January 30,

2023

2022Fourth Quarter (4th) Groundwater Monitoring Report (October – December)
DKL Energy-Cottonwood Facility (2RF-128) OGRID: 330291
(Formally 3 Bear-Cottonwood Facility)
Eddy County, New Mexico

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_22-0135-01

Table of Contents

1.0 EXECUTIVE SUMMARY 1
2.0 INTRODUCTION 3
2.1 Background 3
3.0 DEPTH TO GROUNDWATER AND GROUNDWATER ELEVATION 3
4.0 GROUNDWATER SAMPLES AND ANALYSIS 3
4.1 Organic Analysis 4
4.2 Inorganic Analysis 4
5.0 CONCLUSIONS 4
6.0 RECOMMENDATIONS 5

List of Tables

Table 1 Monitor Well Completion and Gauging Summary
Table 2 Groundwater Organic and Inorganic Analytical Data Summary
Table 3 Groundwater Precipitate Sample Analytical Data Summary

List of Figures

Figure 1 Topographic Map
Figure 2 Aerial Map
Figure 3 Groundwater Potentiometric Map, December 13, 2022
Figure 4 Chloride Concentration in Groundwater Map, December 13, 2022

List of Appendices

Appendix A Groundwater Elevation Over Time Control Chart
Appendix B Laboratory Analytical Reports
Appendix C NMOCD Communications

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). The report presents the results of the 2022 fourth (4th) quarter (October – December) groundwater monitoring event at the Cottonwood Facility (Site) performed on December 13, 2022. 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 assumed control of 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 13, 2022:

- 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 three (3) wells (MW-1, 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 27.66 feet below ground surface (bgs) at MW-1 to 65.60 feet bgs at MW-4.
- Depth to groundwater increased (lowering conditions) in monitoring wells MW-2 (0.18 feet) and MW-4 (0.63 feet) and decreased (rising conditions) in MW-1 (0.60 feet) and MW-3 (1.25 feet) compared to the third (3rd) quarter monitoring period on September 23, 2022.
- Groundwater samples were not collected from monitoring well MW-2, due to insufficient water volume for sample collection.
- The groundwater potentiometric surface elevation ranged from 3,432.63 feet above mean sea level (MSL) at well MW-1 (up gradient) to 3,390.46 feet above MSL at MW-4 (cross gradient and down gradient).
- 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 0.093 and 0.178 feet per foot (ft/ft).
- No significant change in the groundwater elevation, flow direction, or gradient was observed during the fourth (4th) quarter 2022 monitoring event.
- BTEX concentrations were below the analytical method reporting limits (RL) in all samples.
- TPH as diesel range organics (>C12 to C28) was reported in the sample from MW-1 (0.184 mg/L) and Dup-1 (0.128 mg/L) with similar results reported during earlier monitoring events. There is no New Mexico Water Quality Control Commission (WQCC) human health or domestic water quality standard for TPH.
- Chloride was below the NMWQCC domestic water quality standard (250 mg/L) in groundwater samples from monitoring wells MW-1 and MW-3, consistent with previous monitoring periods.
- Chloride exceeded the NMWQCC domestic water quality standard in the groundwater sample from MW-4 (21,900 mg/L), consistent with the previous monitoring periods.
- 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. The report presents the results of the 2022 fourth (4th) quarter (October - December) groundwater monitoring event at the Cottonwood Facility (Site) performed on December 13, 2022. The Site is a produced water recycling facility permitted by the NMOCD (2RF-128) that was previously operated by 3 Bear, until June 1, 2022, when DKL assumed control of 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).

2.1 Background

The Site is permitted by the NMOCD as a produced water recycle facility (2RF-128) 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 13, 2022, 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 30.42 (MW-1), 56.62 (MW-2), 46.51 (MW-3) and 68.58 (MW-4) feet below top of casing (TOC). Depth to groundwater increased (lowering conditions) in monitoring well MW-2 (0.18 feet) and MW-4 (0.63 feet) and decreased (rising conditions) in MW-1 (0.60 feet) and MW-3 (1.25 feet) compared to the third (3rd) quarter monitoring period on September 23, 2022.

The groundwater potentiometric surface in well MW-2 and MW-3 has steadily declined over time from 42.52 and 43.55-feet below TOC, respectively, on December 12, 2018, to 56.62 and 46.51 below feet TOC, respectively, on December 13, 2022, and is likely due to decreased aquifer recharge in fractured bedrock. During the fourth (4th) quarter 2022 groundwater monitoring event, LAI personnel used a Waterra® Hydrolift pump to remove sand and silt to increase the groundwater volume from MW-3. This resulted in a decrease (rising conditions) of groundwater of 1.25 feet from the previous monitoring event on September 23, 2022. Monitoring well MW-2 had insufficient water for sample collection during the fourth (4th) quarter monitoring event.

The groundwater potentiometric surface elevation ranged from 3,432.63 feet above MSL at well MW-1 (upgradient) to 3,390.46 feet above MSL at MW-4 (cross and down gradient). An apparent groundwater divide occurs in the area that 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 0.093 and 0.178 ft/ft. No significant change in the groundwater flow direction or gradient was observed on December 13, 2022. Table 1 presents the groundwater gauging summary. Figure 3 presents the groundwater potentiometric map for December 13, 2022. Appendix A presents a control chart for groundwater elevation over time.

4.0 GROUNDWATER SAMPLES AND ANALYSIS

On December 13, 2022, LAI personnel collected groundwater samples from monitoring wells MW-1, MW-3, and MW-4. Notification of the groundwater sampling event was submitted to the NMOCD at least seven (7) working days, excluding weekends, prior to sample collection. The samples 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 uses an environmental pump that is submerged near the middle of the water column and the well is pumped at a low rate until environmental parameters stabilize. 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. A duplicate sample was collected from well MW-1 for laboratory quality assurance and quality control (QA/QC). Groundwater samples were not collected from well MW-2 due to insufficient water column (2.08 feet).

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 SW-8021B, TPH according to 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 B presents the laboratory report. Appendix C presents NMOCD communications.

4.1 Organic Analysis

BTEX concentrations were below the analytical method reporting limits (RL) in the groundwater samples from MW-1, MW-3, and MW-4. TPH reported as diesel range organics (>C12 to C28) was reported in the sample collected from MW-1 (0.184 mg/L) and DUP-1 (0.128 mg/L) and is consistent with the results reported during previous monitoring periods. There is no NMWQCC human health or domestic water quality standard for TPH. The source for the TPH in unknown.

4.2 Inorganic Analysis

Chloride was reported above the NMWQCC domestic water quality standard (250 mg/L) in the groundwater sample from monitoring well MW-4 (21,900 mg/L) which is consistent with the initial chloride concentration of 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) collected from monitoring well MW-1 is identical (196 mg/L) of the original chloride value (196 mg/L) reported for sample MW-1. No data quality exceptions were noted in DHL case narratives. Figure 4 presents a map showing chloride concentrations in groundwater on December 13, 2022.

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 reported chloride at 87,700 mg/L and 25,900 mg/L, from the precipitate layer on January 29, 2019, and May 15, 2019, respectively. The precipitate is considered naturally occurring and is likely associated with naturally elevated 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 0.093 and 0.178 ft/ft.
- No significant changes in the groundwater flow direction and gradient were observed on December 13, 2022.

