

February 13,
2023

1RP-389 – State C Tract 13
2023 2nd Semi-Annual (July - December) Groundwater Monitoring Report
Lea County, New Mexico

REVIEWED

By Mike Buchanan at 11:26 am, Jan 06, 2025

Review of the 2023 2nd Semi-Annual Groundwater Monitoring Report for State C Tract 13: content satisfactory

1. Please submit groundwater monitoring reports no later than 6 months after a groundwater monitoring event has been completed. This report is dated for 02/13/2023 and wasn't received until 01/02/2025. If more time is needed to complete the report, please request that via email to Mike Buchanan
2. Continue as planned to conduct quarterly monitoring events in wells MW-1 through MW-6 and RW-1, for nitrates, BTEX, chloride and TDS.
3. Submit the 2024 semi-annual groundwater report to OCD by July 1, 2025.

Prepared for:



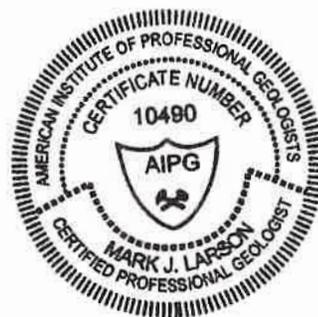
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IAI Project No: 19-0112-38

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1.0 EXECUTIVE SUMMARY

Larson & Associates, Inc. (LAI) has prepared this report on behalf of the Apache Corporation (Apache) for submittal to the New Mexico Oil Conservation Division (NMOCD) District I in Hobbs and Santa Fe, New Mexico. This report presents the 2023 second (2nd) semiannual (July - December) groundwater monitoring results for the State C Tract 13 (Site) located in Section 36, Range 37 East, Township 21 South, in Lea County, New Mexico. The geodetic position is North 32.43830° and West -103.12155°.

The following activities occurred on September 7, 2023, and December 27, 2023:

- Gauged six (6) monitoring wells (MW-1 through MW-6) and the recovery well (RW-1) for depth to groundwater.
- Purged and sampled groundwater from six (6) monitoring wells MW-1 through MW-6 and a recovery well RW-1.
- Analyzed groundwater samples BTEX, chloride, total dissolved solids (TDS), and nitrates.

The following observations are documented in this report for September 7, 2023, and December 27, 2023:

- September 7, 2023
 - Depth to groundwater ranged between 39.12 and 40.76 feet below ground surface (bgs) at wells MW-5 and MW-1, respectively. Monitoring well MW-2 was dry.
 - Groundwater elevation ranged from 3,322.20 feet above mean seal level (MSL) at well MW-2 (upgradient) to 3,321.46 feet above MSL at well MW-6 (down gradient).
 - The groundwater flow direction was from west to east-southeast at a gradient of about 0.0004 feet per foot (ft/ft) with an apparent divide between MW-1 and RW-1 that causes groundwater to flow northeast.
 - BTEX compounds were below the analytical method reporting limit (RL) and New Mexico Water Quality Control Commission (NMWQCC) human health standard in all groundwater samples collected on September 7, 2023.
 - Nitrate concentrations were below the NMWQCC human health standard of 10 mg/L in all groundwater samples collected on September 7, 2023.
 - Chloride concentrations were above the NMWQCC domestic water quality standard of 250 mg/L in wells MW-1 (513 mg/L), MW-3 (11,700 mg/L), MW-4 (1,050 mg/L), and RW-1 (1,530 mg/L).
 - TDS concentrations were above NMWQCC domestic water quality standard of 1,000 mg/L in wells MW-1 (1,560 mg/L), MW-3 (20,700 mg/L), MW-4 (2,370 mg/L), and RW-1 (3,010 mg/L).
- December 27, 2023
 - Depth to groundwater ranged between 38.99 and 40.63 feet bgs at MW-5 and MW-1, respectively. Monitoring well MW-2 was dry.
 - The groundwater elevation ranged from 3,322.20 feet above MSL at well MW-2 (upgradient) to 3,321.56 feet above MSL at well MW-6 (down gradient).

- The groundwater flow direction was from west to east-southeast at a gradient of about 0.0004 feet per foot (ft/ft) with an apparent divide between MW-1 and RW-1 that causes groundwater to flow northeast.
- BTEX compounds were below the analytical method RL and NMWQCC human health standards in all groundwater samples collected on December 27, 2023.
- The nitrate concentration in well MW-3 (10.8 mg/L) was above the WQCC human health standard of 10 mg/L on December 27, 2023.
- Chloride concentrations were above the NMWQCC domestic water quality standard of 250 mg/L in wells MW-1 (495 mg/L), MW-3 (7,960 mg/L), MW-4 (760 mg/L), and RW-1 (1,440 mg/L).
- TDS concentrations were above NMWQCC domestic water quality standard of 1,000 mg/L in wells MW-1 (1,780 mg/L), MW-3 (17,100 mg/L), MW-4 (2,210 mg/L), MW-5 (1,010 mg/L), and RW-1 (3,570 mg/L).

Apache will notify NMOCD at seven (7) working in days in advance of each quarterly groundwater monitoring event and immediately for any significant changes in analyte concentrations in groundwater samples.

2.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this report on behalf of the Apache Corporation (Apache) for submittal to the New Mexico Oil Conservation Division (NMOCD) District I in Hobbs and Santa Fe, New Mexico. This report presents 2023 second (2nd) semi-annual (July – December) groundwater monitoring results for the State C Tract 13 (Site) located in Section 36, Range 37 East, Township 21 South, in Lea County, New Mexico. The geodetic position is North 32.43830° and West -103.12155°. The Site is the former location of an unlined disposal pit located approximately 215 feet south of the State C Tract 13 tank battery. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

2.1 Background

Between November 19, 2002, and September 10, 2004, Eco Drilling Services, under supervision from Safety & Environmental Solutions, Inc. (SESI), drilled and installed six (6) monitoring wells (MW-1 through MW-6) at the Site. The wells were drilled between 54.71 feet below ground surface (feet bgs) at MW-3 and 72.21 feet bgs (MW-1). The wells were completed with 2-inch schedule 40 PVC casing and approximately twenty (20) feet of 0.010-inch slotted screen. SESI personnel collected groundwater samples from the wells which were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), cations (sodium, calcium, magnesium, and potassium), anions (chloride, sulfate, carbonate, calcium carbonate) and total dissolved solids (TDS). SESI documented the investigation and remediation in the report titled, *“Apache Corporation State C. Tract 13 Site Investigation, Section 36, Township 21S, Range 37E, Lea County, New Mexico, March 10, 2003”*.

On July 21, 2021, Scarborough Drilling Inc. (SDI), under LAI supervision, installed a recovery well (RW-1) southeast (downgradient) from the pit where SESI excavated approximately 1,104 cubic yards of soil to a depth of about fourteen (14) feet bgs. A 40-mil thick liner was placed in the bottom of the excavation and covered with soil to ground surface. The recovery well was drilled to approximately 69.25 feet bgs and completed with five (5) inch non-threaded schedule 40 PVC casing and about 29.55 feet of 0.02-inch factory slotted screen. The screen was positioned above and below the groundwater level observed during drilling. Graded silica sand was placed around the screen to about two (2) feet above the screen. The remaining annulus above the screen was filled to about 1-foot bgs with bentonite chips and hydrated with potable water. West Companies, Midland, Texas, a State of New Mexico Licensed Profession Land Surveyor (LPS Number 23263) surveyed the monitoring and recovery wells for geodetic position, and ground and top of casing (TOC) elevation. Table 1 presents the monitoring and recovery well completion details. Figure 3 presents an aerial map showing the monitoring and recovery well locations.

3.0 DEPTH TO GROUNDWATER AND GROUNDWATER ELEVATION

3.1 September 7, 2023

LAI personnel gauged depth to groundwater in monitoring wells MW-1 through MW-6 and recovery well RW-1. Groundwater was measured at 40.76 (MW- 1), 40.14 (MW-3), 39.66 (MW-4), 39.12 (MW-5), 40.24 (MW-6), and 39.65 (RW-1) feet bgs. Monitoring well MW-2 was dry during this monitoring event. The groundwater potentiometric surface elevation ranged from 3,321.95 feet above MSL at RW-1 (upgradient) to 3,321.46 feet above MSL at MW-6 (downgradient). An apparent groundwater divide

occurs in the area of monitoring wells MW-1 and MW-2, causing groundwater to flow to the northeast and southeast at gradients between 0.0007 and 0.0051 ft/ft. Table 1 presents the groundwater gauging summary. Figure 3a presents the groundwater potentiometric map for September 7, 2023.

3.2 December 27, 2023

On December 27, 2023, LAI personnel gauged depth to groundwater in monitoring wells MW-1 through MW-6 and recovery well RW-1. Groundwater was measured at 40.63 feet bgs (MW-1), 39.98 feet bgs (MW-3), 39.57 feet bgs (MW-4), 38.99 feet bgs (MW-5), 40.14 feet bgs (MW-6), and 39.54 feet bgs (RW-1). Monitoring well MW-2 was dry during this monitoring event. The groundwater potentiometric surface elevation ranged from 3,322.06 feet AMSL at RW-1 (upgradient) to 3,321.56 feet about MSL at MW-6 (downgradient). An apparent groundwater divide occurs in the area of monitoring wells MW-1 and MW-2, causing groundwater to flow to the northeast and southeast at gradients between 0.0007 and 0.0051 ft/ft. Figure 3b presents the groundwater potentiometric map for December 27, 2023.

No significant changes were observed in groundwater depth, groundwater potentiometric surface elevation, groundwater flow directions, or groundwater gradients on September 7 and December 27, 2023.

4.0 GROUNDWATER SAMPLES AND ANALYSIS

On September 7, 2023, and December 27, 2023, LAI personnel collected groundwater samples from monitoring wells MW-1 through MW-6 and recovery well RW-1. Notification of the groundwater sampling events was submitted to the NMOCD on August 22, 2023 (via email to Nelson Velez and Mike Bratcher), and on December 13, 2023 (via the NMOCD web portal). Groundwater samples from wells MW-1 and RW-1 were collected using the low stress or low flow method following EPA protocol (EQASOP-GW4, Revision 4, September 19, 2017), where an environmental pump is submerged near the middle of the water column and the well is pumped at a low flowrate until environmental parameters stabilize. The samples were collected from discharge from dedicated disposable Tygon tubing. The tubing was discarded after each use and the pump was thoroughly cleaned with a solution of potable water and laboratory grade detergent (Alconox) and rinsed with distilled water. Samples from MW-2 through MW-6 were collected using dedicated disposable polyethylene bailers during both groundwater monitoring events. Monitoring well MW-2 was dry on September 7 and December 27, 2023.

The groundwater samples were transferred to labeled laboratory containers and delivered under chain-of-custody and preservation Eurofins-Xenco Laboratories (Xenco), a National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory, located in Midland, Texas. A duplicate sample was collected from RW-1 on September 7, 2023, and December 27, 2023, for laboratory quality assurance and quality control (QA/QC). Xenco analyzed the samples for BTEX by EPA SW-846 Method SW-8021D, chloride and nitrate by EPA Method 300, and TDS by Method SM 2540C. Table 2 presents the laboratory analytical summary. Appendix A presents the NMOCD communications. Appendix B presents the laboratory reports.

4.1 Organic Analysis

Xenco reported BTEX concentrations below the laboratory analytical reporting limit (RL) and New Mexico Water Quality Control Commission (WQCC) human health standards in groundwater samples from monitoring wells MW-1 through MW-6 and recovery well RW-1 on September 7, 2023, and December 27, 2023.

