648		0.01000		64.8	25	124	0	0	
Surr: Octacosane	0.0102		0.01000		102	51	124	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC15_231228A

Sample ID: **ICV-231228** Batch ID: **R130750** TestNo: **M8015D** Units: **mg/L**
SampType: **ICV** Run ID: **GC15_231228A** Analysis Date: **12/28/2023 10:36:41 A** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	529	0.100	500.0	0	106	80	120			
TPH-ORO >C28-C35	0.431	0.100	0							
Surr: Isopropylbenzene	23.8		25.00		95.3	80	120			
Surr: Octacosane	23.7		25.00		94.7	80	120			

Sample ID: **CCV1-231228** Batch ID: **R130750** TestNo: **M8015D** Units: **mg/L**
SampType: **CCV** Run ID: **GC15_231228A** Analysis Date: **12/28/2023 12:30:57 P** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	269	0.100	250.0	0	108	80	120			
TPH-ORO >C28-C35	0.0702	0.100	0							
Surr: Isopropylbenzene	10.4		12.50		83.2	80	120			
Surr: Octacosane	11.6		12.50		93.2	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC4_231228A

The QC data in batch 113436 applies to the following samples: 2312224-01B, 2312224-03B, 2312224-04B, 2312224-05B

Sample ID: **LCS-113436** Batch ID: **113436** TestNo: **M8015V** Units: **mg/L**
SampType: **LCS** Run ID: **GC4_231228A** Analysis Date: **12/28/2023 11:28:44 A** Prep Date: **12/28/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.45	0.100	2.500	0	98.2	67	136			
Surr: Tetrachlorethene	0.358		0.4000		89.6	74	138			

Sample ID: **LCSD-113436** Batch ID: **113436** TestNo: **M8015V** Units: **mg/L**
SampType: **LCSD** Run ID: **GC4_231228A** Analysis Date: **12/28/2023 11:51:17 A** Prep Date: **12/28/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.42	0.100	2.500	0	96.9	67	136	1.31	30	
Surr: Tetrachlorethene	0.358		0.4000		89.5	74	138	0	0	

Sample ID: **MB-113436** Batch ID: **113436** TestNo: **M8015V** Units: **mg/L**
SampType: **MBLK** Run ID: **GC4_231228A** Analysis Date: **12/28/2023 12:59:04 P** Prep Date: **12/28/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	<0.0600	0.100								
Surr: Tetrachlorethene	0.336		0.4000		83.9	74	138			

Sample ID: **2312224-05BMS** Batch ID: **113436** TestNo: **M8015V** Units: **mg/L**
SampType: **MS** Run ID: **GC4_231228A** Analysis Date: **12/28/2023 3:07:50 PM** Prep Date: **12/28/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.12	0.100	2.500	0	84.8	67	136			
Surr: Tetrachlorethene	0.339		0.4000		84.7	74	138			

Sample ID: **2312224-05BMSD** Batch ID: **113436** TestNo: **M8015V** Units: **mg/L**
SampType: **MSD** Run ID: **GC4_231228A** Analysis Date: **12/28/2023 3:30:30 PM** Prep Date: **12/28/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	1.46	0.100	2.500	0	58.4	67	136	36.8	30	SR
Surr: Tetrachlorethene	0.356		0.4000		89.0	74	138	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC4_231228A

Sample ID: **ICV-231228**	Batch ID: **R130760**	TestNo: **M8015V**	Units: **mg/L**
SampType: **ICV**	Run ID: **GC4_231228A**	Analysis Date: **12/28/2023 11:05:28 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	4.65	0.100	5.000	0	92.9	80	120			
Surr: Tetrachlorethene	0.405		0.4000		101	74	138			

Sample ID: **CCV1-231228**	Batch ID: **R130760**	TestNo: **M8015V**	Units: **mg/L**
SampType: **CCV**	Run ID: **GC4_231228A**	Analysis Date: **12/28/2023 3:53:17 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.17	0.100	2.500	0	86.8	80	120			
Surr: Tetrachlorethene	0.347		0.4000		86.7	74	138			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_231227A

The QC data in batch 113426 applies to the following samples: 2312224-01A, 2312224-02A, 2312224-03A, 2312224-04A, 2312224-05A

