

APPENDIX A

Del Oro Dairy Pump and Reuse System Performance Assessment

APPENDIX A
PUMP AND REUSE SYSTEM PERFORMANCE ASSESSMENT
DEL ORO DAIRY, ANTHONY, NEW MEXICO
JUNE 2024

This quarterly performance assessment of the Del Oro Pump and Reuse System has been prepared in compliance with the Stage 2 Abatement Plan (S2AP) Modification Performance Plan (EA Engineering, Science, and Technology, Inc., PBC [EA] 2022). Note that references are included in the main document text.

The performance assessment evaluates pumping rates, total volume pumped, mass removed, and plume capture by the five extraction wells installed along the downgradient perimeter of the Del Oro Dairy property. A site background summary is included in the main report.

Pump and Reuse System

The pump and reuse system is shown in plan view on Figure A1. The system consists of:

- Five, 4-inch diameter groundwater extraction wells completed in the perched aquifer (EW-01 through EW-05). The submerged screens in each well were installed at 14 to 15 feet below the water table, representing the perched aquifer thickness (water table to confining clay).
- Five submersible solar groundwater pumps supplied by Rural Pumping Systems, complete with controllers and 4 x 100-Watt (400 Watt total) solar panels installed at each well head.
- Well head completions consisting of valves, flow meters, sample ports, and steel pipe fence and bollards to isolate from cattle.
- Main conveyance line consisting of 1.5-inch diameter high density polyethylene (HDPE) pipe connecting the extraction wells to HDPE storage tanks located at the milking parlor.
- Two 6,000 HDPE storage tanks plumbed in parallel.
- Transfer pump and pressure tank for delivery to the milking parlor.

A process flow diagram of the system is provided as Drawing P-1.

Quarterly Performance Assessment

Startup testing began in late December 2022 following pump and solar panel installation. After several iterations of trouble-shooting, all pumps were pumping at capacity by April 2023 except for extraction well EW-3. The pump in this well is not functioning properly; however, permeability at well EW-3 is an order of magnitude less than at the other wells; the well yield and mass removal are low as a result of the lower permeability. The pump in extraction well EW-4 was not working properly and could not be sampled. The pump has since been repaired and will be sampled next quarter. Its omission from the well network is not expected to negatively impact system efficacy. Del Oro Dairy performs weekly meter reading and relays data to EA for record keeping and reporting.

Performance assessment will be used to evaluate average pumping rates, mass removal of nitrate, and plume capture by the five extraction wells. The performance assessment consists of three components: 1) tracking and reporting of extracted groundwater volume, 2) collection of groundwater samples from extraction wells and analysis of mass removal, and 3) capture analysis.

Extracted Groundwater Volume

Totalizing flow meters measure the volume of extracted groundwater from each extraction well as reported in Table A1. The aggregate volume of water pumped from the five wells is also measured at the storage tanks with a totalizing meter located just before outfall into the storage tanks. Weekly liquid depth measurements for the Del Oro lagoon cells (ultimate destination of extraction water) are provided in Attachment 1. Stable liquid levels in the lagoon cells indicate that extracted groundwater that is used to wash down the milking parlor and then transported to the lagoons for disposal does not exceed the capacity of the lagoons.

Groundwater Sampling Results and Nitrate Mass Removal

Groundwater samples are collected from each extraction well quarterly on the abatement plan monitoring schedule. Analytical results for extraction well samples collected in February 2024 are provided in Table A2 and laboratory reports are provided in Attachment 2.

Since system startup in December 2022, nitrate concentrations have stayed relatively stable in well EW-05. Nitrate concentrations have increased in EW-02 and fluctuated in wells EW-01 and EW-04. Chloride has fluctuated in well EW-01 and increased in EW-02, EW-04, and EW-05. Since system startup, TDS concentrations decreased in EW-01; TDS concentrations have increased in EW-02 and EW-04. TDS has remained relatively stable in EW-05. The highest nitrate concentration detected this quarter was in EW-02 with a concentration of 190 mg/L. The highest concentration of chloride was also detected in EW-02 with a concentration of 1,100 mg/L. The highest concentration of TDS was detected in EW-01 at 4,190 mg/L.

Nitrate mass removal rates are the product of flow rate and chemical concentrations, which yield total mass removed per quarter. The nitrate mass removed this quarter was 258.4 pounds. Cumulative mass removed since startup is 1,410 pounds. A summary of nitrate mass removal is provided in Table A3. Nitrate, chloride, and total dissolved solids (TDS) concentration trends for downgradient and key monitoring wells are provided in Attachment 3.

Capture Analysis

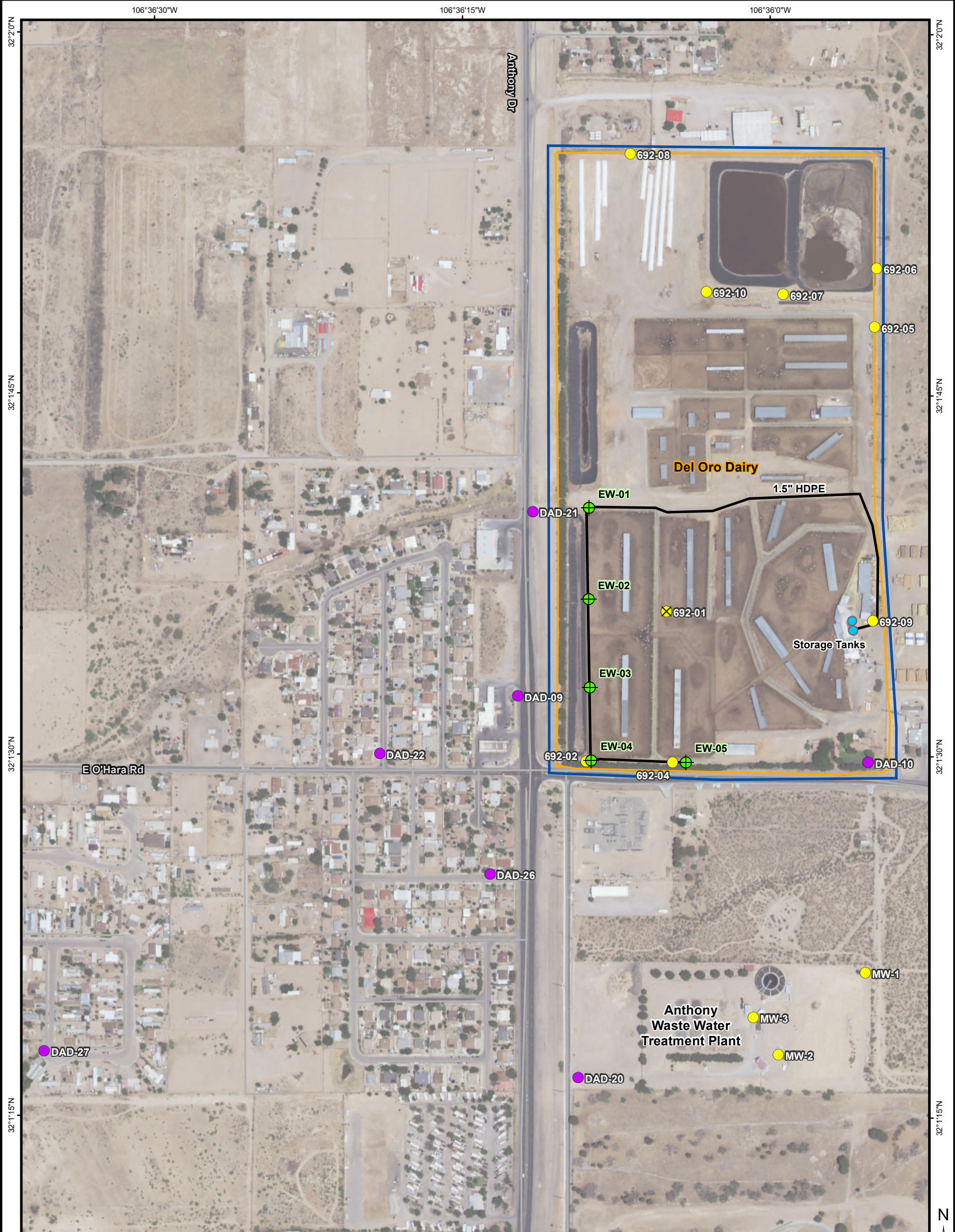
Capture analysis is a function of flow rate, permeability (hydraulic conductivity), and hydraulic gradient. Flow rates are measured weekly via flow meters, and hydraulic gradient is calculated from quarterly water level measurements. Hydraulic conductivity for the perched aquifer was estimated based on observed grain size and typical values. For fine to medium sand, 10^{-2} to 10^{-3} centimeters per second (cm/s) is typical, and this range equates to 27 to 2.7 feet per day (ft/day). Since the sand was logged as “poorly graded fine sand,” permeability was assigned as 10 ft/day in higher yielding wells EW-1, EW-2, EW-4, and EW-5, and 1 ft/day for low yielding well EW-3. Based on these permeabilities and measured flow rates and gradient, the estimated capture width for each well is provided in Table A4. The capture width is lower in all wells because of the lower pumping rate in