4.2 Inorganic Analysis

4.2.0 September 7, 2023

Chloride exceeded the WQCC domestic water quality standard of 250 mg/L in groundwater samples d from MW-1 (513 mg/L), MW-3 (11,700 mg/L), MW-4 (1,050 mg/L) and RW-1 (1,640 mg/L). Chloride was below the WQCC domestic water quality standard in monitoring wells MW-5 (148 mg/L) and MW-6 (124 mg/L). The QA/QC sample (Dup-1), collected from RW-1, had a chloride concentration of 1,640 mg/L, a 7.19 percent increase of the initial chloride value of 1,530 mg/L. No data quality exceptions were noted in the Xenco case narratives. Figure 4a presents the chloride isopleth map for September 7, 2023.

TDS exceeded the WQCC domestic water quality standard of 1,000 mg/L in groundwater samples from MW-1 (1,560 mg/L), MW-3 (20,700 mg/L), MW-4 (2,370 mg/L), RW-1 (2,880 mg/L). TDS was below the WQCC domestic water quality standard samples collected from wells MW-5 (915 mg/L) and MW-6 (903 mg/L). The QA/QC sample (Dup-1), collected from RW-1, had a TDS concentration of 3,010 mg/L, a 4.51 percent increase of the initial TDS value of 2,880 mg/L. No data quality exceptions were noted in the Xenco case narratives. Figure 5a presents the TDS isopleth map for September 7, 2023.

Nitrate was below the WQCC human health standard in wells MW-1 (1.89 mg/L), MW-3 (<2.00 mg/L), MW-4 (<0.0500), MW-5 (0.576 mg/L), MW-6 (1.63 mg/L), and RW-1 (2.07 mg/L). The QA/QC sample (Dup-1) collected from RW-1, had a nitrate concentration of 1.49 mg/L, a 28 percent decrease of the initial nitrate value of 2.07 mg/L. No data quality exceptions were noted in the Xenco case narratives.

4.2.1 December 27, 2023

Chloride exceeded the WQCC domestic water quality standard of 250mg/L in groundwater samples collected from MW-1 (495 mg/L), MW-3 (7,960) mg/L, MW-4 (760 mg/L), RW-1 (1,500 mg/L). Chloride was below the WQCC domestic water quality standard in monitoring wells MW-5 (121 mg/L) and MW-6 (96.7 mg/L). The QA/QC samples (Dup-1), collected from RW-1, has a chloride concentration of 1,430 mg/L, a 0.7 percent decrease of the initial chloride value of 1,440 mg/L. No data quality exceptions were noted in the Xenco case narratives. Figure 4b presents the chloride isopleth map for December 27, 2023

TDS exceeded the WQCC domestic water quality standard of 1,000 mg/L in groundwater samples collected from MW-1 (1,780 mg/L), MW-3 (17,100 mg/L), MW-4 (2,210 mg/L), MW-5 (1,010 mg/L), and RW-1 (3,570 mg/L). TDS was below the WQCC domestic water quality standard samples collected from well MW-6 (871 mg/L). The QA/QC sample (Dup-1), collected from RW-1, had a TDS concentration of 3,560 mg/L, a 0.3 percent decrease of the initial TDS value of 3,570 mg/L. No data quality exceptions were noted in the Xenco case narratives. Figure 5b presents the TDS isopleth map for December 27, 2023.

Nitrate exceeded the WQCC domestic water quality standard of 10 mg/L in groundwater samples collected from MW-3 (10.8 mg/L). Nitrate was below the WQCC human health standard in wells MW-1 (2.12 mg/L), MW-4 (<0.500), MW-5 (<0.100 mg/L), MW-6 (1.35 mg/L), and RW-1 (1.84 mg/L). The QA/QC sample (Dup-1) collected from RW-1, had a nitrate concentration of 1.86 mg/L, a 1 percent increase of the initial nitrate value of 1.84 mg/L. No data quality exceptions were noted in the Xenco case narratives.

5.0 CONCLUSIONS

The following conclusions are made in this report:

- No significant changes were observed in the groundwater potentiometric surface elevation, flow direction, or gradients on September 7, 2023, and December 27, 2023.
- BTEX compounds in all monitoring wells were reported below the analytical method RL and WQCC human health standards in samples collected from MW-1 through MW-6 and RW-1 on September 7, 2023, and December 27, 2023.
- Chloride concentrations were reported as:
 - Above the WQCC domestic water quality standard of chloride (250 mg/L) in groundwater samples collected from MW-1 through MW-4 and RW-1 on September 7, 2023, and December 27, 2023.
 - Below the WQCC domestic water quality standard for chloride in groundwater samples collected from MW-5 and MW-6 on September 7, 2023, and December 27, 2023.
- TDS concentrations were reported as:
 - Above the WQCC domestic water quality standard of TDS (1,000 mg/L) in groundwater samples collected from MW-1 through MW-4 and RW-1 on September 7, 2023, and MW-1 through MW-5 and RW-1 December 27, 2023.
 - Below is the WQCC domestic water quality standard for TDS in groundwater samples collected from MW-5 and MW-6 on September 7, 2023 and MW-6 on December 27, 2023.
- Nitrate concentrations were below analytical RL and WQCC human health standards on September 7, 2023, and above the WQCC human health standard (10 mg/L) collected from MW-3 on December 27, 2023.

Apache will continue quarterly monitoring of groundwater in wells MW-1 through MW-6 and RW-1 during 2024 with laboratory analysis of groundwater samples for BTEX, chloride, nitrate, and TDS.

Apache will provide the NMOCD with semi-annual groundwater monitoring reports.

Notice will be provided to NMOCD in Hobbs and Santa Fe, New Mexico at least 7 working days prior to each groundwater monitoring event. The NMOCD will be notified immediately upon receipt of laboratory analysis with significant increase of analyte concentrations.

Tables

Table 1
1RP-389
Groundwater Gauging Table
Apache State C Tract 13
Lea County, New Mexico

Well Information						Groundwater Data			
Boring ID	Well Depth (Feet TOC)	Well Diameter (Inches)	Surface Elevation (Feet AMSL)	TOC Elevation (Feet AMSL)	Casing Stickup (Feet)	Date Gauged	Depth to Water (Feet TOC)	Depth to Water (Feet BGS)	Groundwater Elevation (Feet AMSL)
MW-1	72.45	2	3,363.03	3,365.00	2.50	06/05/2019	43.52	41.02	3,321.48
						07/21/2020	43.60	41.10	3,321.40
						07/30/2021	43.70	41.20	3,321.30
						08/10/2021	43.66	41.16	3,321.34
						08/11/2021	43.69	41.19	3,321.31
						03/03/2022	43.37	40.87	3,321.63
						05/06/2022	43.37	40.87	3,321.63
						08/18/2022	43.48	40.98	3,321.52
						12/16/2022	43.44	40.94	3,321.56
						03/13/2023	43.27	40.77	3,321.73
						06/07/2023	43.15	40.65	3,321.85
						09/07/2023	43.26	40.76	3,321.74
						12/27/2023	43.13	40.63	3,321.87
						MW-2	45.78	2	3,361.86
07/21/2020	42.70	40.10	3,321.88						
07/30/2021	DRY	--	--						
08/10/2021	DRY	--	--						
08/11/2021	DRY	--	--						
03/03/2022	42.53	39.93	3,322.05						
05/26/2022	42.56	39.96	3,322.02						
08/18/2022	42.75	40.15	3,321.83						

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Groundwater Gauging Table
Apache State C Tract 13
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Well Information						Groundwater Data			
Boring ID	Well Depth (Feet TOC)	Well Diameter (Inches)	Surface Elevation (Feet AMSL)	TOC Elevation (Feet AMSL)	Casing Stickup (Feet)	Date Gauged	Depth to Water (Feet TOC)	Depth to Water (Feet BGS)	Groundwater Elevation (Feet AMSL)
						12/16/2022	42.65	40.05	3,321.93
						03/13/2023	42.47	39.87	3,322.11
						06/07/2023	42.38	39.78	3,322.20
						09/07/2023	DRY	--	--
						12/27/2023	DRY	--	--
MW-3	45.74	2	3,361.86	3,364.72	2.75	06/05/2019	43.00	40.25	3,321.72
						07/21/2020	43.00	40.25	3,321.72
						07/30/2021	DRY	--	--
						08/10/2021	DRY	--	--
						08/11/2021	DRY	--	--
						03/03/2022	42.91	40.16	3,321.81
						05/26/2022	42.91	40.16	3,321.81
						08/18/2022	43.08	40.33	3,321.64
						12/16/2022	42.99	40.24	3,321.73
						03/13/2023	42.85	40.10	3,321.87
						06/07/2023	42.74	39.99	3,321.98
						09/07/2023	42.89	40.14	3,321.83
						12/27/2023	42.73	39.98	3,321.99
MW-4	46.42	2	3,361.49	3,364.00	2.62	06/05/2019	42.41	39.79	3,321.59
						07/21/2020	42.10	39.48	3,321.90

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Lea County, New Mexico

Well Information						Groundwater Data			
Boring ID	Well Depth (Feet TOC)	Well Diameter (Inches)	Surface Elevation (Feet AMSL)	TOC Elevation (Feet AMSL)	Casing Stickup (Feet)	Date Gauged	Depth to Water (Feet TOC)	Depth to Water (Feet BGS)	Groundwater Elevation (Feet AMSL)
						07/30/2021	DRY	--	--
						08/10/2021	DRY	--	--
						08/11/2021	DRY	--	--
						03/03/2022	42.32	39.70	3,321.68
						05/26/2022	42.37	39.75	3,321.63
						08/18/2022	42.51	39.89	3,321.49
						12/16/2022	42.43	39.81	3,321.57
						03/13/2023	42.30	39.68	3,321.70
						06/07/2023	42.20	39.58	3,321.80
						09/07/2023	42.28	39.66	3,321.72
						12/27/2023	42.19	39.57	3,321.81
MW-5	46.19	2	3,361.73	3,364.77	3.85	06/05/2019	42.98	39.13	3,321.79
						07/20/2020	43.00	39.15	3,321.77
						07/30/2021	43.25	39.40	3,321.52
						08/10/2021	43.20	39.35	3,321.57
						08/11/2021	43.21	39.36	3,321.56
						03/03/2022	42.96	39.11	3,321.81
						05/26/2022	43.00	39.15	3,321.77
						08/18/2022	43.18	39.33	3,321.59
						12/16/2022	43.07	39.22	3,321.70
						03/13/2023	42.94	39.09	3,321.83

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Well Information						Groundwater Data			
Boring ID	Well Depth (Feet TOC)	Well Diameter (Inches)	Surface Elevation (Feet AMSL)	TOC Elevation (Feet AMSL)	Casing Stickup (Feet)	Date Gauged	Depth to Water (Feet TOC)	Depth to Water (Feet BGS)	Groundwater Elevation (Feet AMSL)
						06/07/2023	42.84	38.99	3,321.93
						09/07/2023	42.97	39.12	3,321.80
						12/27/2023	42.84	38.99	3,321.93
MW-6	46.91	2	3,361.42	3,364.32	2.62	06/05/2019	42.88	40.26	3,321.44
						07/20/2020	42.95	40.33	3,321.37
						07/30/2021	43.12	40.50	3,321.20
						08/10/2021	43.06	40.44	3,321.26
						08/11/2021	43.08	40.46	3,321.24
						03/03/2022	42.85	40.23	3,321.47
						05/26/2022	42.89	40.27	3,321.43
						08/18/2022	43.07	40.45	3,321.25
						12/16/2022	42.98	40.36	3,321.34
						03/13/2023	42.87	40.25	3,321.45
						06/07/2023	42.79	40.17	3,321.53
						09/07/2023	42.86	40.24	3,321.46
12/27/2023	42.76	40.14	3,321.56						
RW-1	65.67	8.5	3,361.66	3,364.60	3.00	08/10/2021	43.00	40.00	3,321.60
						08/11/2021	43.09	40.09	3,321.51
						08/19/2021	43.08	40.08	3,321.52
						03/03/2022	42.75	39.75	3,321.85
						05/26/2022	42.75	39.75	3,321.85