- BTEX concentrations were below the laboratory method RLs in all samples.
- TPH reported as diesel range organics (>C12 to C28) was reported in the sample from MW-1 (0.184 mg/L), consistent with results from previous groundwater monitoring events.
- Chloride was below the NMWQCC domestic water quality standard in all samples except well MW-4 (21,900 mg/L) which is consistent with results from previous groundwater monitoring events.
- 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 7 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)	Surfaace Elevation (Feet AMSL)	Screen Interval (Feet BGS)	Casing Stickup (Feet)	TOC Elevation (Feet AMSL)	Date Gauged	Depth to Groundwater (Feet TOC)	Depth to Groundwater (FeetBGS)	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
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
									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

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)	Surfaace Elevation (Feet AMSL)	Screen Interval (Feet BGS)	Casing Stickup (Feet)	TOC Elevation (Feet AMSL)	Date Gauged	Depth to Groundwater (Feet TOC)	Depth to Groundwater (FeetBGS)	Water Column (Feet)	Grounwater Elevation (Feet AMSL)
									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	3401.38
									05/19/2022	56.93	53.89	1.77	3401.33
									09/23/2022	56.44	53.40	2.26	3401.82
									12/13/2022	56.62	53.58	2.08	3401.64
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
									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

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)	Surfaace Elevation (Feet AMSL)	Screen Interval (Feet BGS)	Casing Stickup (Feet)	TOC Elevation (Feet AMSL)	Date Gauged	Depth to Groundwater (Feet TOC)	Depth to Groundwater (FeetBGS)	Water Column (Feet)	Grounwater Elevation (Feet AMSL)
									12/13/2022	46.51	43.51	6.39	3,411.82
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
									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

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
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
	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

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**
	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 ***	--	--	--	--	--	--	--	--	--
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
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**

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**
	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**
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
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