February, likely attributable to fewer hours of sunlight than during the summer months. This quarter, the capture width is 0 in EW-03 and EW-05 because the pumps were not working. The capture width in EW-04 was also low due to a malfunctioning pump. Pumps in EW-04 and EW-05 were repaired and will be functioning properly for next quarter.










Concentration Trends

Attachments: Figure A1 – Extraction System Layout
Drawing P-1 – Process Flow Diagram
Table A1 – Pumping Volume and Rates
Table A2 – Del Oro Dairy Extraction Well Analytical Results
Table A3 – Summary of Nitrate Mass Removal
Table A4 – Capture Analysis for Pumping Wells
Attachment 1 – Weekly Liquid Depth Measurements for Lagoons
Attachment 2 – Analytical Laboratory Reports
Attachment 3 – Concentration Trends for Del Oro Extraction Wells and Abatement
Plan Monitoring Wells in the Perched Aquifer

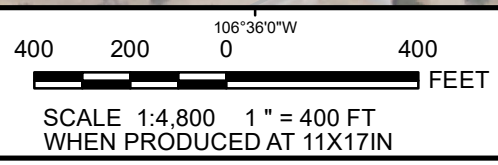
FIGURE A1 and DRAWING P-1




LEGEND:

-  Extraction Well
-  Conveyance Line
- Perched Aquifer Monitoring Well**
-  Abatement Plan Monitoring Well
-  Discharge Plan Monitoring Well
-  Discharge Plan Monitoring Well - Plugged and Abandoned
- Regional Aquifer Monitoring Well**
-  Abatement Plan Monitoring Well
-  Discharge Plan Monitoring Well
-  Land Owned by Dairies
-  Stage 2 Abatement Plan Area

REFERENCES
 Aerial Photography: NAIP, 2011
 PLSS: BLM, 2000
 Projection: State Plane NAD 83 New Mexico Central (feet)



PROJECT	DOÑA ANA DAIRIES MESQUITE, NEW MEXICO		
TITLE	EXTRACTION SYSTEM LAYOUT DEL ORO DAIRY		
	PROJECT No. 1464112.05	SCALE AS SHOWN	REV 0
	DESIGN NA		
	GIS RM		
	CHECK		
REVIEW			
Figure A-1			

TABLES

(Provided in Electronic Format via CD Located on Front Cover of Report)