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Well Information						Groundwater Data			
Boring ID	Well Depth (Feet TOC)	Well Diameter (Inches)	Surface Elevation (Feet AMSL)	TOC Elevation (Feet AMSL)	Casing Stickup (Feet)	Date Gauged	Depth to Water (Feet TOC)	Depth to Water (Feet BGS)	Groundwater Elevation (Feet AMSL)
						08/18/2022	42.86	39.86	3,321.74
						12/16/2022	42.81	39.81	3,321.79
						03/13/2023	42.67	39.67	3,321.93
						06/07/2023	42.53	39.53	3,322.07
						09/07/2023	42.65	39.65	3,321.95
						12/27/2023	42.54	39.54	3,322.06

Notes:

TOC: top of casing

AMSL: above mean sea level

Table 2
1RP-389
Groundwater Analytical Data Summary
Apache Corp, State C Tract #13
Lea County, New Mexico
19-0112-38

Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	
RRAL		0.005	0.7	1	0.62	10	600	250	1,000	
MW-1	06/05/2019 ¹	<0.00100	<0.00100	<0.00100	<0.003	1.41	--	540	--	
	07/30/2021 ²	--	--	--	--	--	242	352	1,200	
	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	3.28	--	426	1,290	
	05/26/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	403	1,370	
	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	2.23	--	465	1,240	
	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	1.52	--	400	1,450	
	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	410	1,300	
	06/07/2023	<0.00200	<0.00200	<0.00200	<0.0400	1.66	--	501	1,990	
	09/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	1.89	--	513	1,560	
	12/27/2023	<0.00100	<0.00100	<0.00100	<0.0100	2.12	--	495	1,780	
MW-2	06/05/2019 ¹	<0.00100	<0.00100	<0.00100	<0.003	0.314	--	5,330	--	
	07/30/2021 ²	--	--	--	--	--	DRY	DRY	DRY	
	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<5.00	--	3,540	6,140	
	05/26/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	3,520	7,850	
	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	1.74	--	6,300	8,030	
	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	0.341	--	2,140	4,700	
	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	1,880	4,790	
	06/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	2,010	4,060	
	09/07/2023	DRY								
	12/27/2023	DRY								
MW-3	06/05/2019 ¹	<0.00100	<0.00100	<0.00100	<0.003	0.0890	--	4,330	--	
	07/30/2021 ²	--	--	--	--	--	DRY	DRY	DRY	

Table 2
1RP-389
Groundwater Analytical Data Summary
Apache Corp, State C Tract #13
Lea County, New Mexico
19-0112-38

Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
RRAL		0.005	0.7	1	0.62	10	600	250	1,000
	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<5.00	--	6,100	10,100
	05/26/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	6,830	11,900
	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	1.72	--	14,200	17,500
	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	<1.00	--	7,180	11,600
	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	7,330	17,300
	06/07/2023	<0.00200	<0.00200	<0.00200	<0.0400	<2.00	--	7,780	14,800
	09/07/2023	<0.00200	<0.00200	<0.00200	<0.00200	<2.00	--	11,700	20,700
	12/27/2023	<0.00100	<0.00100	<0.00100	<0.0100	10.8		7,960	17,100
MW-4	06/05/2019 ¹	<0.00100	<0.00100	<0.00100	<0.003	0.3030	--	776	--
	07/30/2021 ²	--	--	--	--	--	DRY	DRY	DRY
	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	3.03	--	472	1,340
	05/26/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	510	1,510
	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	1.14	--	664	1,780
	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	0.63	--	463	792
	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	659	1,900
	06/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	0.705	--	794	3,820
	09/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	<0.0500	--	1,050	2,370
	12/27/2023	<0.00100	<0.00100	<0.00100	<0.0100	<0.500	--	760	2,210
MW-5	06/05/2019 ¹	<0.00100	<0.00100	<0.00100	<0.003	<0.0800	--	67.5	--
	07/30/2021 ²	--	--	--	--	-	419	144	1,340
	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<1.00	--	100	1,020
	05/26/2022 ²	<0.00400	<0.00400	<0.00400	<0.00800	<0.100	--	101	968
	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.500	--	366	2,970

Table 2
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Groundwater Analytical Data Summary
Apache Corp, State C Tract #13
Lea County, New Mexico
19-0112-38

Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
RRAL		0.005	0.7	1	0.62	10	600	250	1,000
	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	<0.100	--	132	926
	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	92.2	867
	06/07/2023	<0.00200	<0.00200	<0.00200	<0.0400	<0.100	--	110	1,020
	09/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	0.576	--	148	915
	12/27/2023	<0.00100	<0.00100	<0.00100	<0.0100	<0.100	--	121	1,010
MW-6	06/05/2019 ¹	<0.00100	<0.00100	<0.00100	<0.003	1.42	--	274	--
	07/30/2021 ²	--	--	--	--	--	438	126	2,330
	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	1.66	--	117	1,050
	05/26/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	105	967
	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	2.2	--	129	1,040
	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	0.942	--	125	848
	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	107	958
	06/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	1.4	--	128	1,050
	09/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	1.63	--	124	903
	12/27/2023	<0.00100	<0.00100	<0.00100	<0.0100	1.35	--	96.7	871
RW-1	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	6.19	--	979	1,970
	05/26/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	931	2,020
	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	3.54	--	1,190	2,330
	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	2.14	--	979	864
	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	1,130	3,350
	06/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	2.21	--	1,500	3,290
	09/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	2.07	--	1,530	2,880
	12/27/2023	<0.00100	<0.00100	<0.00100	<0.0100	1.84	--	1,440	3,570

Table 2
1RP-389
Groundwater Analytical Data Summary
Apache Corp, State C Tract #13
Lea County, New Mexico
19-0112-38

Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
RRAL		0.005	0.7	1	0.62	10	600	250	1,000
QA/QC									
DUP-1 (MW-1)	06/05/2019 ¹	--				--	--	--	--
DUP-1 (MW-1)	07/30/2021 ²	--				--	224	325	1,190
DUP-1 (MW-1)	03/03/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	2.78	--	407	1,330
DUP-1 (RW-1)	05/26/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	<0.100	--	966	2,040
DUP-1 (RW-1)	08/18/2022 ²	<0.00200	<0.00200	<0.00200	<0.00400	3.62	--	1,170	23,500
DUP-1 (RW-1)	12/16/2022 ²	<0.00100	<0.00100	<0.00100	<0.0100	2.11	--	822	1,620
DUP-1 (RW-1)	03/13/2023	<0.00100	<0.00100	<0.00100	<0.0100		--	1,210	3,780
DUP-1 (RW-1)	06/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	2.22	--	1,370	3,290
DUP-1 (RW-1)	09/07/2023	<0.00200	<0.00200	<0.00200	<0.00400	1.49	--	1,640	3,010
DUP-1 (RW-1)	12/27/2023	<0.00100	<0.00100	<0.00100	<0.0100	1.86	--	1,430	3,560

Notes:

¹: analysis performed by Permian Basin Environmental Lab, Midland, Texas by EPA SW-846 Method 6020B (BTEX) and Method 300

²: analysis performed by Eurofins Xenco Laboratories, Midland, Texas by EPA SW-846 Method 6020B (BTEX) and Method 300

<: concentration below analytical reporting limit

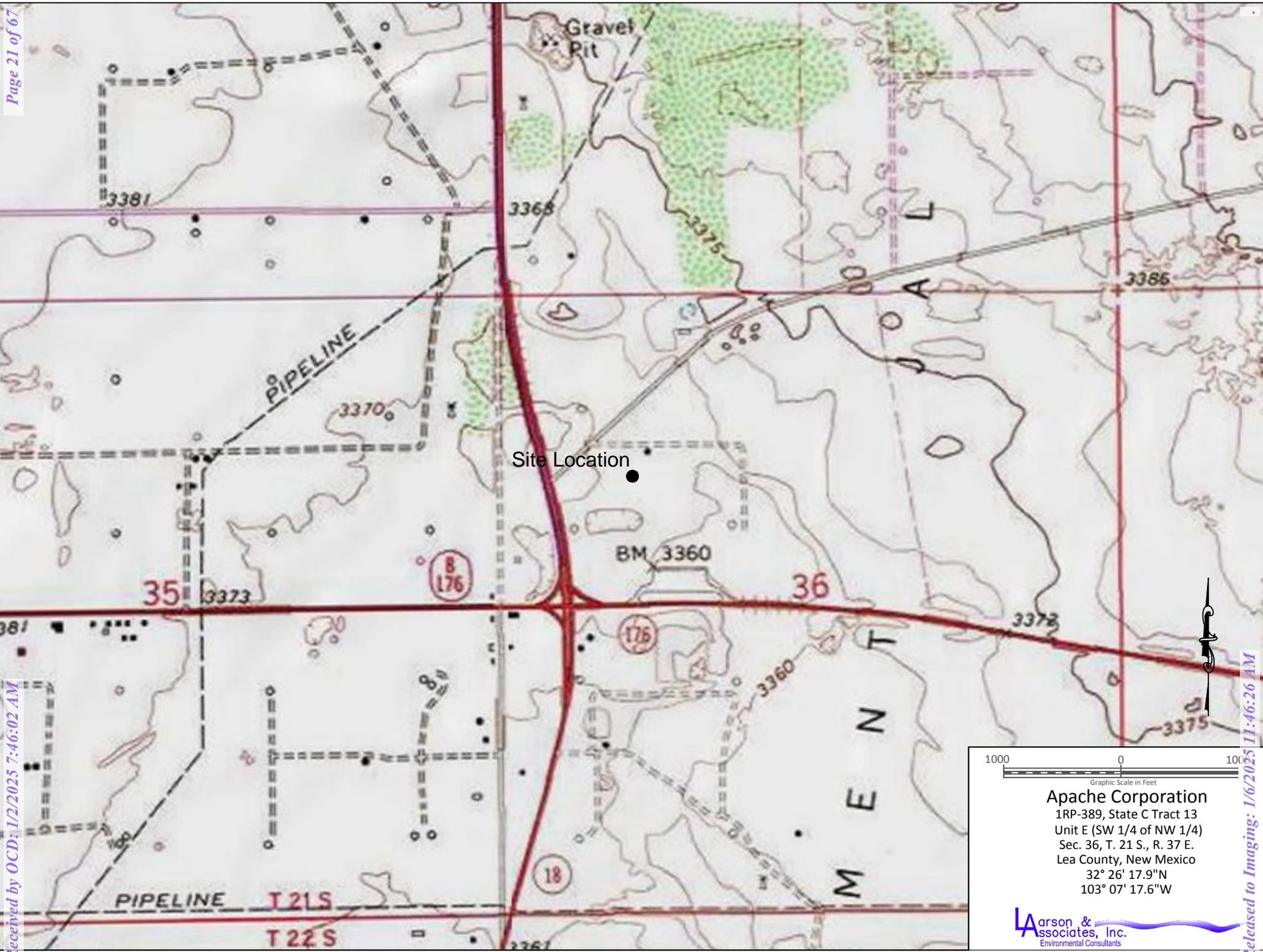
--: no data available

Values reported in milligrams per liter (mg/L)