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

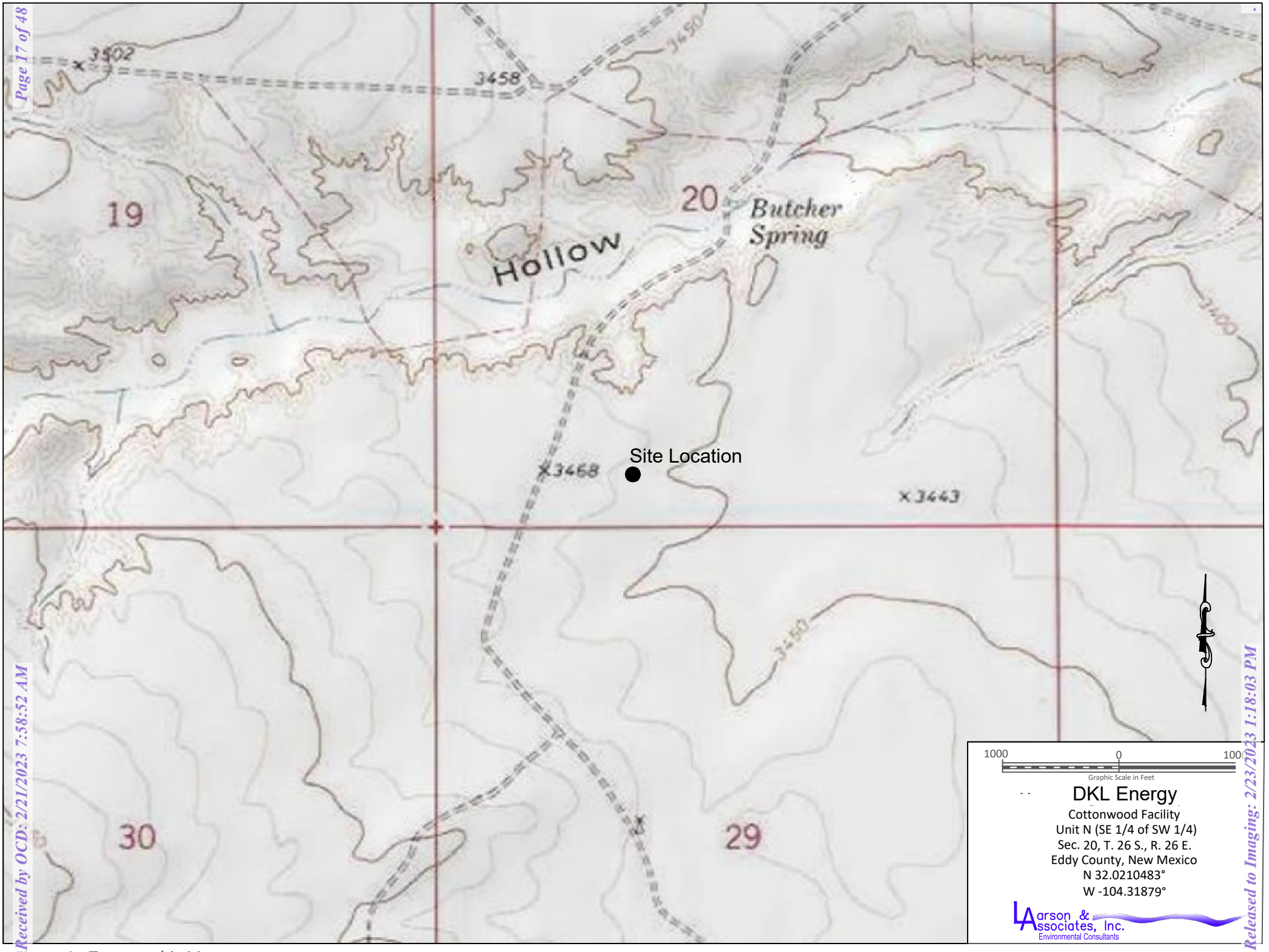


Figure 1 - Topographic Map

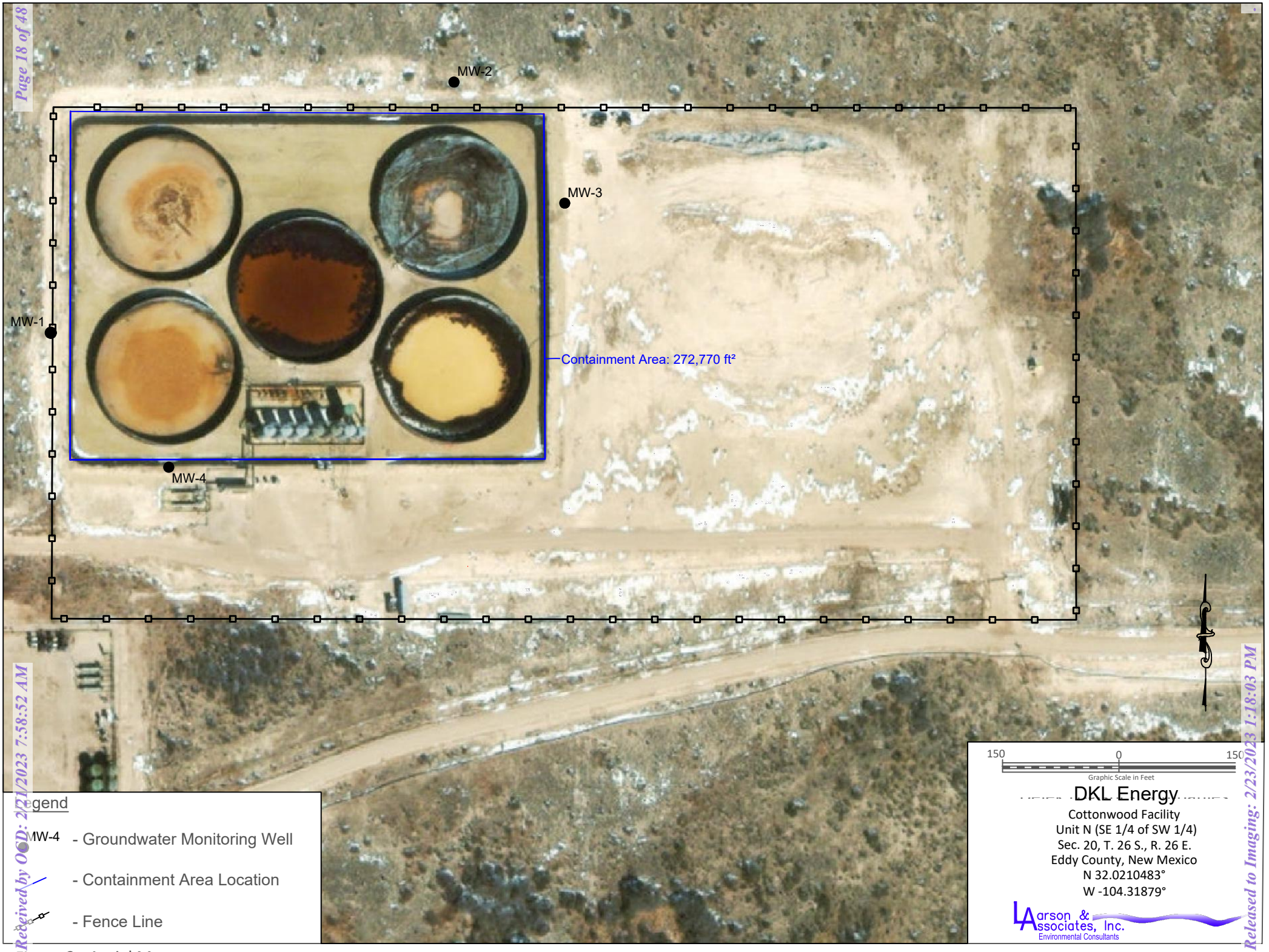
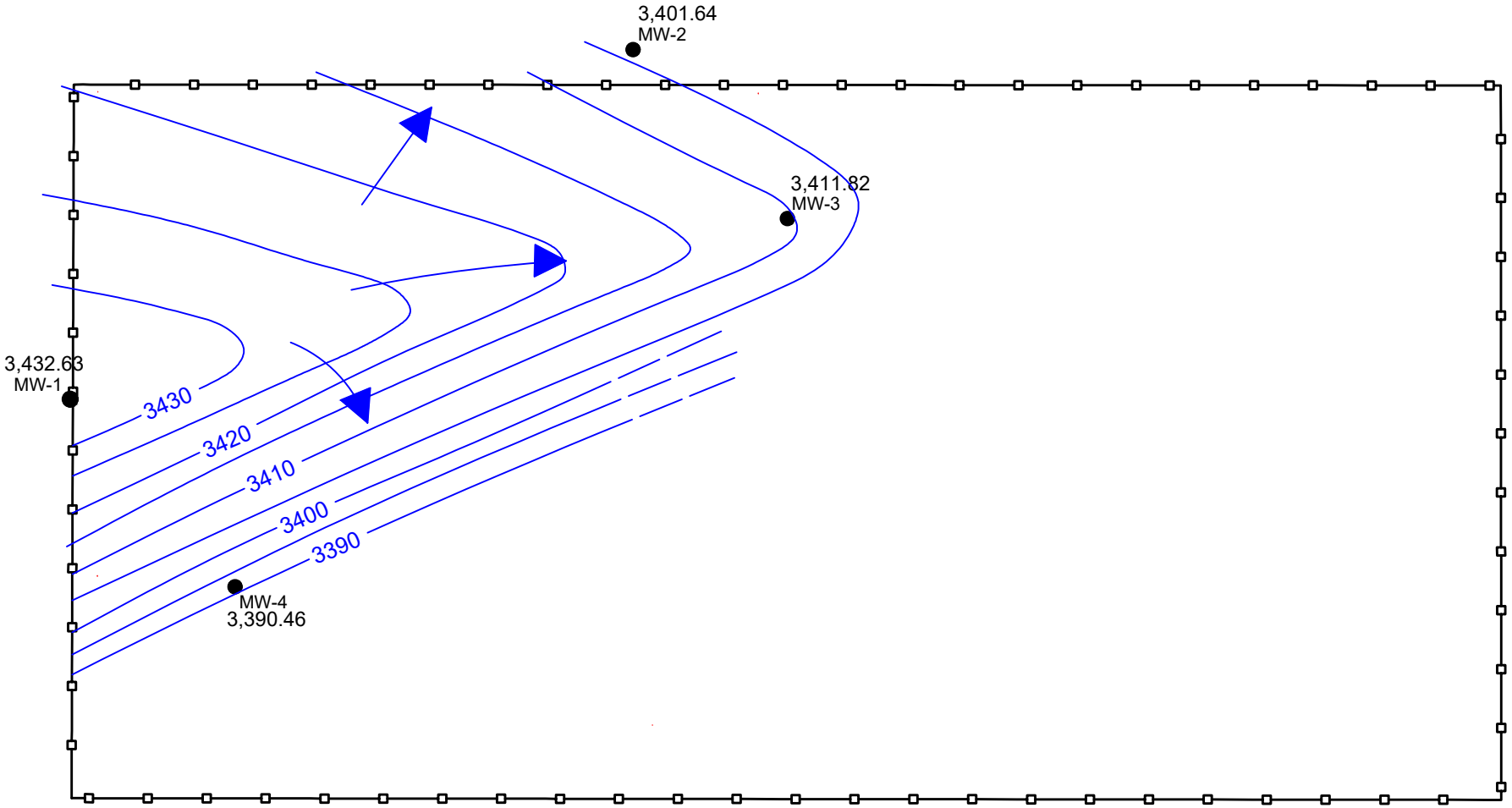


Figure 2 - Aerial Map



Legend

MW-4 - Monitoring Well Location and Groundwater Potentiometric Surface Elevation, Feet AMSL, December 13, 2022

3420 - Contour of Groundwater Potentiometric Surface Elevation, Feet AMSL, December 13, 2022