Sample ID: **LCS-113426** Batch ID: **113426** TestNo: **SW8260D** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS3_231227A** Analysis Date: **12/27/2023 4:49:00 PM** Prep Date: **12/27/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0270	0.00200	0.0232	0	116	81	122			
Ethylbenzene	0.0255	0.00600	0.0232	0	110	73	127			
Toluene	0.0265	0.00600	0.0232	0	114	77	122			
Total Xylenes	0.0762	0.00600	0.0696	0	110	80	121			
Surr: 1,2-Dichloroethane-d4	219		200.0		109	72	119			
Surr: 4-Bromofluorobenzene	208		200.0		104	76	119			
Surr: Dibromofluoromethane	216		200.0		108	85	115			
Surr: Toluene-d8	204		200.0		102	81	120			

Sample ID: **MB-113426** Batch ID: **113426** TestNo: **SW8260D** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS3_231227A** Analysis Date: **12/27/2023 5:14:00 PM** Prep Date: **12/27/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.000800	0.00200								
Ethylbenzene	<0.00200	0.00600								
Toluene	<0.00200	0.00600								
Total Xylenes	<0.00200	0.00600								
Surr: 1,2-Dichloroethane-d4	216		200.0		108	72	119			
Surr: 4-Bromofluorobenzene	207		200.0		104	76	119			
Surr: Dibromofluoromethane	214		200.0		107	85	115			
Surr: Toluene-d8	207		200.0		104	81	120			

Sample ID: **SB-231228** Batch ID: **113426** TestNo: **SW8260D** Units: **mg/L**
SampType: **SBLK** Run ID: **GCMS3_231227A** Analysis Date: **12/28/2023 10:59:00 A** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.000800	0.00200	0							
Ethylbenzene	<0.00200	0.00600	0							
Toluene	<0.00200	0.00600	0							
Total Xylenes	<0.00200	0.00600	0							
Surr: 1,2-Dichloroethane-d4	222		200.0		111	72	119			
Surr: 4-Bromofluorobenzene	207		200.0		103	76	119			
Surr: Dibromofluoromethane	220		200.0		110	85	115			
Surr: Toluene-d8	204		200.0		102	81	120			

Sample ID: **2312224-04AMS** Batch ID: **113426** TestNo: **SW8260D** Units: **mg/L**
SampType: **MS** Run ID: **GCMS3_231227A** Analysis Date: **12/28/2023 11:23:00 A** Prep Date: **12/27/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.286	0.0200	0.232	0	123	81	122			S

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_231227A

Sample ID: **2312224-04AMS**	Batch ID: **113426**	TestNo: **SW8260D**	Units: **mg/L**
SampType: **MS**	Run ID: **GCMS3_231227A**	Analysis Date: **12/28/2023 11:23:00 A**	Prep Date: **12/27/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethylbenzene	0.270	0.0600	0.232	0	116	73	127			
Toluene	0.284	0.0600	0.232	0	122	77	122			
Total Xylenes	0.809	0.0600	0.696	0	116	80	121			
Surr: 1,2-Dichloroethane-d4	2220		2000		111	72	119			
Surr: 4-Bromofluorobenzene	2110		2000		105	76	119			
Surr: Dibromofluoromethane	2180		2000		109	85	115			
Surr: Toluene-d8	2060		2000		103	81	120			

Sample ID: **2312224-04AMSD**	Batch ID: **113426**	TestNo: **SW8260D**	Units: **mg/L**
SampType: **MSD**	Run ID: **GCMS3_231227A**	Analysis Date: **12/28/2023 11:48:00 A**	Prep Date: **12/27/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.274	0.0200	0.232	0	118	81	122	4.26	20	
Ethylbenzene	0.253	0.0600	0.232	0	109	73	127	6.30	20	
Toluene	0.270	0.0600	0.232	0	116	77	122	5.05	20	
Total Xylenes	0.764	0.0600	0.696	0	110	80	121	5.67	20	
Surr: 1,2-Dichloroethane-d4	2220		2000		111	72	119	0	0	
Surr: 4-Bromofluorobenzene	2100		2000		105	76	119	0	0	
Surr: Dibromofluoromethane	2180		2000		109	85	115	0	0	
Surr: Toluene-d8	2070		2000		103	81	120	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_231227A