Exceeds New Mexico Water Domestic Water Quality Standard

Missing Nitrate data from 03/13/2023 Report

Figures



1000 0 1000
Graphic Scale in Feet

Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson &
 Associates, Inc.
 Environmental Consultants

Figure 1 - Topographic Map



Legend

RW-1
 ○ - Recovery Well Location

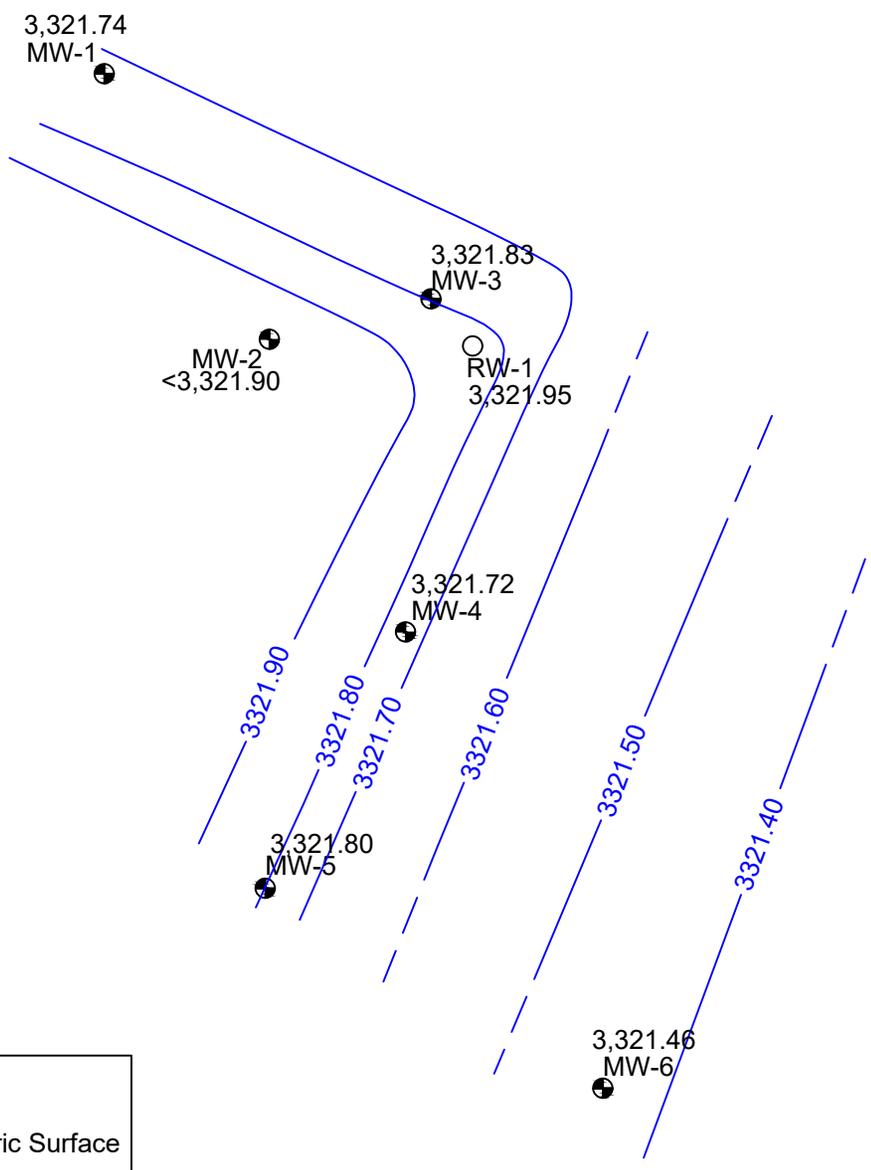
MW-1
 ⊕ - Monitoring Well Location

30 0 30
 Graphic Scale in Feet

Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson & Associates, Inc.
 Environmental Consultants

Figure 2 - Aerial Map Showing Monitoring Wells



Legend

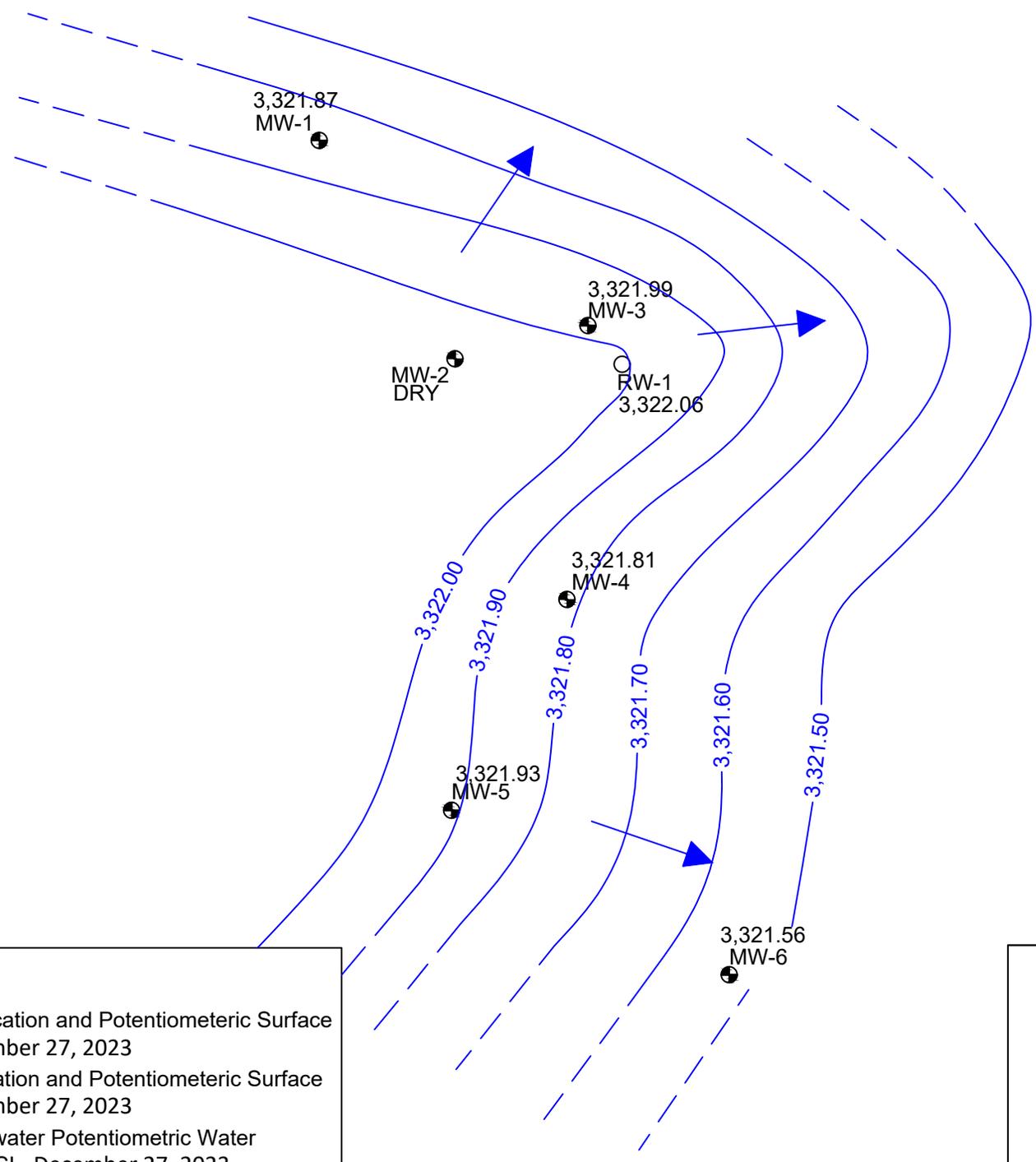
- 3,321.75 MW-4 - Monitoring Well Location and Potentiometric Surface Elevation on September 9, 2023
- 3,321.95 RW-1 - Recovery Well Location and Potentiometric Surface Elevation on September 9, 2023
- 3,321.40 - Contour of Groundwater Potentiometric Water Elevation, Feet AMSL, September 9, 2023
- Blue Arrow - Groundwater Flow Direction

70 0 70
Graphic Scale in Feet

Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson & Associates, Inc.
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Figure 3a - Groundwater Potentiometric Map, September 7, 2023



Legend

- 3,321.81
MW-4 - Monitoring Well Location and Potentiometric Surface Elevation on December 27, 2023
- 3,322.06
RW-1 - Recovery Well Location and Potentiometric Surface Elevation on December 27, 2023
- 3,321.40 - Contour of Groundwater Potentiometric Water Elevation, Feet AMSL, December 27, 2023
- ▲ - Groundwater Flow Direction

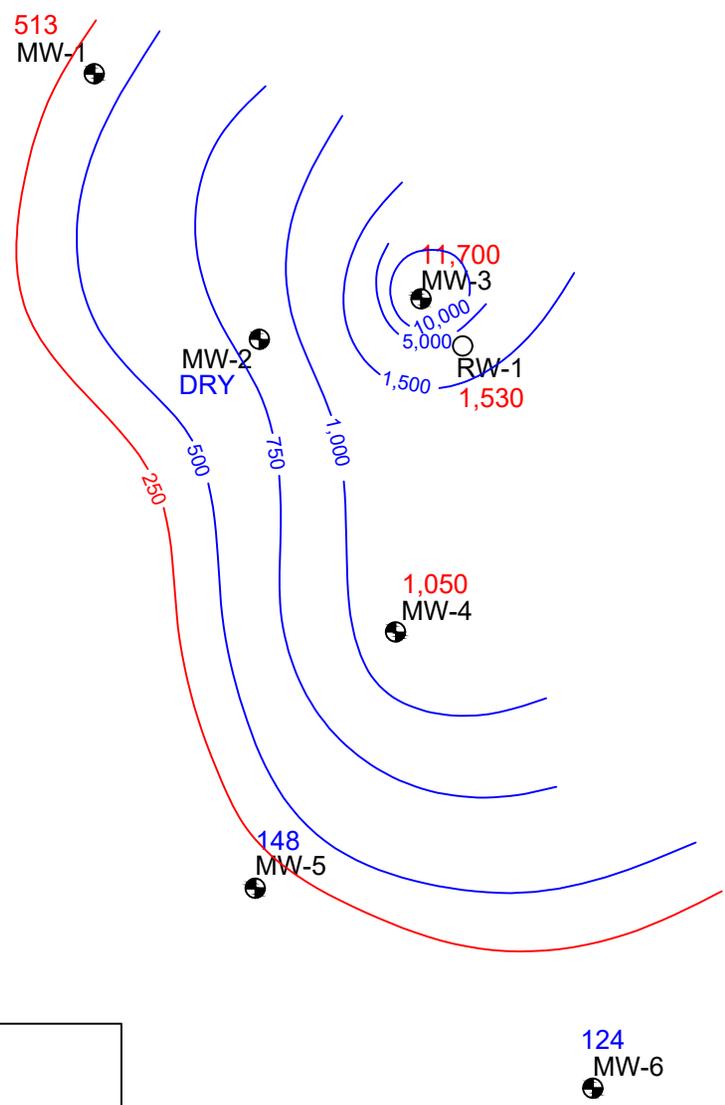
70 0 70
Graphic Scale in Feet

Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson & Associates, Inc.
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Figure 3b - Groundwater Potentiometric Map, December 27, 2023