**TABLE A1. PUMPING VOLUMES AND RATES
DEL ORO DAIRY, ANTHONY, NEW MEXICO**

Date	Time	Elapsed Time (min)	EW-1		EW-2		EW-3		EW-4		EW-5		Tank	
			Meter Reading ¹	Q _{avg} ²	Meter Reading ¹	Q _{avg} ²	Meter Reading ¹	Q _{avg} ²	Meter Reading ¹	Q _{avg} ²	Meter Reading ¹	Q _{avg} ²	Meter Reading ¹	Q _{avg} ²
12/22/2022	12:45:00 PM	--	13,504	--	13,740	--	6750	--	6,203	--	12,120	--	31,259	--
1/3/2023	7:30:00 AM	16,980	21,885	0.49	24,744	0.65	0.0	0.0	7,280	0.06	16,337	0.25	54,046	1.34
1/9/2023	7:30:00 AM	8,640	27,541	0.65	33,425	1.00	0.0	0.0	8,274	0.12	21,870	0.64	73,388	2.24
1/13/2023	10:00:00 AM	5,910	31,657	0.70	40,030	1.12	0.0	0.0	8,792	0.09	25,957	0.69	87,851	2.45
1/16/2023	2:00:00 PM	4,560	33,565	0.42	42,838	0.62	0.0	0.0	9,047	0.06	27,529	0.34	94,214	1.40
1/23/2023	11:00:00 AM	9,900	38,695	0.52	51,625	0.89	0.0	0.0	9,470	0.04	32,586	0.51	116,170	2.22
1/30/2023	9:00:00 AM	9,960	40,325	0.16	63,627	1.21	0.0	0.0	9,471	0.00	38,804	0.62	138,126	2.20
2/6/2023	9:30:00 AM	10,110	41,955	0.16	75,629	1.19	0.0	0.0	9,471	0.00	43,822	0.50	160,082	2.17
2/13/2023	9:00:00 AM	10,050	43,585	0.16	87,631	1.19	0.0	0.0	9,471	0.00	49,440	0.56	182,038	2.18
2/20/2023	2:00:00 PM	10,380	44,562	0.09	95,584	0.77	0.0	0.0	9,645	0.02	49,841	0.04	193,391	1.09
2/27/2023	11:25:00 AM	9,925	46,355	0.18	105,471	1.00	1000	0.0	9,846	0.02	49,857	0.00	206,255	1.30
3/6/2023	11:30:00 AM	10,085	48,796	0.24	118,557	1.30	143	-0.08	10,002	0.02	53,215	0.33	223,524	1.71
3/13/2023	10:00:00 AM	9,990	50,472	0.17	129,962	1.14	143	0.0	10,020	0.00	53,300	0.01	240,794	1.73
3/20/2023	9:45:00 AM	10,065	50,472	0.00	141,036	1.10	143	0.0	16,435	0.64	58,117	0.48	264,263	2.33
3/27/2023	9:00:00 AM	10,035	50,472	0.00	152,111	1.10	143	0.0	22,850	0.64	62,929	0.48	287,733	2.34
4/3/2023	10:30:00 AM	10,170	50,472	0.00	165,216	1.29	689	0.05	31,638	0.86	64,978	0.20	316,928	2.87
4/10/2023	10:00:00 AM	10,050	58,791	0.83	177,767	1.25	1254	0.06	39,593	0.79	73,732	0.87	351,146	3.40
4/17/2023	9:00:00 AM	10,020	68,627	0.98	190,104	1.23	1750	0.05	47,154	0.75	80,639	0.69	386,386	3.52
4/24/2023	9:00:00 AM	10,080	72,167	0.35	202,937	1.27	1983	0.02	55,452	0.82	82,848	0.22	422,932	3.63
5/1/2023	10:30:00 AM	10,170	19,889	1.96	215,777	1.26	2143	0.02	63,694	0.81	86,694	0.38	461,244	3.77
5/8/2023	10:30:00 AM	10,080	31,596	1.16	227,871	1.20	2321	0.02	70,149	0.64	88,583	0.19	494,210	3.27
5/15/2023	10:00:00 AM	10,050	43,484	1.18	239,586	1.17	2445	0.01	76,270	0.61	89,708	0.11	525,635	3.13
5/22/2023	10:45:00 AM	10,125	55,372	1.17	251,186	1.15	2566	0.01	82,391	0.60	90,832	0.11	557,060	3.10
5/29/2023	9:30:00 AM	10,005	67,341	1.20	262,562	1.14	2587	0.00	86,327	0.39	90,992	0.02	584,871	2.78
6/5/2023	10:00:00 AM	10,110	80,923	1.34	275,163	1.25	2587	0.00	90,312	0.39	90,992	0.00	620,587	3.53
6/12/2023	10:00:00 AM	10,080	94,505	1.35	287,765	1.25	2587	0.00	94,307	0.40	90,992	0.00	656,304	3.54
6/19/2023	10:30:00 AM	10,110	108,529	1.39	300,599	1.27	2587	0.00	97,848	0.35	91,000	0.00	677,677	2.11
6/26/2023	10:00:00 AM	10,050	122,469	1.39	313,269	1.26	2682	0.01	100,849	0.30	95,708	0.47	711,332	3.35
7/3/2023	4:15:00 PM	10,455	136,750	1.37	325,789	1.20	2762	0.01	103,476	0.25	100,664	0.47	747,124	3.42
7/10/2023	11:00:00 AM	9,765	149,015	1.26	338,601	1.31	2763	0.00	106,104	0.27	105,013	0.45	779,317	3.30
7/17/2023	11:15:00 AM	10,095	161,422	1.23	351,058	1.23	2763	0.00	108,733	0.26	108,512	0.35	810,775	3.12
7/24/2023	10:30:00 AM	10,035	173,023	1.16	362,424	1.13	2763	0.00	110,821	0.21	110,867	0.23	838,842	2.80
7/31/2023	9:00:00 AM	9,990	185,966	1.30	375,764	1.34	2763	0.00	112,871	0.21	113,252	0.24	871,594	3.28
8/7/2023	9:30:00 AM	10,110	196,377	1.03	387,480	1.16	2763	0.00	114,375	0.15	115,067	0.18	898,842	2.70
8/14/2023	9:00:00 AM	10,050	206,788	1.04	399,197	1.17	2763	0.00	115,879	0.15	116,883	0.18	924,510	2.55
8/21/2023	10:00:00 AM	10,140	218,382	1.14	410,496	1.11	2763	0.00	117,872	0.20	118,646	0.17	951,852	2.70
8/28/2023	11:00:00 AM	10,140	229,976	1.14	421,795	1.11	2763	0.00	119,864	0.20	120,408	0.17	979,194	2.70

**TABLE A1. PUMPING VOLUMES AND RATES
DEL ORO DAIRY, ANTHONY, NEW MEXICO**

9/4/2023	11:00:00 AM	10,080	238,915	0.89	431,113	0.92	27630	2.47	121,161	0.13	121,510	0.11	1,000,406	2.10
9/11/2023	11:00:00 AM	10,080	248,779	0.98	441,603	1.04	27630	0.00	122,593	0.14	122,716	0.12	1,024,830	2.42
9/18/2023	11:00:00 AM	10,080	256,429	0.76	449,915	0.82	27630	0.00	123,623	0.10	123,424	0.07	1,044,326	1.93
9/25/2023	10:00:00 AM	10,020	263,900	0.75	459,188	0.93	27630	0.00	124,135	0.05	123,686	0.03	1,061,955	1.76
10/2/2023	11:00:00 AM	10,140	272,371	0.84	468,462	0.91	27630	0.00	124,648	0.05	123,949	0.03	1,079,584	1.74
10/9/2023	10:45:00 AM	10,065	277,842	0.54	477,735	0.92	27630	0.00	125,160	0.05	124,212	0.03	1,097,210	1.75
10/16/2023	10:30:00 AM	10,065	286,313	0.84	487,009	0.92	27630	0.00	125,623	0.05	124,476	0.03	1,114,830	1.75
10/23/2023	10:00:00 AM	10,050	293,785	0.74	496,283	0.92	27630	0.00	126,185	0.06	124,738	0.03	1,132,475	1.76
10/30/2023	10:00:00 AM	10,080	299,137	0.53	504,413	0.81	27630	0.00	126,250	0.01	124,835	0.01	1,146,027	1.34
11/6/2023	11:00:00 AM	10,140	304,490	0.53	511,972	0.75	27630	0.00	126,315	0.01	124,835	0.00	1,159,579	1.34
11/13/2023	11:00:00 AM	10,080	307,764	0.32	517,341	0.53	27630	0.00	126,328	0.00	124,838	0.00	1,167,402	0.78
11/20/2023	11:00:00 AM	10,080	310,212	0.24	521,109	0.37	27630	0.00	126,355	0.00	124,846	0.00	1,175,301	0.78
11/27/2023	2:15:00 PM	10,275	313,486	0.32	526,479	0.52	27630	0.00	126,367	0.00	124,849	0.00	1,183,162	0.77
12/4/2023	2:00:00 PM	10,065	316,812	0.33	531,054	0.45	27630	0.00	126,375	0.00	124,849	0.00	1,190,950	0.77
12/11/2023	2:20:00 PM	10,100	320,288	0.34	535,631	0.45	27630	0.00	126,382	0.00	126,382	0.00	1,198,740	0.77
12/18/2023	2:20:00 PM	10,080	323,602	0.33	539,701	0.45	27630	0.00	126,382	0.00	126,382	0.00	1,206,530	0.77
12/25/2018	2:10:00 PM	10,070	326,173	0.26	542,610	0.45	27630	0.00	126,382	0.00	126,383	0.00	1,213,700	0.71
1/1/2024	10:00:00 AM	9,830	328,743	0.26	545,586	0.45	27630	0.00	126,382	0.00	124,849	0.00	1,221,070	0.75
1/8/2024	10:30:00 AM	10,110	331,314	0.25	548,427	0.28	27630	0.00	126,382	0.00	124,849	0.00	1,228,300	0.72
1/15/2024	11:15:00 AM	10,125	334,001	0.27	551,347	0.29	27630	0.00	126,383	0.00	124,850	0.00	1,235,630	0.72
1/22/2024	10:30:00 AM	10,035	336,572	0.26	554,259	0.29	27630	0.00	126,384	0.00	124,850	0.00	1,242,870	0.72
1/29/2024	10:30:00 AM	10,080	339,026	0.24	557,153	0.29	27630	0.00	126,384	0.00	124,854	0.00	1,250,130	0.72
2/5/2024	10:30:00 AM	10,080	341,479	0.24	560,047	0.29	27630	0.00	126,384	0.00	124,857	0.00	1,257,390	0.72
2/12/2024	11:00:00 AM	10,110	343,933	0.24	562,941	0.29	27630	0.00	126,384	0.00	124,860	0.00	1,264,648	0.72
2/19/2024	11:00:00 AM	10,080	355,668	1.16	576,187	1.31	27630	0.00	129,025	0.26	124,870	0.00	1,293,740	2.89
2/26/2024	10:20:00 AM	10,040	367,403	1.17	589,432	1.32	27630	0.00	131,665	0.26	124,880	0.00	1,322,850	2.90
3/4/2024	10:30:00 AM	10,090	374,463	0.70	597,684	0.82	27630	0.00	133,155	0.15	124,880	0.00	1,340,055	1.71
3/11/2024	11:00:00 AM	10,110	381,524	0.70	605,937	0.82	27630	0.00	134,645	0.15	124,880	0.00	1,357,260	1.70
3/18/2024	10:30:00 AM	10,050	388,512	0.70	614,553	0.86	27630	0.00	135,527	0.09	124,880	0.00	1,375,065	1.77
3/25/2024	10:30:00 AM	10,080	395,499	0.69	623,169	0.85	27630	0.00	136,408	0.09	124,880	0.00	1,392,870	1.77
Averages:	--	--	--	0.78	--	0.85	--	0.05	--	0.13	--	0.08	--	2.10