Sample ID: **ICV-231227**	Batch ID: **R130741**	TestNo: **SW8260D**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS3_231227A**	Analysis Date: **12/27/2023 4:25:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0572	0.00200	0.0464	0	123	70	130			
Ethylbenzene	0.0552	0.00600	0.0464	0	119	70	130			
Toluene	0.0571	0.00600	0.0464	0	123	70	130			
Total Xylenes	0.167	0.00600	0.139	0	120	70	130			
Surr: 1,2-Dichloroethane-d4	218		200.0		109	72	119			
Surr: 4-Bromofluorobenzene	214		200.0		107	76	119			
Surr: Dibromofluoromethane	214		200.0		107	85	115			
Surr: Toluene-d8	206		200.0		103	81	120			

Sample ID: **ICV-231228**	Batch ID: **R130741**	TestNo: **SW8260D**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS3_231227A**	Analysis Date: **12/28/2023 10:34:00 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0534	0.00200	0.0464	0	115	70	130			
Ethylbenzene	0.0516	0.00600	0.0464	0	111	70	130			
Toluene	0.0531	0.00600	0.0464	0	115	70	130			
Total Xylenes	0.154	0.00600	0.139	0	111	70	130			
Surr: 1,2-Dichloroethane-d4	220		200.0		110	72	119			
Surr: 4-Bromofluorobenzene	211		200.0		106	76	119			
Surr: Dibromofluoromethane	217		200.0		109	85	115			
Surr: Toluene-d8	205		200.0		103	81	120			

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_231222B

The QC data in batch 113381 applies to the following samples: 2312224-01C, 2312224-02B, 2312224-03C, 2312224-04C, 2312224-05C

Sample ID: **MB-113381**	Batch ID: **113381**	TestNo: **E300**	Units: **mg/L**
SampType: **MBLK**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 5:58:53 PM**	Prep Date: **12/22/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								

Sample ID: **LCS-113381**	Batch ID: **113381**	TestNo: **E300**	Units: **mg/L**
SampType: **LCS**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 6:16:53 PM**	Prep Date: **12/22/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.52	1.00	10.00	0	95.2	90	110			

Sample ID: **LCSD-113381**	Batch ID: **113381**	TestNo: **E300**	Units: **mg/L**
SampType: **LCSD**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 6:34:53 PM**	Prep Date: **12/22/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.53	1.00	10.00	0	95.3	90	110	0.153	20	

Sample ID: **2312198-01AMS**	Batch ID: **113381**	TestNo: **E300**	Units: **mg/L**
SampType: **MS**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 8:04:53 PM**	Prep Date: **12/22/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	408	10.0	200.0	249.0	79.6	90	110			S

Sample ID: **2312198-01AMSD**	Batch ID: **113381**	TestNo: **E300**	Units: **mg/L**
SampType: **MSD**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 8:22:53 PM**	Prep Date: **12/22/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	409	10.0	200.0	249.0	79.9	90	110	0.182	20	S

Sample ID: **2312226-01DMS**	Batch ID: **113381**	TestNo: **E300**	Units: **mg/L**
SampType: **MS**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 10:10:53 P**	Prep Date: **12/22/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	197	10.0	200.0	5.711	95.7	90	110			

Sample ID: **2312226-01DMSD**	Batch ID: **113381**	TestNo: **E300**	Units: **mg/L**
SampType: **MSD**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 10:28:53 P**	Prep Date: **12/22/2023**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	197	10.0	200.0	5.711	95.7	90	110	0.008	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 2312224
Project: Eddy Co. NM/Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_231222B

Sample ID: **ICV-231222**	Batch ID: **R130695**	TestNo: **E300**	Units: **mg/L**
SampType: **ICV**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 10:47:44 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.0	1.00	25.00	0	96.1	90	110			

Sample ID: **CCV1-231222**	Batch ID: **R130695**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_231222B**	Analysis Date: **12/22/2023 5:22:53 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.54	1.00	10.00	0	95.4	90	110			

Sample ID: **CCV2-231222**	Batch ID: **R130695**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_231222B**	Analysis Date: **12/23/2023 12:16:53 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.60	1.00	10.00	0	96.0	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

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Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 318953

CONDITIONS

Operator: DKL Energy - Cottonwood, LLC 310 Seven Springs Way Suite 50 Brentwood, TN 37027	OGRID: 330291
	Action Number: 318953
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the Fourth Quarter Groundwater Monitoring Report for the Cottonwood Facility (2RF-128): Content Satisfactory 1. Continue to conduct quarterly groundwater monitoring. 2. Consider preparing a contingency plan for monitoring wells that remain dry; for example, going out thirty (30) days after sampling event to check for sufficient water volume, or drilling the wells to a deeper extent. 3. Submit the next annual report to NMOCD by April 1, 2025.	4/23/2024