Legend

- 1,050 MW-4 - Monitoring Well Location and Chloride Concentration in Groundwater, mg/L, September 9, 2023
- 1,530 RW-4 - Recovery Well Location and Chloride Concentration in Groundwater, mg/L, September 9, 2023
- 500 - Contour of Groundwater Chloride Concentration
- 50 mg/L - Concentration NMWQCC Domestic Water Quality Standard



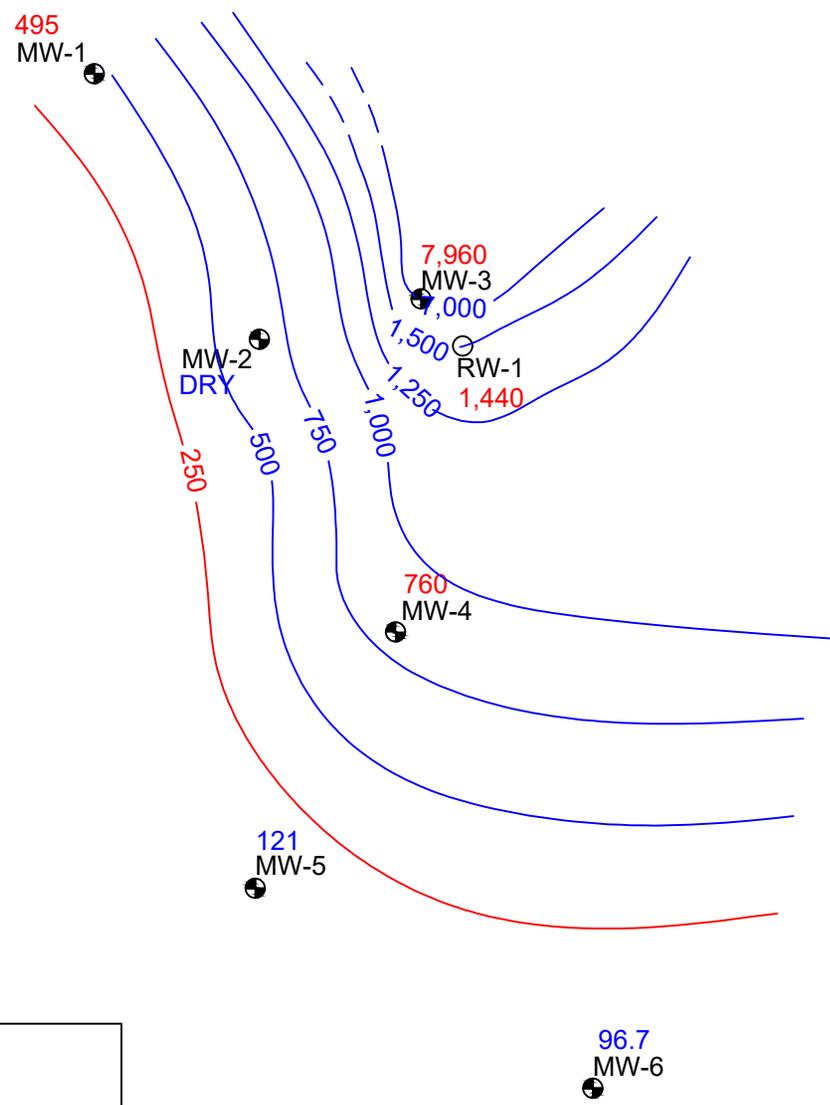
Graphic Scale in Feet



Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson & Associates, Inc.
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Figure 4a - Chloride Concentration in Groundwater Map, September 7, 2023



Legend

- - Monitoring Well Location and Chloride Concentration in Groundwater, mg/L, December 27, 2023
- - Recovery Well Location and Chloride Concentration in Groundwater, mg/L, December 27, 2023
- - Contour of Groundwater Chloride Concentration
- - Concentration NMWQCC Domestic Water Quality Standard

Graphic Scale in Feet

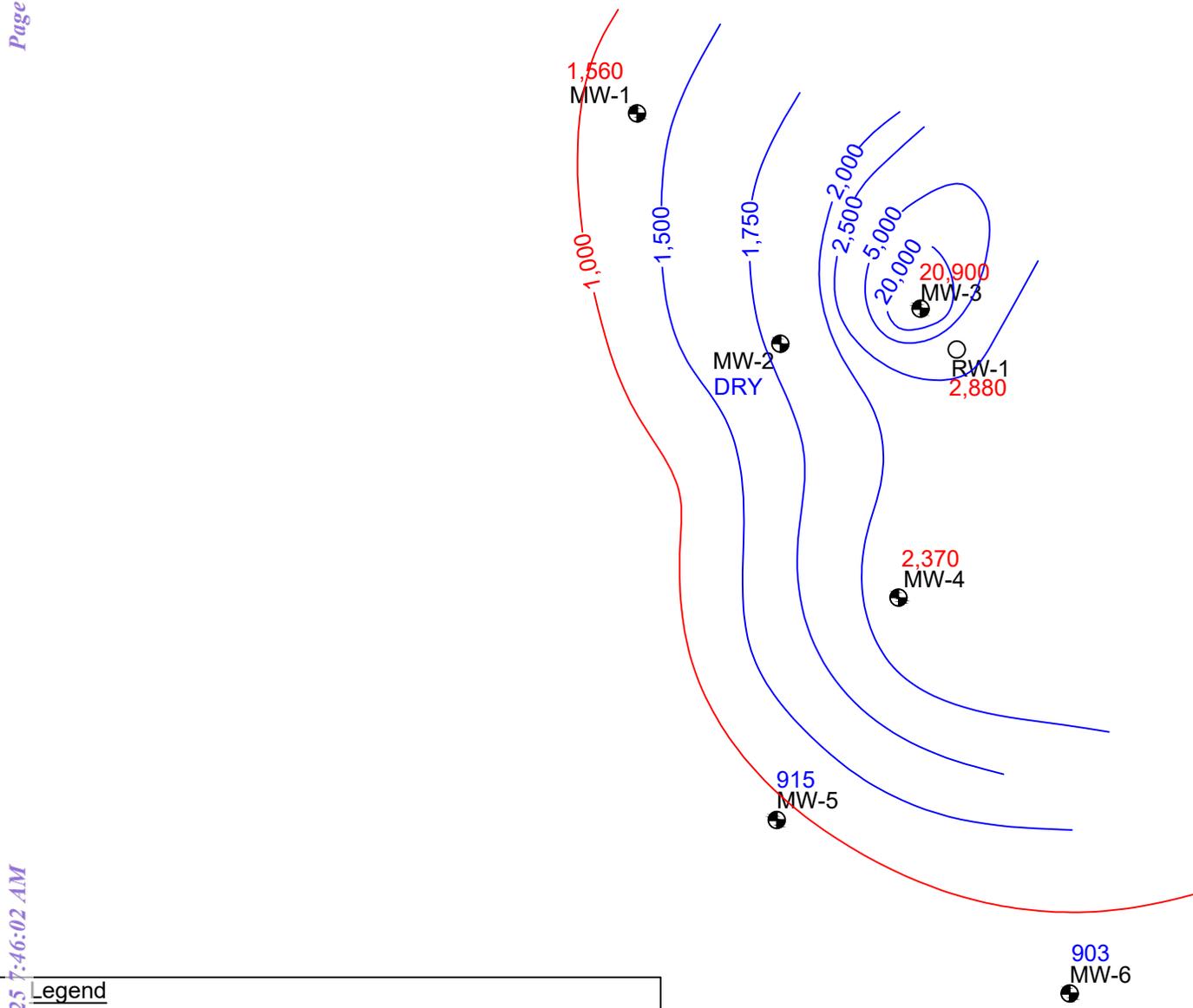
70 0 70

Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson & Associates, Inc.
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Figure 4b - Chloride Concentration in Groundwater Map, December 27, 2023



Legend

- 2,370 MW-4 - Monitoring Well Location and TDS Concentration in Groundwater, mg/L, September 9, 2023
- 2,880 RW-1 - Recovery Well Location and TDS Concentration in Groundwater, mg/L, September 9, 2023
- 1500- - Contour of TDS Groundwater Concentration
- 1000 mg/L - NMWQCC Domestic Water Quality Standard

Graphic Scale in Feet

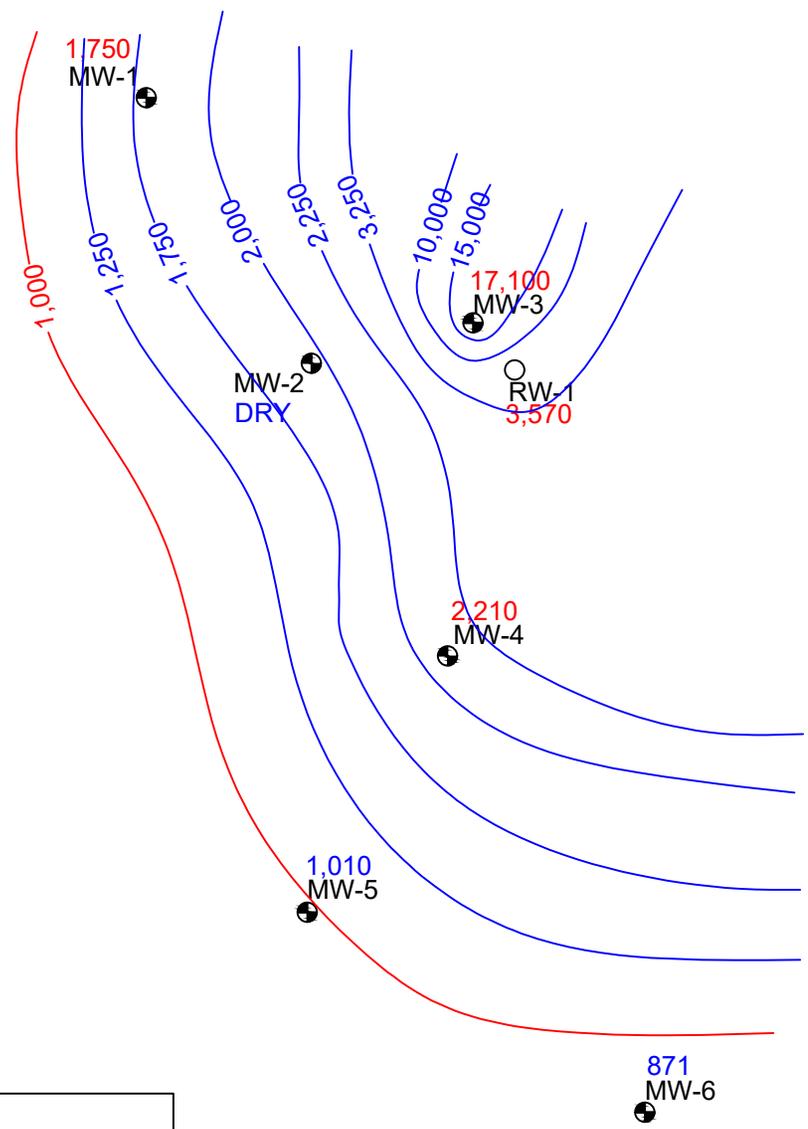
70 0 70

Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson & Associates, Inc.
 Environmental Consultants