Notes:

¹ Meter readings in total gallons

² Q_{avg} = Average discharge in gallons per minute (total volume pumped [end meter - beginning meter] / time in pumping period (minutes)

--- = Not applicable

ft = Feet

min = Minutes

Current pumping period

**TABLE A2. DEL ORO DAIRY EXTRACTION WELL ANALYTICAL RESULTS
DONA ANA DAIRIES, DONA ANA COUNTY, NEW MEXICO**

Extraction Well	Date Sampled	Nitrate (mg/l)	TKN (mg/l)	Chloride (mg/l)	TDS (mg/l)
EW-01	2/29/2024	160	<0.50	980	4,190
	12/4/2023	190	<0.50	1,100	4,340
	8/29/2023	180	<5.0	1,100	4,280
	5/19/2023	190	<1.0	1,100	4,220
	3/1/2023	130	<5.0	820	3,400
	10/27/2022	160	<5.0	1,100	4,490
EW-02	2/29/2024	190	<0.50	1,100	4,140
	11/29/2023	130	<0.50	880	3,420
	8/30/2023	120	<5.0	810	3,340
	5/18/2023	130	<1.0	870	3,280
	3/1/2023	130	<5.0	820	3,190
	10/27/2022	150	<5.0	950	3,910
EW-03	2/27/2024	Not Sampled			
	11/29/2023				
	8/30/2023				
	5/18/2023				
	2/27/2023	74	<5.0	670	2,520
	10/27/2022	99	<5.0	710	3,180
EW-04	2/27/2024	24	<0.50	500	1,860
	11/29/2023	16	1.1	410	1,470
	8/25/2023	29	<5.0	420	1,580
	5/18/2023	28	<5.0	410	1,510
	2/27/2023	20	<5.0	430	1,450
	10/27/2022	25	<5.0	390	1,510
EW-05	2/27/2024	Not Sampled			
	11/29/2023	20	<0.50	490	1,820
	8/25/2023	14	<2.0	450	1,750
	5/18/2023	17	<2.0	490	1,820
	3/15/2023	15	14	510	1,800
	10/27/2022	12	<2.0	410	1,800
NMWQCC Standard		10	NA	250	1,000
Existing Conditions		NA	NA	455	1,424

NOTES:

* = Pre-August 2020 existing conditions were in place prior to August 2020. This condition is no longer applicable.

mg/L= Milligrams(s) per liter

NMWQCC = New Mexico Water Quality Control Commission

TDS = Total dissolved solids

TKN = Total Kjeldahl Nitrogen

Data from current quarter.

Highlight is at or above NMWQCC Standard.

Highlight is at or above relevant existing conditions value. Applicable to samples collected in or after August 2020.

**TABLE A3. SUMMARY OF NITRATE MASS REMOVAL
DEL ORO DAIRY, ANTHONY, NEW MEXICO**

Sampling Date	Pumping Period Start	Pumping Period End	Days Pumping	EW-1			EW-2			EW-3			EW-4			EW-5			Total Mass This Period ³	Cumulative Mass Removed ⁴
				Q _{avg} ¹	C ²	M _{total} ³	Q _{avg}	C	M _{total} ³	Q _{avg}	C	M _{total} ³	Q _{avg}	C	M _{total} ³	Q _{avg}	C	M _{total} ³		
3/1/2023	12/22/2023	2/27/2022	67	0.35	130	37.0	0.96	130	100.4	0	74	0.0	0.04	20	0.6	0.42	15	5.0	143.0	143.0
5/19/2023	3/6/2023	5/15/2023	79	0.62	190	109	1.21	130	145.1	0	NS	0.0	0.60	28	15.5	0.36	17	5.6	275.7	418.8
8/28/2023 - 8/30/23	5/22/2023	8/28/2023	98	1.23	180	279	1.20	120	182.1	0	NS	0.0	0.29	29	10.5	0.20	14	3.6	475.6	894.4
11/29/2023-12/4/2023	9/4/2023	12/4/2023	91	0.61	190	137	0.77	130	118.3	0	NS	0.0	0.05	16	0.9	0.03	20	0.7	257.4	1,152
2/27/2024-2/29/2024	12/11/2023	3/25/2024	105	0.49	160	105	0.59	190	151.6	0	NS	0.0	0.06	24	2.0	0.00	NS	0.0	258.4	1,410

Notes:
¹ Q_{avg} Average discharge gallons per minute (total volume pumped / time in pumping period (minutes))
² C Nitrate concentration milligrams per liter (mg/L)
³ M_{total} Total mass removed (pounds) this pumping period from all extraction wells
⁴ Cumulative mass of nitrate removed (pounds) since start of pumping
 Data from current quarter