- Groundwater Flow Direction

- Fence

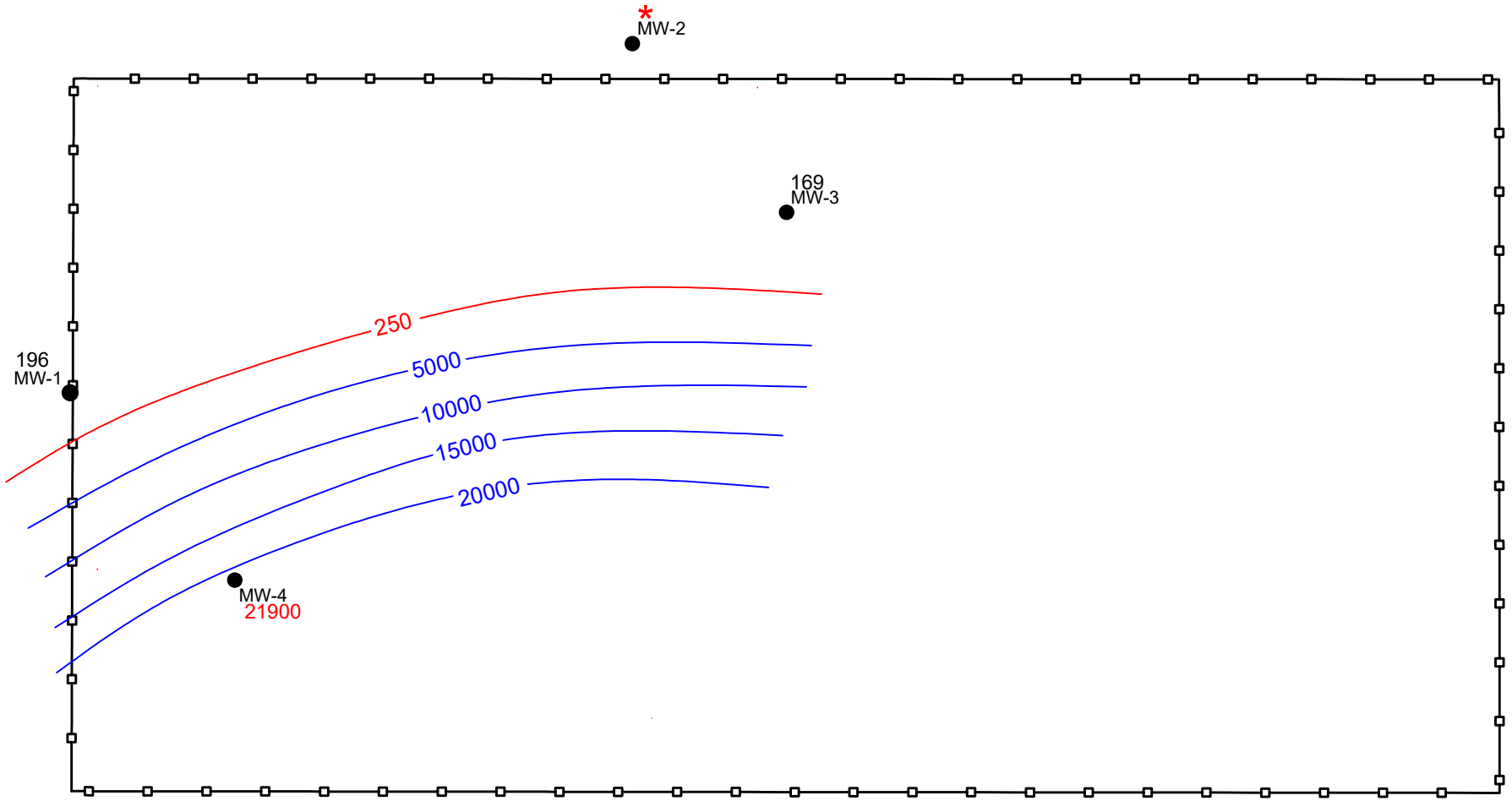
150 0 150

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 3d - Groundwater Potentiometric Map, December 13, 2022



Legend

- MW-4 21900 - Monitoring Well Location and Chloride Concentration in Groundwater, mg/L, December 13, 2022
- 5000 - Contour of Chloride Concentration Elevation, mg/L, December 13, 2022
- 250 - NMWQCC Downstream Water Quality Limit: 250 mg/L
- Fence
- Insufficient Water for Sample

150 0 150
Graphic Scale in Feet

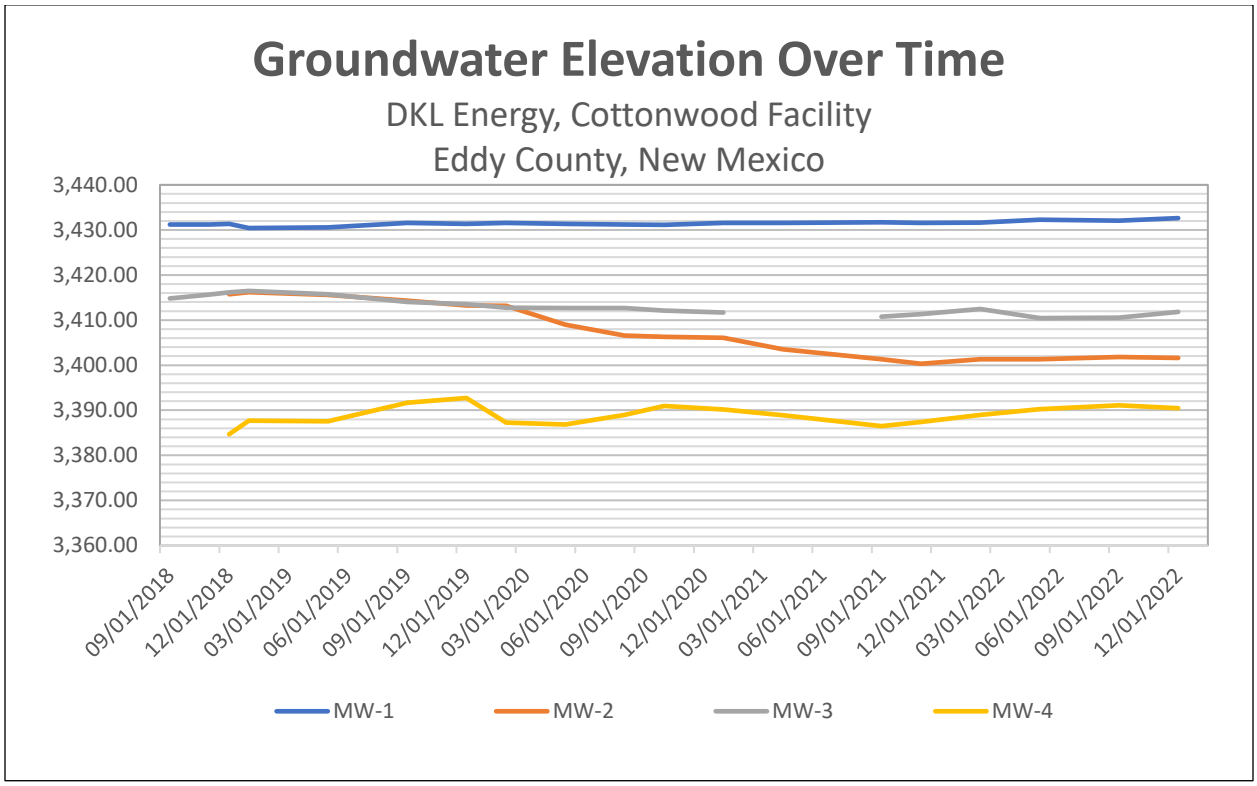
DKL Energy
Cottonwood Facility
Unit N (SE 1/4 of SW 1/4)
Sec. 20, T. 26 S., R. 26 E.
Eddy County, New Mexico
N 32.0210483°
W -104.31879°