Figure 5a - TDS Concentration in Groundwater, September 7, 2023



Legend

- 2,210 MW-4 - Monitoring Well Location and TDS Concentration in Groundwater, mg/L, December 27, 2023
- 3,570 RW-1 - Recovery Well Location and TDS Concentration in Groundwater, mg/L, December 27, 2023
- 1500- - Contour of TDS Groundwater Concentration
- 1000 mg/L - NMWQCC Domestic Water Quality Standard

Graphic Scale in Feet

70 0 70

Apache Corporation
 1RP-389, State C Tract 13
 Unit E (SW 1/4 of NW 1/4)
 Sec. 36, T. 21 S., R. 37 E.
 Lea County, New Mexico
 32° 26' 17.9"N
 103° 07' 17.6"W

Larson & Associates, Inc.
 Environmental Consultants



Figure 5b - TDS Concentration in Groundwater, December 27, 2023

Appendix A

Initial C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Apache Corporation	OGRID 873
Contact Name Larry Baker	Contact Telephone 432-631-6982
Contact email Larry.Baker@apachecorp.com	Incident # (assigned by OCD) 1RP-389
Contact mailing address 2350 West Marland Blvd. Hobbs, New Mexico 88240	

Location of Release Source

Latitude 32.43831° N Longitude -103.12160° W
(NAD 83 in decimal degrees to 5 decimal places)

Site Name State C Tract #13	Site Type Drilling Pit
Date Release Discovered 11/11/2002	API# (if applicable)

Unit Letter	Section	Township	Range	County
E	36	21S	37E	Lea

Surface Owner: State Federal Tribal Private (Name: Bobby Wallach)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) N/A	Volume Recovered (bbls) N/A
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) N/A	Volume Recovered (bbls) N/A
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was discovered during a site investigation by Safety & Environmental Solutions, Inc. at an abandoned drilling pit located approximately 215 feet south of the Apache State C Tract Battery.

State of New Mexico
Oil Conservation Division

Page 2

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.
Printed Name: <u>Larry Baker</u> Title: <u>Sr. Environmental Tech</u> Signature: _____ Date: <u>6/27/2019</u> email: <u>Larry.Baker@apachecorp.com</u> Telephone: <u>432-631-6982</u>
<u>OCD Only</u> Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ 43.0 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Larry Baker Title: Sr. Environmental Tech

Signature: _____ Date: 6/27/2019

email: Larry.Baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Larry Baker Title: Sr. Environmental Tech

Signature: _____ Date: 6/27/2019

email: Larry.Baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature: _____ Date: _____

Appendix B
NMOCD Communications

Daniel St. Germain

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Sent: Tuesday, August 22, 2023 9:24 AM
To: Robert Nelson; Bratcher, Michael, EMNRD
Cc: 'Larry.Baker@apachecorp.com'; Mark Larson; Daniel St. Germain
Subject: Re: [EXTERNAL] Apache Corp. State C Tract #13 (1RP-389 / App #pEJH1214461703)
Groundwater Sampling Notice

Robert,

Thank you for the notice. If an OCD representative is not on-site on the date &/or time given, please proceed with your sampling. For whatever reason, the sample collection timeframe is altered, please notify the OCD as soon as possible so we may adjust our schedule(s). Failure to notify the OCD of the rescheduling may result in the sample(s) not being accepted.

Please keep a copy of this communication for inclusion within the appropriate reporting documentation.

The OCD requires a copy of all correspondence related to remedial activities be included in all proposals, weekly/monthly/quarterly/semi-annual/annual, or final closure reports. Correspondence reporting requirements may include, but not limited to, notifications for sampling or drilling event(s), and request for time extension(s) or variance(s).

If you have any questions, please contact me via email at your convenience.

Thanks again

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: Tuesday, August 22, 2023 8:23 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Cc: 'Larry.Baker@apachecorp.com' <Larry.Baker@apachecorp.com>; Mark Larson <Mark@laenvironmental.com>;

Daniel St. Germain <dstgermain@laenvironmental.com>

Subject: [EXTERNAL] Apache Corp. State C Tract #13 (1RP-389 / App #pEJH1214461703) Groundwater Sampling Notice

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

Hello Mr. Velez and Mr. Bratcher,

This message is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of Apache Corporation to provide notice that personnel from Larson & Associates, Inc. (LAI) will be at the State C Tract #13 (1RP-389 / App # pEJH1214461703) on September 7, 2023, at approximately 9:00 mst for the purpose of collecting groundwater samples from monitoring wells per the OCD approved plan. Please feel free to contact Bruce Baker with Apache at (432) 215-2284 or Larry.Baker@apache.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



Appendix C

Boring Log

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	Surface Elevation: TOC Elevation:		REMARKS	
					NUMBER	RECOVERY DEPTH	BACKGROUND PID READING SOIL : _____ PPM SOIL : _____ PPM	
	0							
	5	Sand, 7.5YR 3/4, Dark Brown, Fine to Medium, Moderately Sorted, Rounded to Sub Rounded				1	5	10:28
	10	7.5YR 8/1, Fine to Medium, Moderately Sorted, Rounded to Sub Rounded				2	10	10:30
	15					3	15	10:31
	20					4	20	10:33
	25	Color Remains Constant, Becomes more Consolidated				5	25	10:40
	30	Water Introduced at 27'				6	30	10:50
	35	Sight Change in Color 7.5YR 8/3, Pink (Wet Sample)				7	35	10:53
	40					8	40	10:56
	45					9	45	
	50	Sand, 2.5YR 7/8, Light Red to 6/6 Light Red, Fine Sand, Very Well Sorted, Well Rounded			45.00	10	50	11:08
	55	Same Lithology at 53', Color Changed to 2.5YR 8/4 Pink (Wet Sample)			47.70	11	55	11:15
	60					12	60	
	65	Clay, 2.5YR 4/6 Red, Clay to Very Fine, Very Well Sorted, Very Well to Well Rounded				13	65	11:25
	70	TD: 69.25'			66.25	14	70	
	75				69.25	15	75	

- ONE CONTINUOUS AUGER SAMPLER
- STANDARD PENETRATION TEST
- UNDISTURBED SAMPLE
- WATER TABLE (24 HRS)
- WATER TABLE (TIME OF BORING)
- LABORATORY TEST LOCATION
- PENETROMETER (TONS/ SQ. FT)
- NR NO RECOVERY

JOB NUMBER : 19-0112-38/ Apache
 HOLE DIAMETER : 8.5"
 LOCATION : State C Tract 13
 LAI GEOLOGIST : T. Jackson
 DRILLING CONTRACTOR : SDI
 DRILLING METHOD : Air Rotary



DRILL DATE : 07/21/2021
 BORING NUMBER : RW-1

Appendix D
Laboratory Reports



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Mark J Larson
 Larson & Associates, Inc.
 507 N Marienfeld
 Suite 202
 Midland, Texas 79701

Generated 1/3/2024 11:58:04 AM

JOB DESCRIPTION

State C Tract 13
 19-0112-38

JOB NUMBER

880-37328-1

Eurofins Midland
 1211 W. Florida Ave
 Midland TX 79701



Eurofins Midland

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
1/3/2024 11:58:04 AM

Authorized for release by
Holly Taylor, Project Manager
Holly.Taylor@et.eurofinsus.com
(806)794-1296

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Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Laboratory Job ID: 880-37328-1
SDG: 19-0112-38

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Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Larson & Associates, Inc.
Project: State C Tract 13

Job ID: 880-37328-1

Job ID: 880-37328-1

Eurofins Midland

Job Narrative 880-37328-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 12/28/2023 8:37 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.8°C

GC/MS VOA

Method 8260C: Surrogate 4-Bromofluorobenzene (Surr) for the following sample in analytical batch 860-138852 was outside acceptance criteria: (LCS 860-138852/3). This Surr does not correspond to any of the requested target compounds reported from this analytical batch; therefore, the data have been reported.

(LCS 860-138852/3)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for analytical batch 880-69873 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 300_ORGFMS: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for analytical batch 880-69951 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 300_ORGFMS: Due to high chloride content, samples were ran at a dilution and are an estimate for nitrite.

MW-3 (880-37328-2), MW-4 (880-37328-3), RW-1 (880-37328-6) and Dup-1 (880-37328-7)

Method 300_ORGFMS: Due to high sulfate content, samples were ran at a dilution. Nitrate results are an estimate.

MW-1 (880-37328-1), MW-3 (880-37328-2), MW-4 (880-37328-3), RW-1 (880-37328-6) and Dup-1 (880-37328-7)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Midland

Client Sample Results

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

Client Sample ID: MW-1

Lab Sample ID: 880-37328-1

Date Collected: 12/27/23 11:30

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 16:02	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 16:02	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 16:02	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 16:02	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 16:02	1
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 16:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 144		01/02/24 16:02	1
4-Bromofluorobenzene (Surr)	92		74 - 124		01/02/24 16:02	1
Dibromofluoromethane (Surr)	103		75 - 131		01/02/24 16:02	1
Toluene-d8 (Surr)	98		80 - 120		01/02/24 16:02	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0100	U	0.0100	mg/L			01/02/24 16:02	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	495	F1	5.00	mg/L			12/29/23 02:13	10
Nitrate as N	2.12		0.100	mg/L			12/29/23 04:27	1
Nitrite as N	<0.100	U F1	0.100	mg/L			12/29/23 01:27	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1780		20.0	mg/L			12/29/23 10:44	1

Client Sample ID: MW-3

Lab Sample ID: 880-37328-2

Date Collected: 12/27/23 11:00

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 17:26	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 17:26	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 17:26	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 17:26	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 17:26	1
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 17:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		63 - 144		01/02/24 17:26	1
4-Bromofluorobenzene (Surr)	91		74 - 124		01/02/24 17:26	1
Dibromofluoromethane (Surr)	95		75 - 131		01/02/24 17:26	1
Toluene-d8 (Surr)	99		80 - 120		01/02/24 17:26	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0100	U	0.0100	mg/L			01/02/24 17:26	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Client Sample ID: MW-3

Lab Sample ID: 880-37328-2

Date Collected: 12/27/23 11:00

Matrix: Water

Date Received: 12/28/23 08:37

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7960		50.0	mg/L			12/29/23 02:44	100
Nitrate as N	10.8		5.00	mg/L			12/29/23 04:48	50
Nitrite as N	<5.00	U	5.00	mg/L			12/29/23 01:59	50

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	17100		100	mg/L			12/29/23 10:44	1

Client Sample ID: MW-4

Lab Sample ID: 880-37328-3

Date Collected: 12/27/23 10:20

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 13:39	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 13:39	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 13:39	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 13:39	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 13:39	1
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 13:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		63 - 144		01/02/24 13:39	1
4-Bromofluorobenzene (Surr)	91		74 - 124		01/02/24 13:39	1
Dibromofluoromethane (Surr)	100		75 - 131		01/02/24 13:39	1
Toluene-d8 (Surr)	99		80 - 120		01/02/24 13:39	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0100	U	0.0100	mg/L			01/02/24 13:39	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	760		10.0	mg/L			12/29/23 02:54	20
Nitrate as N	<0.500	U	0.500	mg/L			12/29/23 05:09	5
Nitrite as N	<0.500	U	0.500	mg/L			12/29/23 02:14	5

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2210		20.0	mg/L			12/29/23 10:44	1

Client Sample ID: MW-5

Lab Sample ID: 880-37328-4

Date Collected: 12/27/23 09:50

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 17:47	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 17:47	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 17:47	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 17:47	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 17:47	1

Eurofins Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Client Sample ID: MW-5