**TABLE A4. CAPTURE ANALYSIS FOR PUMPING WELLS
DEL ORO DAIRY, ANTHONY, NEW MEXICO**

Date	Hydraulic Gradient (ft/ft)	EW-1		EW-2		EW-3		EW-4		EW-5	
		Q _{avg} ¹	Capture Width ²	Q _{avg} ¹	Capture Width ²	Q _{avg} ¹	Capture Width ²	Q _{avg} ¹	Capture Width ²	Q _{avg} ¹	Capture Width ²
4/17/2023	0.004	0.98	337	1.23	424	0.05	172	0.75	241	0.69	221
5/15/2023	0.003	0.62	286	1.21	555	0.00	0	0.60	257	0.36	154
8/28/2023	0.004	1.23	424	1.20	413	0.00	0	0.29	92	0.20	65
11/29/2023	0.004	0.61	211	0.77	266	0.00	0	0.05	15	0.03	10
2/8/2024	0.004	0.49	168	0.59	205	0.00	0	0.06	20	0.00	0

Notes:

Transmissivity (ft²/day):

Well	K	b	T
EW-1	10	14	140
EW-2	10	14	140
EW-3	1	14	14
EW-4	10	15	150
EW-5	10	15	150

¹ Q (ft³/day) = [Q_{avg}/7.48]*1,440 minutes/day = Average pumping rate this reporting period (gpm) divided by 7.48 gallons per cubic foot water times 1,440 minutes per day

² Capture Width = Capture width in feet. Q/(Ti) (Todd, David Keith 1980. Groundwater Hydrology, 2nd Edition. John Wiley and Sons.)

Q_{avg} = Average

b = Aquifer thickness ≈ screen submergence (ft)

ft = Feet

i = Hydraulic gradient (ft/ft)

K = Hydraulic conductivity (ft/day)

Q = Discharge

T = Transmissivity (ft²/day)

Data from current quarter

ATTACHMENTS

**ATTACHMENT 1 – WEEKLY LIQUID DEPTH MEASUREMENTS FOR
LAGOONS**

CAFO Weekly Storage and Containment Structure Inspections
Log Sheet

Facility Name: Del Oro Dairy

NPDES Permit No.: NMG010026

2021

Storage or Containment Structure: Evaporative Pond (Instructions on back)

Week	Date	Initials	Depth Marker Reading	Notes	Date Corrected
Week 1	1-2/24	ER	9-		
Week 2	1-9-24	ER	9-		
Week 3	1-16-24	ER	9-		
Week 4	1-23-24	ER	9-		
Week 5	1-30-24	ER	9-		
Week 6	2/6/24	ER	9-		
Week 7	2/13/24	ER	9-		
Week 8	2/20/24	ER	9		
Week 9	2/27/24	ER	9		
Week 10	3/5/24	ER	9		
Week 11	3/12/24	ER	9		
Week 12	3/19/24	ER	9		
Week 13	3/26/24	ER	9		
Week 14	4/2/24	ER	9		
Week 15	4/9/24	ER	9		
Week 16	4/16/24	ER	9		
Week 17	4/23/24	ER	9		
Week 18	4/30/24	ER	9		
Week 19	5/7/24	ER	9		
Week 20	5/14/24	ER	9		
Week 21	5/21/24	ER	9		
Week 22	5/28/24	ER	9-		
Week 23	6/4/24				
Week 24					
Week 25					
Week 26					
Week 27					
Week 28					
Week 29					
Week 30					
Week 31					
Week 32					
Week 33					
Week 34					
Week 35					
Week 36					
Week 37					
Week 38					
Week 39					
Week 40					
Week 41					
Week 42					
Week 43					
Week 44					
Week 45					
Week 46					
Week 47					
Week 48					
Week 49					
Week 50					
Week 51					
Week 52					

CAFO Weekly Storage and Containment Structure Inspections
Log Sheet

Facility Name: Del Oro Dairy

NPDES Permit No.: NMG010026

202

Storage or Containment Structure: Evaporative Pond (Instructions on back)

(B)

Week	Date	Initials	Depth Marker Reading	Notes	Date Correct
Week 1	1-2-24	ER	6-		
Week 2	1-9-24	ER	6-		
Week 3	1-16-24	ER	6-		
Week 4	1-23-24	ER	6-		
Week 5	1-30-24	ER	6-		
Week 6	2/6-24	ER	6-		
Week 7	2/13/24	ER	6-		
Week 8	2/20/24	ER	6 1/2		
Week 9	2/27/24	ER	6 1/2		
Week 10	3/5/24	ER	6 1/2		
Week 11	3/12/24	ER	6 1/2		
Week 12	3/19/24	ER	7-		
Week 13	3/26/24	ER	7-		
Week 14	4/2/24	ER	7-		
Week 15	4/9/24	ER	7-		
Week 16	4/16/24	ER	7 1/2		
Week 17	4/23/24	ER	7 1/2		
Week 18	4/30/24	ER	7 1/2		
Week 19	5/7/24	ER	7 1/2		
Week 20	5/14/24	ER	7-		
Week 21	5/21/24	ER	7-		
Week 22	5/28/24	ER	7-		
Week 23	6/4/24				
Week 24					
Week 25					
Week 26					
Week 27					
Week 28					
Week 29					
Week 30					
Week 31					
Week 32					
Week 33					
Week 34					
Week 35					
Week 36					
Week 37					
Week 38					
Week 39					
Week 40					
Week 41					
Week 42					
Week 43					
Week 44					
Week 45					
Week 46					
Week 47					
Week 48					
Week 49					
Week 50					
Week 51					
Week 52					

CAFO Weekly Storage and Containment Structure Inspections
Log Sheet

Facility Name: Del Oro Dairy NRDES Permit No.: NMG010026

Storage or Containment Structure: Runoff Pond (WRP-C) (Instructions on back)

2024

Week	Date	Initials	Depth Marker Reading	Notes	Date Corrected
Week 1	1-2-24	ER	0		
Week 2	1-9-24	ER	0		
Week 3	1-16-24	ER	0		
Week 4	1-23-24	ER	0		
Week 5	1-30-24	ER	0		
Week 6	2/6/24	ER	0		
Week 7	2/13/24	ER	0		
Week 8	2/20/24	ER	0		
Week 9	2/27/24	ER	0		
Week 10	3/5/24	ER	0		
Week 11	3/12/24	ER	0		
Week 12	3/19/24	ER	0		
Week 13	3/26/24	ER	0		
Week 14	4/2/24	ER	0		
Week 15	4/9/24	ER	0		
Week 16	4/16/24	ER	0		
Week 17	4/23/24	ER	0		
Week 18	4/30/24	ER	0		
Week 19	5/7/24	ER	0		
Week 20	5/14/24	ER	0		
Week 21	5/21/24	ER	0		
Week 22	5/28/24	ER	0		
Week 23	6/4/24				
Week 24					
Week 25					
Week 26					
Week 27					
Week 28					
Week 29					
Week 30					
Week 31					
Week 32					
Week 33					
Week 34					
Week 35					
Week 36					
Week 37					
Week 38					
Week 39					
Week 40					
Week 41					
Week 42					
Week 43					
Week 44					
Week 45					
Week 46					
Week 47					
Week 48					
Week 49					
Week 50					
Week 51					