Larson & Associates, Inc.
Environmental Consultants

Figure 4d - Chloride Concentration in Groundwater, December 13, 2022

Appendix A

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
03/01/2022
06/01/2022
09/01/2022
12/01/2022
MW-1
MW-2
MW-3
MW-4

Appendix B

Laboratory Reports

December 22, 2022

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

Order No.: 2212141

RE: Cottonwood

Dear Mark Larson:

DHL Analytical, Inc. received 4 sample(s) on 12/15/2022 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: T104704211-22-28

Table of Contents

Miscellaneous Documents 3

CaseNarrative 2212141 6

WorkOrderSampleSummary 2212141 7

PrepDatesReport 2212141 8

AnalyticalDatesReport 2212141 9

Analytical Report 2212141 10

AnalyticalQCSummaryReport 2212141 14

№ 1914

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 202
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 12/13/2022 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 2212141

PROJECT LOCATION OR NAME: COTTONWOOD

LAI PROJECT #: 22-0135-01 COLLECTOR: DSG/RN

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MNT/NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl ×6	HNO$_3$	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	BTEX ☒ MTBE ☐	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 ☒ ANIONS ☐ ALKALINITY ☐			FIELD NOTES
MW-1	01	12/13/22	1107	W	9	X			X		X		X	X	X													X			
MW-3	02	|	1212	|	|	X			X		X		X	X	X													X			
MW-4	03	|	1130	|	|	X			X		X		X	X	X													X			
Dup-1	04	|	–	|	|	X			X		X		X	X	X													X			

TOTAL 4

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	12/14/2022 1545	FedEx
FedEx	12/15/22 0922	[signature]

LABORATORY: DHL

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

LABORATORY USE ONLY:
RECEIVING TEMP: 1.0°C THERM#: 78
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☒ CARRIER BILL # FedEx
☐ HAND DELIVERED

ORIGIN ID:MAFA (432) 687-0901
JOHN WHITE
LARSON & ASSOCIATES INC
507 N MARIENFELD ST STE 202

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 14DEC22
ACTWGT: 20.00 LB
CAD: 7074331/INET4530
DIMS: 24x14x14 IN

BILL SENDER

TO JOHN DUPONT
DHL ANALYTICAL, INC
2300 DOUBLE CREEK DRIVE

ROUND ROCK TX 78664
(512) 388-8222 REF: 6-0141
INV:
PO: DEPT:

581J39A97FE2D

FedEx Express

J224222101881uv

THU - 15 DEC 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7707 8070 8105

78664
TX-US AUS

A8 BSMA

DHL ANALYTICAL

CUSTODY SEAL
DATE 12/14/2022
SIGNATURE

CUSTODY SEAL
DATE 12/14/2022
SIGNATURE

DHL ANALYTICAL

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name: **Larson & Associates** Date Received: **12/15/2022**

Work Order Number: **2212141** Received by: **KAO**

Checklist completed by: _____ 12/15/2022 Reviewed by: SH 12/15/2022

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 1.0

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:** *22-Dec-22*

CLIENT: Larson & Associates
Project: Cottonwood
Lab Order: 2212141

CASE NARRATIVE

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

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

LOG IN

The samples were received and log-in performed on 12/15/22. A total of 4 samples were received. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard time. All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

VOLATILE ORGANICS ANALYSIS

For Volatiles analysis sample MW-4 was diluted prior to analysis due to the nature of the sample (matrix).

GRO ANALYSIS

For GRO analysis sample MW-4 was diluted prior to analysis due to the nature of the sample (matrix).

DRO ANALYSIS

For DRO analysis an MS/MSD was not performed due to insufficient sample volume. An LCS/LCSD was performed instead.

DHL Analytical, Inc.

Date: *22-Dec-22*

CLIENT: Larson & Associates
Project: Cottonwood
Lab Order: 2212141

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
2212141-01	MW-1		12/13/22 11:07 AM	12/15/2022
2212141-02	MW-3		12/13/22 12:12 PM	12/15/2022
2212141-03	MW-4		12/13/22 11:30 AM	12/15/2022
2212141-04	DUP-1		12/13/22	12/15/2022

DHL Analytical, Inc.

22-Dec-22

Lab Order: 2212141
Client: Larson & Associates
Project: Cottonwood

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2212141-01A	MW-1	12/13/22 11:07 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/16/22 02:00 PM	108141
2212141-01B	MW-1	12/13/22 11:07 AM	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/20/22 08:30 AM	108183
2212141-01C	MW-1	12/13/22 11:07 AM	Aqueous	E300	Anion Preparation	12/19/22 09:22 AM	108155
2212141-01D	MW-1	12/13/22 11:07 AM	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/19/22 08:51 AM	108152
2212141-02A	MW-3	12/13/22 12:12 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/16/22 02:00 PM	108141
2212141-02B	MW-3	12/13/22 12:12 PM	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/20/22 08:30 AM	108183
2212141-02C	MW-3	12/13/22 12:12 PM	Aqueous	E300	Anion Preparation	12/19/22 09:22 AM	108155
2212141-02D	MW-3	12/13/22 12:12 PM	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/19/22 08:51 AM	108152
2212141-03A	MW-4	12/13/22 11:30 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/16/22 02:00 PM	108141
2212141-03B	MW-4	12/13/22 11:30 AM	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/20/22 08:30 AM	108183
2212141-03C	MW-4	12/13/22 11:30 AM	Aqueous	E300	Anion Preparation	12/19/22 09:22 AM	108155
2212141-03D	MW-4	12/13/22 11:30 AM	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/19/22 08:51 AM	108152
2212141-04A	DUP-1	12/13/22	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/16/22 02:00 PM	108141
2212141-04B	DUP-1	12/13/22	Aqueous	SW5030C	Purge and Trap Water GC-Gas	12/20/22 08:30 AM	108183
2212141-04C	DUP-1	12/13/22	Aqueous	E300	Anion Preparation	12/19/22 09:22 AM	108155
2212141-04D	DUP-1	12/13/22	Aqueous	SW3510C	Aq Prep Sep Funnel: DRO	12/19/22 08:51 AM	108152

DHL Analytical, Inc.