Lab Sample ID: 880-37328-4

Date Collected: 12/27/23 09:50

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 17:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		63 - 144				01/02/24 17:47	1
4-Bromofluorobenzene (Surr)	91		74 - 124				01/02/24 17:47	1
Dibromofluoromethane (Surr)	100		75 - 131				01/02/24 17:47	1
Toluene-d8 (Surr)	97		80 - 120				01/02/24 17:47	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0100	U	0.0100	mg/L			01/02/24 17:47	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	121		5.00	mg/L			12/29/23 03:04	10
Nitrate as N	<0.100	U	0.100	mg/L			12/29/23 05:29	1
Nitrite as N	<0.100	U	0.100	mg/L			12/29/23 02:30	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1010		10.0	mg/L			12/29/23 10:44	1

Client Sample ID: MW-6

Lab Sample ID: 880-37328-5

Date Collected: 12/27/23 09:20

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 16:22	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 16:22	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 16:22	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 16:22	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 16:22	1
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 16:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		63 - 144				01/02/24 16:22	1
4-Bromofluorobenzene (Surr)	91		74 - 124				01/02/24 16:22	1
Dibromofluoromethane (Surr)	101		75 - 131				01/02/24 16:22	1
Toluene-d8 (Surr)	98		80 - 120				01/02/24 16:22	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0100	U	0.0100	mg/L			01/02/24 16:22	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	96.7		2.50	mg/L			12/29/23 03:15	5
Nitrate as N	1.35		0.100	mg/L			12/29/23 05:50	1
Nitrite as N	<0.100	U	0.100	mg/L			12/29/23 02:46	1

Eurofins Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Client Sample ID: MW-6

Lab Sample ID: 880-37328-5

Date Collected: 12/27/23 09:20

Matrix: Water

Date Received: 12/28/23 08:37

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	871		10.0	mg/L			12/29/23 18:08	1

Client Sample ID: RW-1

Lab Sample ID: 880-37328-6

Date Collected: 12/27/23 12:00

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 16:43	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 16:43	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 16:43	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 16:43	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 16:43	1
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 16:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		63 - 144		01/02/24 16:43	1
4-Bromofluorobenzene (Surr)	93		74 - 124		01/02/24 16:43	1
Dibromofluoromethane (Surr)	99		75 - 131		01/02/24 16:43	1
Toluene-d8 (Surr)	99		80 - 120		01/02/24 16:43	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0100	U	0.0100	mg/L			01/02/24 16:43	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1440		10.0	mg/L			12/29/23 03:46	20
Nitrate as N	1.84		0.500	mg/L			12/29/23 06:11	5
Nitrite as N	<0.500	U	0.500	mg/L			12/29/23 09:26	5

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	3570		40.0	mg/L			12/29/23 18:08	1

Client Sample ID: Dup-1

Lab Sample ID: 880-37328-7

Date Collected: 12/27/23 00:00

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 17:05	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 17:05	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 17:05	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 17:05	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 17:05	1
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 17:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		63 - 144		01/02/24 17:05	1
4-Bromofluorobenzene (Surr)	91		74 - 124		01/02/24 17:05	1
Dibromofluoromethane (Surr)	99		75 - 131		01/02/24 17:05	1

Eurofins Midland

Client Sample Results

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

Client Sample ID: Dup-1

Lab Sample ID: 880-37328-7

Date Collected: 12/27/23 00:00

Matrix: Water

Date Received: 12/28/23 08:37

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 120		01/02/24 17:05	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0100	U	0.0100	mg/L			01/02/24 17:05	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430		10.0	mg/L			12/29/23 04:07	20
Nitrate as N	1.86	H	0.500	mg/L			12/29/23 06:31	5
Nitrite as N	<0.500	U H	0.500	mg/L			12/29/23 09:32	5

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	3560		40.0	mg/L			12/29/23 18:08	1

Surrogate Summary

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (63-144)	BFB (74-124)	DBFM (75-131)	TOL (80-120)
880-37328-1	MW-1	100	92	103	98
880-37328-2	MW-3	102	91	95	99
880-37328-3	MW-4	99	91	100	99
880-37328-3 MS	MW-4	95	96	96	96
880-37328-4	MW-5	102	91	100	97
880-37328-5	MW-6	94	91	101	98
880-37328-6	RW-1	98	93	99	99
880-37328-7	Dup-1	98	91	99	98
LCS 860-138852/3	Lab Control Sample	88	73 S1-	101	88
LCSD 860-138852/4	Lab Control Sample Dup	92	95	101	94
MB 860-138852/8	Method Blank	108	92	98	100

Surrogate Legend

- DCA = 1,2-Dichloroethane-d4 (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DBFM = Dibromofluoromethane (Surr)
- TOL = Toluene-d8 (Surr)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 860-138852/8
Matrix: Water
Analysis Batch: 138852

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00100	U	0.00100	mg/L			01/02/24 13:17	1
Toluene	<0.00100	U	0.00100	mg/L			01/02/24 13:17	1
Ethylbenzene	<0.00100	U	0.00100	mg/L			01/02/24 13:17	1
m,p-Xylenes	<0.0100	U	0.0100	mg/L			01/02/24 13:17	1
o-Xylene	<0.00100	U	0.00100	mg/L			01/02/24 13:17	1
Xylenes, Total	<0.0100	U	0.0100	mg/L			01/02/24 13:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 144		01/02/24 13:17	1
4-Bromofluorobenzene (Surr)	92		74 - 124		01/02/24 13:17	1
Dibromofluoromethane (Surr)	98		75 - 131		01/02/24 13:17	1
Toluene-d8 (Surr)	100		80 - 120		01/02/24 13:17	1

Lab Sample ID: LCS 860-138852/3
Matrix: Water
Analysis Batch: 138852

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0500	0.05433		mg/L		109	75 - 125
Toluene	0.0500	0.04504		mg/L		90	75 - 130
Ethylbenzene	0.0500	0.04616		mg/L		92	75 - 125
m,p-Xylenes	0.0500	0.04686		mg/L		94	75 - 125
o-Xylene	0.0500	0.04567		mg/L		91	75 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		63 - 144
4-Bromofluorobenzene (Surr)	73	S1-	74 - 124
Dibromofluoromethane (Surr)	101		75 - 131
Toluene-d8 (Surr)	88		80 - 120

Lab Sample ID: LCSD 860-138852/4
Matrix: Water
Analysis Batch: 138852

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0500	0.04975		mg/L		100	75 - 125	9	25
Toluene	0.0500	0.04794		mg/L		96	75 - 130	6	25
Ethylbenzene	0.0500	0.04845		mg/L		97	75 - 125	5	25
m,p-Xylenes	0.0500	0.04882		mg/L		98	75 - 125	4	25
o-Xylene	0.0500	0.04775		mg/L		96	75 - 125	4	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		63 - 144
4-Bromofluorobenzene (Surr)	95		74 - 124
Dibromofluoromethane (Surr)	101		75 - 131
Toluene-d8 (Surr)	94		80 - 120

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 880-37328-3 MS
Matrix: Water
Analysis Batch: 138852

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00100	U	0.0500	0.05085		mg/L		102	66 - 142
Toluene	<0.00100	U	0.0500	0.04824		mg/L		96	59 - 139
Ethylbenzene	<0.00100	U	0.0500	0.04809		mg/L		96	75 - 125
m,p-Xylenes	<0.0100	U	0.0500	0.04795		mg/L		96	75 - 125
o-Xylene	<0.00100	U	0.0500	0.04669		mg/L		93	75 - 125
Surrogate									
	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	95		63 - 144						
4-Bromofluorobenzene (Surr)	96		74 - 124						
Dibromofluoromethane (Surr)	96		75 - 131						
Toluene-d8 (Surr)	96		80 - 120						

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-69873/3
Matrix: Water
Analysis Batch: 69873

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500	mg/L			12/29/23 01:42	1

Lab Sample ID: LCS 880-69873/4
Matrix: Water
Analysis Batch: 69873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	25.0	25.25		mg/L		101	90 - 110

Lab Sample ID: LCSD 880-69873/5
Matrix: Water
Analysis Batch: 69873

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	25.0	25.50		mg/L		102	90 - 110	1	20

Lab Sample ID: 880-37328-1 MS
Matrix: Water
Analysis Batch: 69873

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	495	F1	250	763.4		mg/L		108	90 - 110

Lab Sample ID: 880-37328-1 MSD
Matrix: Water
Analysis Batch: 69873

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	495	F1	250	772.0	F1	mg/L		111	90 - 110	1	20

Eurofins Midland

QC Sample Results

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 880-69874/3
 Matrix: Water
 Analysis Batch: 69874

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.100	U	0.100	mg/L			12/29/23 01:42	1

Lab Sample ID: LCS 880-69874/4
 Matrix: Water
 Analysis Batch: 69874

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	4.796		mg/L		96	90 - 110

Lab Sample ID: LCSD 880-69874/5
 Matrix: Water
 Analysis Batch: 69874

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	5.00	4.835		mg/L		97	90 - 110	1	20

Lab Sample ID: 880-37328-1 MS
 Matrix: Water
 Analysis Batch: 69874

Client Sample ID: MW-1
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	1.01		50.0	46.87		mg/L		92	90 - 110

Lab Sample ID: 880-37328-1 MSD
 Matrix: Water
 Analysis Batch: 69874

Client Sample ID: MW-1
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	1.01		50.0	49.07		mg/L		96	90 - 110	5	20

Lab Sample ID: MB 880-69951/3
 Matrix: Water
 Analysis Batch: 69951

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	<0.100	U	0.100	mg/L			12/29/23 01:03	1

Lab Sample ID: LCS 880-69951/4
 Matrix: Water
 Analysis Batch: 69951

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	5.00	5.198		mg/L		104	90 - 110

Lab Sample ID: LCSD 880-69951/5
 Matrix: Water
 Analysis Batch: 69951

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	5.00	5.198		mg/L		104	90 - 110	0	20

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QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 880-37328-1 MS
Matrix: Water
Analysis Batch: 69951

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	<0.100	U F1	5.00	1.602	F1	mg/L		32	90 - 110

Lab Sample ID: 880-37328-1 MSD
Matrix: Water
Analysis Batch: 69951

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	<0.100	U F1	5.00	1.694	F1	mg/L		34	90 - 110	6	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-138622/1
Matrix: Water
Analysis Batch: 138622

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			12/29/23 10:44	1

Lab Sample ID: LCS 860-138622/2
Matrix: Water
Analysis Batch: 138622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1000		mg/L		100	80 - 120

Lab Sample ID: LCSD 860-138622/3
Matrix: Water
Analysis Batch: 138622

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1004		mg/L		100	80 - 120	0	10

Lab Sample ID: LLCS 860-138622/26
Matrix: Water
Analysis Batch: 138622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	5.00	7.000		mg/L		140	50 - 150

Lab Sample ID: MB 860-138738/1
Matrix: Water
Analysis Batch: 138738

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			12/29/23 18:08	1

QC Sample Results

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 860-138738/2
Matrix: Water
Analysis Batch: 138738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1002		mg/L		100	80 - 120

Lab Sample ID: LCSD 860-138738/3
Matrix: Water
Analysis Batch: 138738

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1000		mg/L		100	80 - 120	0	10

Lab Sample ID: LLCS 860-138738/8
Matrix: Water
Analysis Batch: 138738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	5.00	6.500		mg/L		130	50 - 150