**CAFO Weekly Storage and Containment Structure Inspections
Log Sheet**

Facility Name: Del Oro Dairy

NPDES Permit No.: NMG010026

202

Storage or Containment Structure: Runoff Pond (WRP-D) (Instructions on back)

Week	Date	Initials	Depth Marker Reading	Notes	Date Corrected
Week 1	1-24-24	ER	0		
Week 2	1-31-24	ER	0		
Week 3	1-16-24	ER	0		
Week 4	1-23-24	ER	0		
Week 5	1-30-24	ER	0		
Week 6	2-6-24	ER	0		
Week 7	2-13-24	ER	0		
Week 8	2-20-24	ER	0		
Week 9	2-27-24	ER	0		
Week 10	3-5-24	ER	0		
Week 11	3-12-24	ER	0		
Week 12	3-19-24	ER	0		
Week 13	3-26-24	ER	0		
Week 14	4-2-24	ER	0		
Week 15	4-9-24	ER	0		
Week 16	4-16-24	ER	0		
Week 17	4-23-24	ER	0		
Week 18	4-30-24	ER	0		
Week 19	5-7-24	ER	0		
Week 20	5-14-24	ER	0		
Week 21	5-21-24	ER	0		
Week 22	5-28-24	ER	0		
Week 23	6-4-24				
Week 24					
Week 25					
Week 26					
Week 27					
Week 28					
Week 29					
Week 30					
Week 31					
Week 32					
Week 33					
Week 34					
Week 35					
Week 36					
Week 37					
Week 38					
Week 39					
Week 40					
Week 41					
Week 42					
Week 43					
Week 44					
Week 45					
Week 46					
Week 47					
Week 48					

ATTACHMENT 2 – ANALYTICAL LABORATORY REPORTS
(Provided in Electronic Format via CD Located on Front Cover of Report)

December 28, 2023

Regina Mullen
EA Engineering
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX:

RE: Del Oro Dairy

OrderNo.: 2311D94

Dear Regina Mullen:

Eurofins Environment Testing South Central, LLC received 4 sample(s) on 11/30/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2311D94

Date Reported: 12/28/2023

CLIENT: EA Engineering

Client Sample ID: EW-05

Project: Del Oro Dairy

Collection Date: 11/29/2023 11:15:00 AM

Lab ID: 2311D94-001

Matrix: GROUNDWA

Received Date: 11/30/2023 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: RBC
Chloride	490	50	*	mg/L	100	11/30/2023 6:14:27 PM	R101516
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	11/30/2023 6:01:35 PM	R101516
Nitrogen, Nitrate (As N)	20	1.0	*	mg/L	10	11/30/2023 6:01:35 PM	R101516
Sulfate	260	5.0	*	mg/L	10	11/30/2023 6:01:35 PM	R101516
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1820	50.0	*	mg/L	1	12/7/2023 4:14:00 PM	79174
EPA 351.2: TKN							Analyst: DML
Nitrogen, Kjeldahl, Total	ND	0.50		mg/L	1	12/19/2023 4:38:31 PM	79480

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2311D94

Date Reported: 12/28/2023

CLIENT: EA Engineering

Client Sample ID: 692-02

Project: Del Oro Dairy

Collection Date: 11/29/2023 1:18:00 PM

Lab ID: 2311D94-002

Matrix: GROUNDWA

Received Date: 11/30/2023 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: RBC
Chloride	450	50	*	mg/L	100	11/30/2023 6:40:11 PM	R101516
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	11/30/2023 6:27:18 PM	R101516
Nitrogen, Nitrate (As N)	13	1.0	*	mg/L	10	11/30/2023 6:27:18 PM	R101516
Sulfate	250	5.0		mg/L	10	11/30/2023 6:27:18 PM	R101516
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1720	50.0	*	mg/L	1	12/7/2023 4:14:00 PM	79174
EPA 351.2: TKN							Analyst: DML
Nitrogen, Kjeldahl, Total	ND	0.50		mg/L	1	12/19/2023 4:40:01 PM	79480

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2311D94

Date Reported: 12/28/2023

CLIENT: EA Engineering

Client Sample ID: EW-04

Project: Del Oro Dairy

Collection Date: 11/29/2023 2:24:00 PM

Lab ID: 2311D94-003

Matrix: GROUNDWA

Received Date: 11/30/2023 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: RBC
Chloride	410	50	*	mg/L	100	11/30/2023 7:05:53 PM	R101516
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	11/30/2023 6:53:02 PM	R101516
Nitrogen, Nitrate (As N)	16	1.0	*	mg/L	10	11/30/2023 6:53:02 PM	R101516
Sulfate	210	5.0		mg/L	10	11/30/2023 6:53:02 PM	R101516
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1470	50.0	*	mg/L	1	12/7/2023 4:14:00 PM	79174
EPA 351.2: TKN							Analyst: DML
Nitrogen, Kjeldahl, Total	1.1	0.50		mg/L	1	12/19/2023 4:41:31 PM	79480

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2311D94

Date Reported: 12/28/2023

CLIENT: EA Engineering

Client Sample ID: EW-02

Project: Del Oro Dairy

Collection Date: 11/29/2023 4:20:00 PM

Lab ID: 2311D94-004

Matrix: GROUNDWA

Received Date: 11/30/2023 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: RBC
Chloride	880	50	*	mg/L	100	11/30/2023 7:31:36 PM	R101516
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	11/30/2023 7:18:45 PM	R101516
Nitrogen, Nitrate (As N)	130	10	*	mg/L	100	11/30/2023 7:31:36 PM	R101516
Sulfate	500	50	*	mg/L	100	11/30/2023 7:31:36 PM	R101516
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3420	50.0	*	mg/L	1	12/7/2023 4:14:00 PM	79174
EPA 351.2: TKN							Analyst: DML
Nitrogen, Kjeldahl, Total	ND	0.50		mg/L	1	12/19/2023 4:43:01 PM	79480

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2311D94

28-Dec-23

Client: EA Engineering
Project: Del Oro Dairy

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R101516	RunNo: 101516								
Prep Date:	Analysis Date: 11/30/2023	SeqNo: 3736673			Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R101516	RunNo: 101516								
Prep Date:	Analysis Date: 11/30/2023	SeqNo: 3736674			Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.3	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.3	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.7	90	110			
Sulfate	9.5	0.50	10.00	0	95.4	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2311D94

28-Dec-23

Client: EA Engineering
Project: Del Oro Dairy

Sample ID: MB-79174	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 79174	RunNo: 101684								
Prep Date: 12/6/2023	Analysis Date: 12/7/2023	SeqNo: 3745622	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	50.0								

Sample ID: LCS-79174	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 79174	RunNo: 101684								
Prep Date: 12/6/2023	Analysis Date: 12/7/2023	SeqNo: 3745623	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1070	50.0	1000	0	107	80	120			