22-Dec-22

Lab Order: 2212141
Client: Larson & Associates
Project: Cottonwood

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2212141-01A	MW-1	Aqueous	SW8260D	Volatile Aromatics by GC/MS	108141	1	12/16/22 03:21 PM	GCMS3_221216A
2212141-01B	MW-1	Aqueous	M8015V	TPH Purgeable by GC - Water	108183	1	12/20/22 01:05 PM	GC4_221220A
2212141-01C	MW-1	Aqueous	E300	Anions by IC method - Water	108155	10	12/20/22 06:07 PM	IC2_221220A
2212141-01D	MW-1	Aqueous	M8015D	TPH Extractable by GC - Water	108152	1	12/22/22 11:30 AM	GC15_221222A
2212141-02A	MW-3	Aqueous	SW8260D	Volatile Aromatics by GC/MS	108141	1	12/16/22 03:47 PM	GCMS3_221216A
2212141-02B	MW-3	Aqueous	M8015V	TPH Purgeable by GC - Water	108183	1	12/20/22 01:28 PM	GC4_221220A
2212141-02C	MW-3	Aqueous	E300	Anions by IC method - Water	108155	10	12/20/22 06:24 PM	IC2_221220A
2212141-02D	MW-3	Aqueous	M8015D	TPH Extractable by GC - Water	108152	1	12/22/22 11:39 AM	GC15_221222A
2212141-03A	MW-4	Aqueous	SW8260D	Volatile Aromatics by GC/MS	108141	10	12/16/22 04:12 PM	GCMS3_221216A
2212141-03B	MW-4	Aqueous	M8015V	TPH Purgeable by GC - Water	108183	10	12/20/22 01:51 PM	GC4_221220A
2212141-03C	MW-4	Aqueous	E300	Anions by IC method - Water	108155	1000	12/20/22 04:59 PM	IC2_221220A
2212141-03D	MW-4	Aqueous	M8015D	TPH Extractable by GC - Water	108152	1	12/22/22 11:48 AM	GC15_221222A
2212141-04A	DUP-1	Aqueous	SW8260D	Volatile Aromatics by GC/MS	108141	1	12/16/22 04:37 PM	GCMS3_221216A
2212141-04B	DUP-1	Aqueous	M8015V	TPH Purgeable by GC - Water	108183	1	12/20/22 02:13 PM	GC4_221220A
2212141-04C	DUP-1	Aqueous	E300	Anions by IC method - Water	108155	10	12/20/22 08:23 PM	IC2_221220A
2212141-04D	DUP-1	Aqueous	M8015D	TPH Extractable by GC - Water	108152	1	12/22/22 11:57 AM	GC15_221222A

DHL Analytical, Inc.

Date: *22-Dec-22*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-1
Project:	Cottonwood	**Lab ID:**	2212141-01
Project No:	22-0135-01	**Collection Date:**	12/13/22 11:07 AM
Lab Order:	2212141	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	0.184	0.0988	0.148		mg/L	1	12/22/22 11:30 AM
TPH-ORO >C28-C35	<0.0988	0.0988	0.148		mg/L	1	12/22/22 11:30 AM
Surr: Isopropylbenzene	58.3	0	25-124		%REC	1	12/22/22 11:30 AM
Surr: Octacosane	96.4	0	51-124		%REC	1	12/22/22 11:30 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	12/16/22 03:21 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 03:21 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 03:21 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 03:21 PM
Surr: 1,2-Dichloroethane-d4	102	0	72-119		%REC	1	12/16/22 03:21 PM
Surr: 4-Bromofluorobenzene	95.7	0	76-119		%REC	1	12/16/22 03:21 PM
Surr: Dibromofluoromethane	96.0	0	85-115		%REC	1	12/16/22 03:21 PM
Surr: Toluene-d8	93.8	0	81-120		%REC	1	12/16/22 03:21 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.0600	0.0600	0.100		mg/L	1	12/20/22 01:05 PM
Surr: Tetrachlorethene	97.8	0	74-138		%REC	1	12/20/22 01:05 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	196	3.00	10.0		mg/L	10	12/20/22 06:07 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: *22-Dec-22*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-3
Project:	Cottonwood	**Lab ID:**	2212141-02
Project No:	22-0135-01	**Collection Date:**	12/13/22 12:12 PM
Lab Order:	2212141	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	<0.104	0.104	0.156		mg/L	1	12/22/22 11:39 AM
TPH-ORO >C28-C35	<0.104	0.104	0.156		mg/L	1	12/22/22 11:39 AM
Surr: Isopropylbenzene	67.3	0	25-124		%REC	1	12/22/22 11:39 AM
Surr: Octacosane	94.0	0	51-124		%REC	1	12/22/22 11:39 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	12/16/22 03:47 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 03:47 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 03:47 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 03:47 PM
Surr: 1,2-Dichloroethane-d4	102	0	72-119		%REC	1	12/16/22 03:47 PM
Surr: 4-Bromofluorobenzene	96.3	0	76-119		%REC	1	12/16/22 03:47 PM
Surr: Dibromofluoromethane	96.9	0	85-115		%REC	1	12/16/22 03:47 PM
Surr: Toluene-d8	94.3	0	81-120		%REC	1	12/16/22 03:47 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.0600	0.0600	0.100		mg/L	1	12/20/22 01:28 PM
Surr: Tetrachlorethene	102	0	74-138		%REC	1	12/20/22 01:28 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	169	3.00	10.0		mg/L	10	12/20/22 06:24 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: *22-Dec-22*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-4
Project:	Cottonwood	**Lab ID:**	2212141-03
Project No:	22-0135-01	**Collection Date:**	12/13/22 11:30 AM
Lab Order:	2212141	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	<0.106	0.106	0.159		mg/L	1	12/22/22 11:48 AM
TPH-ORO >C28-C35	<0.106	0.106	0.159		mg/L	1	12/22/22 11:48 AM
Surr: Isopropylbenzene	82.8	0	25-124		%REC	1	12/22/22 11:48 AM
Surr: Octacosane	92.5	0	51-124		%REC	1	12/22/22 11:48 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.00800	0.00800	0.0200		mg/L	10	12/16/22 04:12 PM
Ethylbenzene	<0.0200	0.0200	0.0600		mg/L	10	12/16/22 04:12 PM
Toluene	<0.0200	0.0200	0.0600		mg/L	10	12/16/22 04:12 PM
Total Xylenes	<0.0200	0.0200	0.0600		mg/L	10	12/16/22 04:12 PM
Surr: 1,2-Dichloroethane-d4	105	0	72-119		%REC	10	12/16/22 04:12 PM
Surr: 4-Bromofluorobenzene	95.7	0	76-119		%REC	10	12/16/22 04:12 PM
Surr: Dibromofluoromethane	97.3	0	85-115		%REC	10	12/16/22 04:12 PM
Surr: Toluene-d8	94.3	0	81-120		%REC	10	12/16/22 04:12 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.600	0.600	1.00		mg/L	10	12/20/22 01:51 PM
Surr: Tetrachlorethene	103	0	74-138		%REC	10	12/20/22 01:51 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	21900	300	1000		mg/L	1000	12/20/22 04:59 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: *22-Dec-22*