Lab Sample ID: 880-37328-5 DU
Matrix: Water
Analysis Batch: 138738

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	871		858.0		mg/L		2	10

QC Association Summary

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

GC/MS VOA

Analysis Batch: 138852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-1	MW-1	Total/NA	Water	8260C	
880-37328-2	MW-3	Total/NA	Water	8260C	
880-37328-3	MW-4	Total/NA	Water	8260C	
880-37328-4	MW-5	Total/NA	Water	8260C	
880-37328-5	MW-6	Total/NA	Water	8260C	
880-37328-6	RW-1	Total/NA	Water	8260C	
880-37328-7	Dup-1	Total/NA	Water	8260C	
MB 860-138852/8	Method Blank	Total/NA	Water	8260C	
LCS 860-138852/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 860-138852/4	Lab Control Sample Dup	Total/NA	Water	8260C	
880-37328-3 MS	MW-4	Total/NA	Water	8260C	

Analysis Batch: 139031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-1	MW-1	Total/NA	Water	Total BTEX	
880-37328-2	MW-3	Total/NA	Water	Total BTEX	
880-37328-3	MW-4	Total/NA	Water	Total BTEX	
880-37328-4	MW-5	Total/NA	Water	Total BTEX	
880-37328-5	MW-6	Total/NA	Water	Total BTEX	
880-37328-6	RW-1	Total/NA	Water	Total BTEX	
880-37328-7	Dup-1	Total/NA	Water	Total BTEX	

HPLC/IC

Analysis Batch: 69873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-1	MW-1	Total/NA	Water	300.0	
880-37328-2	MW-3	Total/NA	Water	300.0	
880-37328-3	MW-4	Total/NA	Water	300.0	
880-37328-4	MW-5	Total/NA	Water	300.0	
880-37328-5	MW-6	Total/NA	Water	300.0	
880-37328-6	RW-1	Total/NA	Water	300.0	
880-37328-7	Dup-1	Total/NA	Water	300.0	
MB 880-69873/3	Method Blank	Total/NA	Water	300.0	
LCS 880-69873/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-69873/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-37328-1 MS	MW-1	Total/NA	Water	300.0	
880-37328-1 MSD	MW-1	Total/NA	Water	300.0	

Analysis Batch: 69874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-1	MW-1	Total/NA	Water	300.0	
880-37328-2	MW-3	Total/NA	Water	300.0	
880-37328-3	MW-4	Total/NA	Water	300.0	
880-37328-4	MW-5	Total/NA	Water	300.0	
880-37328-5	MW-6	Total/NA	Water	300.0	
880-37328-6	RW-1	Total/NA	Water	300.0	
880-37328-7	Dup-1	Total/NA	Water	300.0	
MB 880-69874/3	Method Blank	Total/NA	Water	300.0	
LCS 880-69874/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-69874/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Eurofins Midland

QC Association Summary

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

HPLC/IC (Continued)

Analysis Batch: 69874 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-1 MS	MW-1	Total/NA	Water	300.0	
880-37328-1 MSD	MW-1	Total/NA	Water	300.0	

Analysis Batch: 69951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-1	MW-1	Total/NA	Water	300.0	
880-37328-2	MW-3	Total/NA	Water	300.0	
880-37328-3	MW-4	Total/NA	Water	300.0	
880-37328-4	MW-5	Total/NA	Water	300.0	
880-37328-5	MW-6	Total/NA	Water	300.0	
880-37328-6	RW-1	Total/NA	Water	300.0	
880-37328-7	Dup-1	Total/NA	Water	300.0	
MB 880-69951/3	Method Blank	Total/NA	Water	300.0	
LCS 880-69951/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-69951/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-37328-1 MS	MW-1	Total/NA	Water	300.0	
880-37328-1 MSD	MW-1	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 138622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-1	MW-1	Total/NA	Water	SM 2540C	
880-37328-2	MW-3	Total/NA	Water	SM 2540C	
880-37328-3	MW-4	Total/NA	Water	SM 2540C	
880-37328-4	MW-5	Total/NA	Water	SM 2540C	
MB 860-138622/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-138622/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-138622/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-138622/26	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 138738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-37328-5	MW-6	Total/NA	Water	SM 2540C	
880-37328-6	RW-1	Total/NA	Water	SM 2540C	
880-37328-7	Dup-1	Total/NA	Water	SM 2540C	
MB 860-138738/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-138738/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-138738/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-138738/8	Lab Control Sample	Total/NA	Water	SM 2540C	
880-37328-5 DU	MW-6	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Client Sample ID: MW-1

Lab Sample ID: 880-37328-1

Date Collected: 12/27/23 11:30

Matrix: Water

Date Received: 12/28/23 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	138852	01/02/24 16:02	AN	EET HOU
Total/NA	Analysis	Total BTEX		1			139031	01/02/24 16:02	KLV	EET HOU
Total/NA	Analysis	300.0		1			69951	12/29/23 01:27	CH	EET MID
Total/NA	Analysis	300.0		10			69873	12/29/23 02:13	CH	EET MID
Total/NA	Analysis	300.0		1			69874	12/29/23 04:27	CH	EET MID
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	138622	12/29/23 10:44	SA	EET HOU

Client Sample ID: MW-3

Lab Sample ID: 880-37328-2

Date Collected: 12/27/23 11:00

Matrix: Water

Date Received: 12/28/23 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	138852	01/02/24 17:26	AN	EET HOU
Total/NA	Analysis	Total BTEX		1			139031	01/02/24 17:26	KLV	EET HOU
Total/NA	Analysis	300.0		50			69951	12/29/23 01:59	CH	EET MID
Total/NA	Analysis	300.0		100			69873	12/29/23 02:44	CH	EET MID
Total/NA	Analysis	300.0		50			69874	12/29/23 04:48	CH	EET MID
Total/NA	Analysis	SM 2540C		1	10 mL	200 mL	138622	12/29/23 10:44	SA	EET HOU

Client Sample ID: MW-4

Lab Sample ID: 880-37328-3

Date Collected: 12/27/23 10:20

Matrix: Water

Date Received: 12/28/23 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	138852	01/02/24 13:39	AN	EET HOU
Total/NA	Analysis	Total BTEX		1			139031	01/02/24 13:39	KLV	EET HOU
Total/NA	Analysis	300.0		5			69951	12/29/23 02:14	CH	EET MID
Total/NA	Analysis	300.0		20			69873	12/29/23 02:54	CH	EET MID
Total/NA	Analysis	300.0		5			69874	12/29/23 05:09	CH	EET MID
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	138622	12/29/23 10:44	SA	EET HOU

Client Sample ID: MW-5

Lab Sample ID: 880-37328-4

Date Collected: 12/27/23 09:50

Matrix: Water

Date Received: 12/28/23 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	138852	01/02/24 17:47	AN	EET HOU
Total/NA	Analysis	Total BTEX		1			139031	01/02/24 17:47	KLV	EET HOU
Total/NA	Analysis	300.0		1			69951	12/29/23 02:30	CH	EET MID
Total/NA	Analysis	300.0		10			69873	12/29/23 03:04	CH	EET MID
Total/NA	Analysis	300.0		1			69874	12/29/23 05:29	CH	EET MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	138622	12/29/23 10:44	SA	EET HOU

Eurofins Midland

Lab Chronicle

Client: Larson & Associates, Inc.
 Project/Site: State C Tract 13

Job ID: 880-37328-1
 SDG: 19-0112-38

Client Sample ID: MW-6

Lab Sample ID: 880-37328-5

Date Collected: 12/27/23 09:20

Matrix: Water

Date Received: 12/28/23 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	138852	01/02/24 16:22	AN	EET HOU
Total/NA	Analysis	Total BTEX		1			139031	01/02/24 16:22	KLV	EET HOU
Total/NA	Analysis	300.0		1			69951	12/29/23 02:46	CH	EET MID
Total/NA	Analysis	300.0		5			69873	12/29/23 03:15	CH	EET MID
Total/NA	Analysis	300.0		1			69874	12/29/23 05:50	CH	EET MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	138738	12/29/23 18:08	SA	EET HOU

Client Sample ID: RW-1

Lab Sample ID: 880-37328-6

Date Collected: 12/27/23 12:00

Matrix: Water

Date Received: 12/28/23 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	138852	01/02/24 16:43	AN	EET HOU
Total/NA	Analysis	Total BTEX		1			139031	01/02/24 16:43	KLV	EET HOU
Total/NA	Analysis	300.0		5			69951	12/29/23 09:26	CH	EET MID
Total/NA	Analysis	300.0		20			69873	12/29/23 03:46	CH	EET MID
Total/NA	Analysis	300.0		5			69874	12/29/23 06:11	CH	EET MID
Total/NA	Analysis	SM 2540C		1	25 mL	200 mL	138738	12/29/23 18:08	SA	EET HOU

Client Sample ID: Dup-1

Lab Sample ID: 880-37328-7

Date Collected: 12/27/23 00:00

Matrix: Water

Date Received: 12/28/23 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	138852	01/02/24 17:05	AN	EET HOU
Total/NA	Analysis	Total BTEX		1			139031	01/02/24 17:05	KLV	EET HOU
Total/NA	Analysis	300.0		5			69951	12/29/23 09:32	CH	EET MID
Total/NA	Analysis	300.0		20			69873	12/29/23 04:07	CH	EET MID
Total/NA	Analysis	300.0		5			69874	12/29/23 06:31	CH	EET MID
Total/NA	Analysis	SM 2540C		1	25 mL	200 mL	138738	12/29/23 18:08	SA	EET HOU

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Laboratory: Eurofins Midland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

Laboratory: Eurofins Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215-23-53	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Total BTEX		Water	Total BTEX

- 1
- 2
- 3
- 4
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- 13
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Method Summary

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	EET HOU
Total BTEX	Total BTEX Calculation	TAL SOP	EET HOU
300.0	Anions, Ion Chromatography	EPA	EET MID
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET HOU
5030C	Purge and Trap	SW846	EET HOU

Protocol References:

- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

- EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200
- EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Sample Summary

Client: Larson & Associates, Inc.
Project/Site: State C Tract 13

Job ID: 880-37328-1
SDG: 19-0112-38

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-37328-1	MW-1	Water	12/27/23 11:30	12/28/23 08:37
880-37328-2	MW-3	Water	12/27/23 11:00	12/28/23 08:37
880-37328-3	MW-4	Water	12/27/23 10:20	12/28/23 08:37
880-37328-4	MW-5	Water	12/27/23 09:50	12/28/23 08:37
880-37328-5	MW-6	Water	12/27/23 09:20	12/28/23 08:37
880-37328-6	RW-1	Water	12/27/23 12:00	12/28/23 08:37
880-37328-7	Dup-1	Water	12/27/23 00:00	12/28/23 08:37

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Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-37328-1

SDG Number: 19-0112-38

Login Number: 37328

List Number: 1

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-37328-1

SDG Number: 19-0112-38

Login Number: 37328

List Number: 2

Creator: Baker, Jeremiah

List Source: Eurofins Houston

List Creation: 12/29/23 02:31 PM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

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

CONDITIONS

Action 416273

CONDITIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 416273
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2023 2nd Semi-Annual Groundwater Monitoring Report for State C Tract 13: content satisfactory 1. Please submit groundwater monitoring reports no later than 6 months after a groundwater monitoring event has been completed. This report is dated for 02/13/2023 and wasn't received until 01/02/2025. If more time is needed to complete the report, please request that via email to Mike Buchanan 2. Continue as planned to conduct quarterly monitoring events in wells MW-1 through MW-6 and RW-1, for nitrates, BTEX, chloride and TDS. 3. Submit the 2024 semi-annual groundwater report to OCD by July 1, 2025.	1/6/2025