Sample ID: 2311D94-001ADUP	SampType: DUP	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: EW-05	Batch ID: 79174	RunNo: 101684								
Prep Date: 12/6/2023	Analysis Date: 12/7/2023	SeqNo: 3745625	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1800	50.0						0.993	10	*

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Above Quantitation Range/Estimated Value |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| PQL Practical Quantitative Limit | RL Reporting Limit |
| S % Recovery outside of standard limits. If undiluted results may be estimated. | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2311D94

28-Dec-23

Client: EA Engineering
Project: Del Oro Dairy

Sample ID: MB-79480	SampType: MBLK	TestCode: EPA 351.2: TKN								
Client ID: PBW	Batch ID: 79480	RunNo: 101956								
Prep Date: 12/19/2023	Analysis Date: 12/19/2023	SeqNo: 3761847	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.50								

Sample ID: LCSLL-79480	SampType: LCSLL	TestCode: EPA 351.2: TKN								
Client ID: BatchQC	Batch ID: 79480	RunNo: 101956								
Prep Date: 12/19/2023	Analysis Date: 12/19/2023	SeqNo: 3761848	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	0.48	0	0.5000	0	96.7	50	150			

Sample ID: LCS-79480	SampType: LCS	TestCode: EPA 351.2: TKN								
Client ID: LCSW	Batch ID: 79480	RunNo: 101956								
Prep Date: 12/19/2023	Analysis Date: 12/19/2023	SeqNo: 3761849	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.8	0.50	10.00	0	97.6	90	110			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Above Quantitation Range/Estimated Value |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| PQL Practical Quantitative Limit | RL Reporting Limit |
| S % Recovery outside of standard limits. If undiluted results may be estimated. | |

Sample Log-In Check List

Client Name: **EA Engineering** Work Order Number: **2311D94** RcptNo: **1**

Received By: **Joseph Alderette** 11/30/2023 9:05:00 AM

Completed By: **Cheyenne Cason** 11/30/2023 9:39:13 AM

Reviewed By: **SCM 11/30/23**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? FedEx

Log In

3. Was an attempt made to cool the samples? Yes No NA
4. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA
5. Sample(s) in proper container(s)? Yes No
6. Sufficient sample volume for indicated test(s)? Yes No
7. Are samples (except VOA and ONG) properly preserved? Yes No
8. Was preservative added to bottles? Yes No NA
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes No NA
10. Were any sample containers received broken? Yes No
11. Does paperwork match bottle labels? Yes No
 (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes No
13. Is it clear what analyses were requested? Yes No
14. Were all holding times able to be met? Yes No
 (If no, notify customer for authorization.)

of preserved bottles checked for pH: 4
 (<2 or >12 unless noted)
 Adjusted? NO
 Checked by: SCM 11/30/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes No NA

Person Notified: _____ Date: _____
 By Whom: _____ Via: eMail Phone Fax In Person
 Regarding: _____
 Client Instructions: _____

16. Additional remarks: Project name missing on COC. Mitzelers

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Not Present	Morty		

January 15, 2024

Regina Mullen
EA Engineering
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX:

RE: Del Oro Dairy

OrderNo.: 2312185

Dear Regina Mullen:

Eurofins Environment Testing South Central, LLC received 3 sample(s) on 12/5/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2312185

Date Reported: 1/15/2024

CLIENT: EA Engineering

Client Sample ID: 692-09

Project: Del Oro Dairy

Collection Date: 12/4/2023 11:09:00 AM

Lab ID: 2312185-001

Matrix: GROUNDWA

Received Date: 12/5/2023 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: SNS
Chloride	400	50	*	mg/L	100	12/5/2023 11:01:03 PM	A101631
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	12/5/2023 10:22:28 PM	A101631
Nitrogen, Nitrate (As N)	3.4	1.0		mg/L	10	12/5/2023 10:22:28 PM	A101631
Sulfate	210	5.0		mg/L	10	12/5/2023 10:22:28 PM	A101631
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1410	50.0	*	mg/L	1	12/11/2023 8:16:00 AM	79267
EPA 351.2: TKN							Analyst: DML
Nitrogen, Kjeldahl, Total	ND	0.50		mg/L	1	12/29/2023 4:21:03 PM	79642

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2312185

Date Reported: 1/15/2024

CLIENT: EA Engineering

Client Sample ID: 692-08

Project: Del Oro Dairy

Collection Date: 12/4/2023 2:17:00 PM

Lab ID: 2312185-002

Matrix: GROUNDWA

Received Date: 12/5/2023 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: SNS
Chloride	400	50	*	mg/L	100	12/5/2023 11:26:46 PM	A101631
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	12/5/2023 11:13:54 PM	A101631
Nitrogen, Nitrate (As N)	3.1	1.0		mg/L	10	12/5/2023 11:13:54 PM	A101631
Sulfate	200	5.0		mg/L	10	12/5/2023 11:13:54 PM	A101631
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1380	50.0	*	mg/L	1	12/11/2023 8:16:00 AM	79267
EPA 351.2: TKN							Analyst: DML
Nitrogen, Kjeldahl, Total	ND	0.50		mg/L	1	12/29/2023 4:22:33 PM	79642

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2312185

Date Reported: 1/15/2024

CLIENT: EA Engineering

Client Sample ID: EW-01

Project: Del Oro Dairy

Collection Date: 12/4/2023 3:40:00 PM

Lab ID: 2312185-003

Matrix: GROUNDWA

Received Date: 12/5/2023 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: SNS
Chloride	1100	50	*	mg/L	100	12/5/2023 11:52:29 PM	A101631
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	12/5/2023 11:39:38 PM	A101631
Nitrogen, Nitrate (As N)	190	10	*	mg/L	100	12/5/2023 11:52:29 PM	A101631
Sulfate	660	50	*	mg/L	100	12/5/2023 11:52:29 PM	A101631
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	4340	50.0	*	mg/L	1	12/11/2023 8:16:00 AM	79267
EPA 351.2: TKN							Analyst: DML
Nitrogen, Kjeldahl, Total	ND	0.50		mg/L	1	12/29/2023 4:31:52 PM	79642

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312185

15-Jan-24

Client: EA Engineering
Project: Del Oro Dairy

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: A101631	RunNo: 101631								
Prep Date:	Analysis Date: 12/5/2023	SeqNo: 3743171	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: A101631	RunNo: 101631								
Prep Date:	Analysis Date: 12/5/2023	SeqNo: 3743172	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	97.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.3	90	110			
Sulfate	9.6	0.50	10.00	0	96.3	90	110			

Sample ID: 2312185-001AMS	SampType: MS	TestCode: EPA Method 300.0: Anions								
Client ID: 692-09	Batch ID: A101631	RunNo: 101631								
Prep Date:	Analysis Date: 12/5/2023	SeqNo: 3743176	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	10	1.0	10.00	0.2903	98.1	80	120			
Nitrogen, Nitrate (As N)	29	1.0	25.00	3.424	103	80	120			
Sulfate	320	5.0	100.0	209.2	108	80	120			