CLIENT:	Larson & Associates	**Client Sample ID:**	DUP-1
Project:	Cottonwood	**Lab ID:**	2212141-04
Project No:	22-0135-01	**Collection Date:**	12/13/22
Lab Order:	2212141	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - WATER		**M8015D**					Analyst: **BTJ**
TPH-DRO C10-C28	0.128	0.0997	0.150	J	mg/L	1	12/22/22 11:57 AM
TPH-ORO >C28-C35	<0.0997	0.0997	0.150		mg/L	1	12/22/22 11:57 AM
Surr: Isopropylbenzene	86.4	0	25-124		%REC	1	12/22/22 11:57 AM
Surr: Octacosane	101	0	51-124		%REC	1	12/22/22 11:57 AM
VOLATILE AROMATICS BY GC/MS		**SW8260D**					Analyst: **JVR**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	12/16/22 04:37 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 04:37 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 04:37 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	12/16/22 04:37 PM
Surr: 1,2-Dichloroethane-d4	103	0	72-119		%REC	1	12/16/22 04:37 PM
Surr: 4-Bromofluorobenzene	94.6	0	76-119		%REC	1	12/16/22 04:37 PM
Surr: Dibromofluoromethane	98.0	0	85-115		%REC	1	12/16/22 04:37 PM
Surr: Toluene-d8	94.6	0	81-120		%REC	1	12/16/22 04:37 PM
TPH PURGEABLE BY GC - WATER		**M8015V**					Analyst: **BTJ**
TPH-GRO (C6-C10)	<0.0600	0.0600	0.100		mg/L	1	12/20/22 02:13 PM
Surr: Tetrachlorethene	88.4	0	74-138		%REC	1	12/20/22 02:13 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **RA**
Chloride	196	3.00	10.0		mg/L	10	12/20/22 08:23 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:** *22-Dec-22*

CLIENT: Larson & Associates
Work Order: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC15_221222A

The QC data in batch 108152 applies to the following samples: 2212141-01D, 2212141-02D, 2212141-03D, 2212141-04D

Sample ID: **MB-108152** Batch ID: **108152** TestNo: **M8015D** Units: **mg/L**
SampType: **MBLK** Run ID: **GC15_221222A** Analysis Date: **12/22/2022 11:02:55 A** Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	<0.100	0.150								
TPH-ORO >C28-C35	<0.100	0.150								
Surr: Isopropylbenzene	0.0796		0.1000		79.6	25	124			
Surr: Octacosane	0.0909		0.1000		90.9	51	124			

Sample ID: **LCS-108152** Batch ID: **108152** TestNo: **M8015D** Units: **mg/L**
SampType: **LCS** Run ID: **GC15_221222A** Analysis Date: **12/22/2022 11:11:59 A** Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	1.09	0.150	1.250	0	87.4	50	114			
Surr: Isopropylbenzene	0.0864		0.1000		86.4	25	124			
Surr: Octacosane	0.0945		0.1000		94.5	51	124			

Sample ID: **LCSD-108152** Batch ID: **108152** TestNo: **M8015D** Units: **mg/L**
SampType: **LCSD** Run ID: **GC15_221222A** Analysis Date: **12/22/2022 11:21:02 A** Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	1.06	0.150	1.250	0	84.8	50	114	3.04	30	
Surr: Isopropylbenzene	0.0852		0.1000		85.2	25	124	0	0	
Surr: Octacosane	0.0935		0.1000		93.5	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	Page 1 of 9
	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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC15_221222A

Sample ID: **ICV-221222**	Batch ID: **R124500**	TestNo: **M8015D**	Units: **mg/L**
SampType: **ICV**	Run ID: **GC15_221222A**	Analysis Date: **12/22/2022 10:53:52 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	505	0.150	500.0	0	101	80	120			
TPH-ORO >C28-C35	0.190	0.150	0							
Surr: Isopropylbenzene	26.6		25.00		107	80	120			
Surr: Octacosane	24.3		25.00		97.1	80	120			

Sample ID: **CCV1-221222**	Batch ID: **R124500**	TestNo: **M8015D**	Units: **mg/L**
SampType: **CCV**	Run ID: **GC15_221222A**	Analysis Date: **12/22/2022 12:16:11 P**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	231	0.150	250.0	0	92.4	80	120			
TPH-ORO >C28-C35	0.169	0.150	0							
Surr: Isopropylbenzene	13.0		12.50		104	80	120			
Surr: Octacosane	12.0		12.50		96.4	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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC4_221220A

The QC data in batch 108183 applies to the following samples: 2212141-01B, 2212141-02B, 2212141-03B, 2212141-04B

Sample ID: **LCS-108183**	Batch ID: **108183**	TestNo: **M8015V**	Units: **mg/L**
SampType: **LCS**	Run ID: **GC4_221220A**	Analysis Date: **12/20/2022 11:13:05 A**	Prep Date: **12/20/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.84	0.100	2.500	0	114	67	136			
Surr: Tetrachlorethene	0.370		0.4000		92.6	74	138			

Sample ID: **LCSD-108183**	Batch ID: **108183**	TestNo: **M8015V**	Units: **mg/L**
SampType: **LCSD**	Run ID: **GC4_221220A**	Analysis Date: **12/20/2022 11:36:02 A**	Prep Date: **12/20/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.92	0.100	2.500	0	117	67	136	2.77	30	
Surr: Tetrachlorethene	0.366		0.4000		91.5	74	138	0	0	

Sample ID: **MB-108183**	Batch ID: **108183**	TestNo: **M8015V**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GC4_221220A**	Analysis Date: **12/20/2022 12:42:10 P**	Prep Date: **12/20/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	<0.0600	0.100								
Surr: Tetrachlorethene	0.373		0.4000		93.2	74	138			

Sample ID: **2212141-04BMS**	Batch ID: **108183**	TestNo: **M8015V**	Units: **mg/L**
SampType: **MS**	Run ID: **GC4_221220A**	Analysis Date: **12/20/2022 2:34:59 PM**	Prep Date: **12/20/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.73	0.100	2.500	0	109	67	136			
Surr: Tetrachlorethene	0.386		0.4000		96.4	74	138			

Sample ID: **2212141-04BMSD**	Batch ID: **108183**	TestNo: **M8015V**	Units: **mg/L**
SampType: **MSD**	Run ID: **GC4_221220A**	Analysis Date: **12/20/2022 2:58:00 PM**	Prep Date: **12/20/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.91	0.100	2.500	0	116	67	136	6.07	30	
Surr: Tetrachlorethene	0.412		0.4000		103	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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GC4_221220A

Sample ID: **ICV-221220**	Batch ID: **R124467**	TestNo: **M8015V**	Units: **mg/L**
SampType: **ICV**	Run ID: **GC4_221220A**	Analysis Date: **12/20/2022 10:49:45 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	5.45	0.100	5.000	0	109	80	120			
Surr: Tetrachlorethene	0.400		0.4000		100	74	138			

Sample ID: **CCV1-2212220**	Batch ID: **R124467**	TestNo: **M8015V**	Units: **mg/L**
SampType: **CCV**	Run ID: **GC4_221220A**	Analysis Date: **12/20/2022 3:20:38 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-GRO (C6-C10)	2.94	0.100	2.500	0	118	80	120			
Surr: Tetrachlorethene	0.400		0.4000		100	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	Page 4 of 9
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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_221216A

The QC data in batch 108141 applies to the following samples: 2212141-01A, 2212141-02A, 2212141-03A, 2212141-04A

Sample ID: **LCS-108141** Batch ID: **108141** TestNo: **SW8260D** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS3_221216A** Analysis Date: **12/16/2022 2:30:00 PM** Prep Date: **12/16/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0218	0.00200	0.0232	0	93.8	81	122			
Ethylbenzene	0.0237	0.00600	0.0232	0	102	73	127			
Toluene	0.0219	0.00600	0.0232	0	94.3	77	122			
Total Xylenes	0.0722	0.00600	0.0696	0	104	80	121			
Surr: 1,2-Dichloroethane-d4	199		200.0		99.4	72	119			
Surr: 4-Bromofluorobenzene	189		200.0		94.6	76	119			
Surr: Dibromofluoromethane	189		200.0		94.7	85	115			
Surr: Toluene-d8	189		200.0		94.6	81	120			

Sample ID: **MB-108141** Batch ID: **108141** TestNo: **SW8260D** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS3_221216A** Analysis Date: **12/16/2022 2:56:00 PM** Prep Date: **12/16/2022**

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	203		200.0		101	72	119			
Surr: 4-Bromofluorobenzene	192		200.0		96.0	76	119			
Surr: Dibromofluoromethane	192		200.0		95.9	85	115			
Surr: Toluene-d8	188		200.0		93.9	81	120			

Sample ID: **2212167-11AMS** Batch ID: **108141** TestNo: **SW8260D** Units: **mg/L**
SampType: **MS** Run ID: **GCMS3_221216A** Analysis Date: **12/17/2022 12:11:00 A** Prep Date: **12/16/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0219	0.00200	0.0232	0	94.2	81	122			
Ethylbenzene	0.0236	0.00600	0.0232	0	102	73	127			
Toluene	0.0217	0.00600	0.0232	0	93.7	77	122			
Total Xylenes	0.0723	0.00600	0.0696	0	104	80	121			
Surr: 1,2-Dichloroethane-d4	197		200.0		98.5	72	119			
Surr: 4-Bromofluorobenzene	195		200.0		97.6	76	119			
Surr: Dibromofluoromethane	189		200.0		94.7	85	115			
Surr: Toluene-d8	190		200.0		95.0	81	120			

Sample ID: **2212167-11AMSD** Batch ID: **108141** TestNo: **SW8260D** Units: **mg/L**
SampType: **MSD** Run ID: **GCMS3_221216A** Analysis Date: **12/17/2022 12:36:00 A** Prep Date: **12/16/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0217	0.00200	0.0232	0	93.6	81	122	0.635	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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_221216A

Sample ID: **2212167-11AMSD** Batch ID: **108141** TestNo: **SW8260D** Units: **mg/L**
SampType: **MSD** Run ID: **GCMS3_221216A** Analysis Date: **12/17/2022 12:36:00 A** Prep Date: **12/16/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethylbenzene	0.0231	0.00600	0.0232	0	99.7	73	127	2.19	20	
Toluene	0.0214	0.00600	0.0232	0	92.4	77	122	1.41	20	
Total Xylenes	0.0707	0.00600	0.0696	0	102	80	121	2.20	20	
Surr: 1,2-Dichloroethane-d4	200		200.0		100	72	119	0	0	
Surr: 4-Bromofluorobenzene	194		200.0		97.0	76	119	0	0	
Surr: Dibromofluoromethane	190		200.0		95.2	85	115	0	0	
Surr: Toluene-d8	191		200.0		95.3	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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_221216A

Sample ID: **ICV-221216** Batch ID: **R124395** TestNo: **SW8260D** Units: **mg/L**
SampType: **ICV** Run ID: **GCMS3_221216A** Analysis Date: **12/16/2022 2:05:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0466	0.00200	0.0464	0	100	70	130			
Ethylbenzene	0.0507	0.00600	0.0464	0	109	70	130			
Toluene	0.0471	0.00600	0.0464	0	101	70	130			
Total Xylenes	0.155	0.00600	0.139	0	111	70	130			
Surr: 1,2-Dichloroethane-d4	197		200.0		98.6	72	119			
Surr: 4-Bromofluorobenzene	193		200.0		96.4	76	119			
Surr: Dibromofluoromethane	189		200.0		94.5	85	115			
Surr: Toluene-d8	191		200.0		95.3	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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_221220A

The QC data in batch 108155 applies to the following samples: 2212141-01C, 2212141-02C, 2212141-03C, 2212141-04C

Sample ID: **MB-108155**	Batch ID: **108155**	TestNo: **E300**	Units: **mg/L**
SampType: **MBLK**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 10:51:10 A**	Prep Date: **12/19/2022**

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

Sample ID: **LCS-108155**	Batch ID: **108155**	TestNo: **E300**	Units: **mg/L**
SampType: **LCS**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 11:08:10 A**	Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110			

Sample ID: **LCSD-108155**	Batch ID: **108155**	TestNo: **E300**	Units: **mg/L**
SampType: **LCSD**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 11:25:10 A**	Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110	0.300	20	

Sample ID: **2212134-07CMS**	Batch ID: **108155**	TestNo: **E300**	Units: **mg/L**
SampType: **MS**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 5:33:20 PM**	Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	275	10.0	200.0	77.85	98.7	90	110			

Sample ID: **2212134-07CMSD**	Batch ID: **108155**	TestNo: **E300**	Units: **mg/L**
SampType: **MSD**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 5:50:20 PM**	Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	273	10.0	200.0	77.85	97.8	90	110	0.687	20	

Sample ID: **2212141-02CMS**	Batch ID: **108155**	TestNo: **E300**	Units: **mg/L**
SampType: **MS**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 6:41:20 PM**	Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	348	10.0	200.0	168.5	89.9	90	110			

Sample ID: **2212141-02CMSD**	Batch ID: **108155**	TestNo: **E300**	Units: **mg/L**
SampType: **MSD**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 6:58:20 PM**	Prep Date: **12/19/2022**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	351	10.0	200.0	168.5	91.1	90	110	0.671	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: 2212141
Project: Cottonwood

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_221220A

Sample ID: **ICV-221220**	Batch ID: **R124461**	TestNo: **E300**	Units: **mg/L**
SampType: **ICV**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 10:17:10 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.9	1.00	25.00	0	103	90	110			

Sample ID: **CCV1-221220**	Batch ID: **R124461**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_221220A**	Analysis Date: **12/20/2022 7:49:20 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110			

Sample ID: **CCV2-221220**	Batch ID: **R124461**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_221220A**	Analysis Date: **12/21/2022 12:04:20 A**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	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

Appendix C

NMOCD Correspondence

From: Billings, Bradford, EMNRD
To: Robert Nelson
Subject: RE: [EXTERNAL] Delek Logistics - Cottonwood Facility (2RF-128) Groundwater Sampling Notice
Date: Tuesday, December 6, 2022 11:53:12 AM
Attachments: image001.png

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Bradford Billings
EMNRD/OCD

From: Robert Nelson <rnelson@laenvironmental.com>
Sent: Tuesday, December 6, 2022 10:34 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@emnrd.nm.gov>
Cc: Harry Lewis <Harry.Lewis@deleklogistics.com>; Kevin Adams <Kevin.Adams@delekus.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 Bradford,

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 13, 2022 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
Sr. Geologist
Office – 432-687-0901
Cell – 432-664-4804
rnelson@laenvironmental.com
Larson & Associates, Inc.
Environmental Consultants

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
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811 S. First St., Artesia, NM 88210
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District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
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 188439

CONDITIONS

Operator: 3 Bear Energy-Cottonwood, LLC 7102 Commerce Way Brentwood, TN 37027	OGRID: 330291
	Action Number: 188439
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	Accepted.	2/23/2023