Sample ID: 2312185-001AMSD	SampType: MSD	TestCode: EPA Method 300.0: Anions								
Client ID: 692-09	Batch ID: A101631	RunNo: 101631								
Prep Date:	Analysis Date: 12/5/2023	SeqNo: 3743177	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	10	1.0	10.00	0.2903	96.6	80	120	1.46	20	
Nitrogen, Nitrate (As N)	29	1.0	25.00	3.424	100	80	120	1.85	20	
Sulfate	310	5.0	100.0	209.2	100	80	120	2.50	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312185

15-Jan-24

Client: EA Engineering
Project: Del Oro Dairy

Sample ID: MB-79267	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 79267	RunNo: 101728								
Prep Date: 12/9/2023	Analysis Date: 12/11/2023	SeqNo: 3748381	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	50.0								

Sample ID: LCS-79267	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 79267	RunNo: 101728								
Prep Date: 12/9/2023	Analysis Date: 12/11/2023	SeqNo: 3748382	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	998	50.0	1000	0	99.8	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312185

15-Jan-24

Client: EA Engineering
Project: Del Oro Dairy

Sample ID: MB-79642	SampType: MBLK	TestCode: EPA 351.2: TKN								
Client ID: PBW	Batch ID: 79642	RunNo: 102166								
Prep Date: 12/28/2023	Analysis Date: 12/29/2023	SeqNo: 3771614	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.50								

Sample ID: LCSLL-79642	SampType: LCSLL	TestCode: EPA 351.2: TKN								
Client ID: BatchQC	Batch ID: 79642	RunNo: 102166								
Prep Date: 12/28/2023	Analysis Date: 12/29/2023	SeqNo: 3771615	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	0.34	0	0.5000	0	68.9	50	150			

Sample ID: LCS-79642	SampType: LCS	TestCode: EPA 351.2: TKN								
Client ID: LCSW	Batch ID: 79642	RunNo: 102166								
Prep Date: 12/28/2023	Analysis Date: 12/29/2023	SeqNo: 3771616	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	11	0.50	10.00	0	107	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Client Name: EA Engineering Work Order Number: 2312185 RcptNo: 1

Received By: Juan Rojas 12/5/2023 8:55:00 AM *Juan Rojas*

Completed By: Cheyenne Cason 12/5/2023 9:47:57 AM *Cason*

Reviewed By: *JA 12-5-23*

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? FedEx

Log In

3. Was an attempt made to cool the samples? Yes No NA
4. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA
5. Sample(s) in proper container(s)? Yes No Samples not frozen
6. Sufficient sample volume for indicated test(s)? Yes No
7. Are samples (except VOA and ONG) properly preserved? Yes No
8. Was preservative added to bottles? Yes No NA
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes No NA
10. Were any sample containers received broken? Yes No
11. Does paperwork match bottle labels? Yes No
 (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes No
13. Is it clear what analyses were requested? Yes No
14. Were all holding times able to be met? Yes No
 (If no, notify customer for authorization.)

of preserved bottles checked for pH: 3
 (2 or >12 unless noted)
 Adjusted? NO
 Checked by: m/12/5/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes No NA

Person Notified: Date:

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

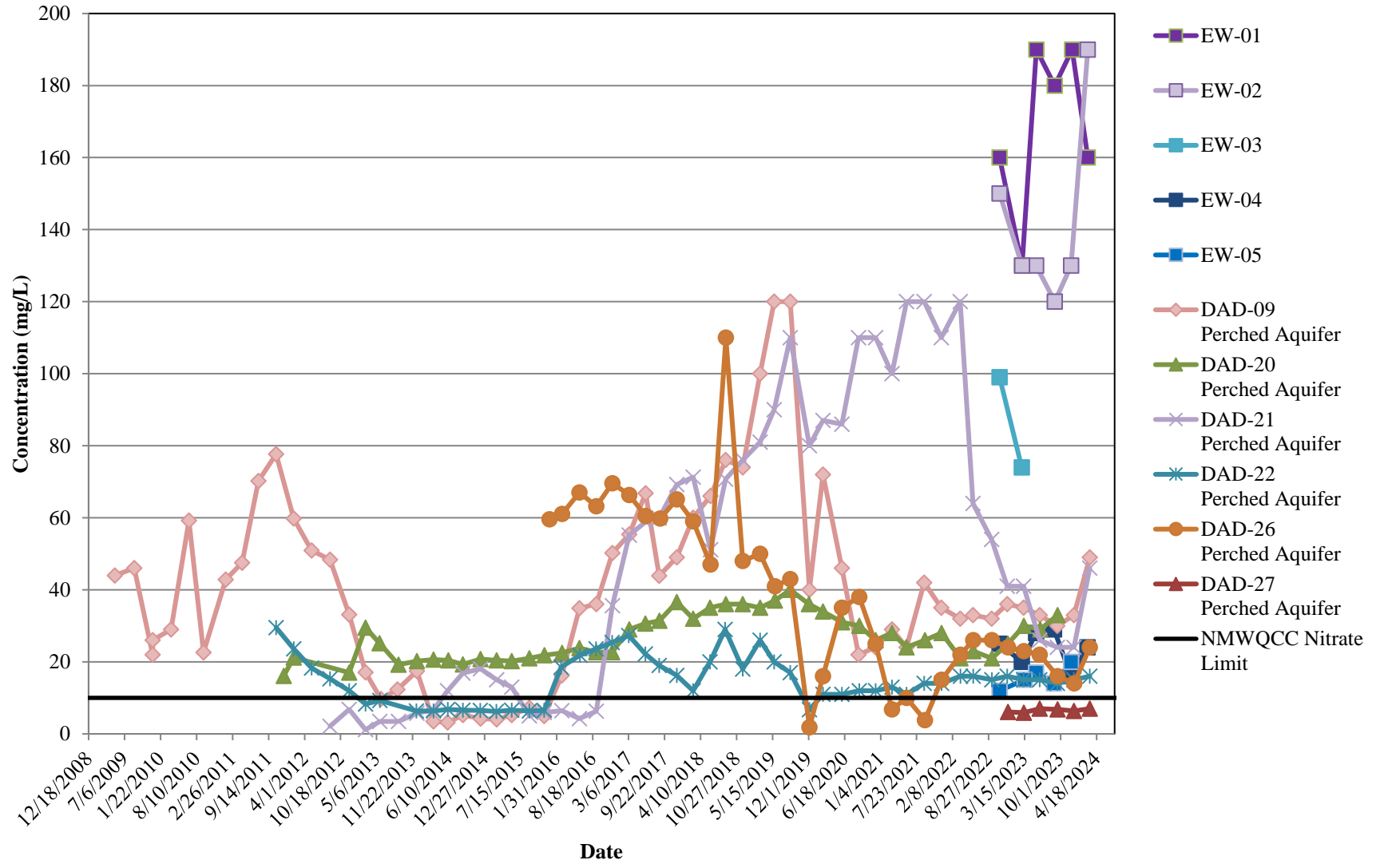
16. Additional remarks:

17. Cooler Information

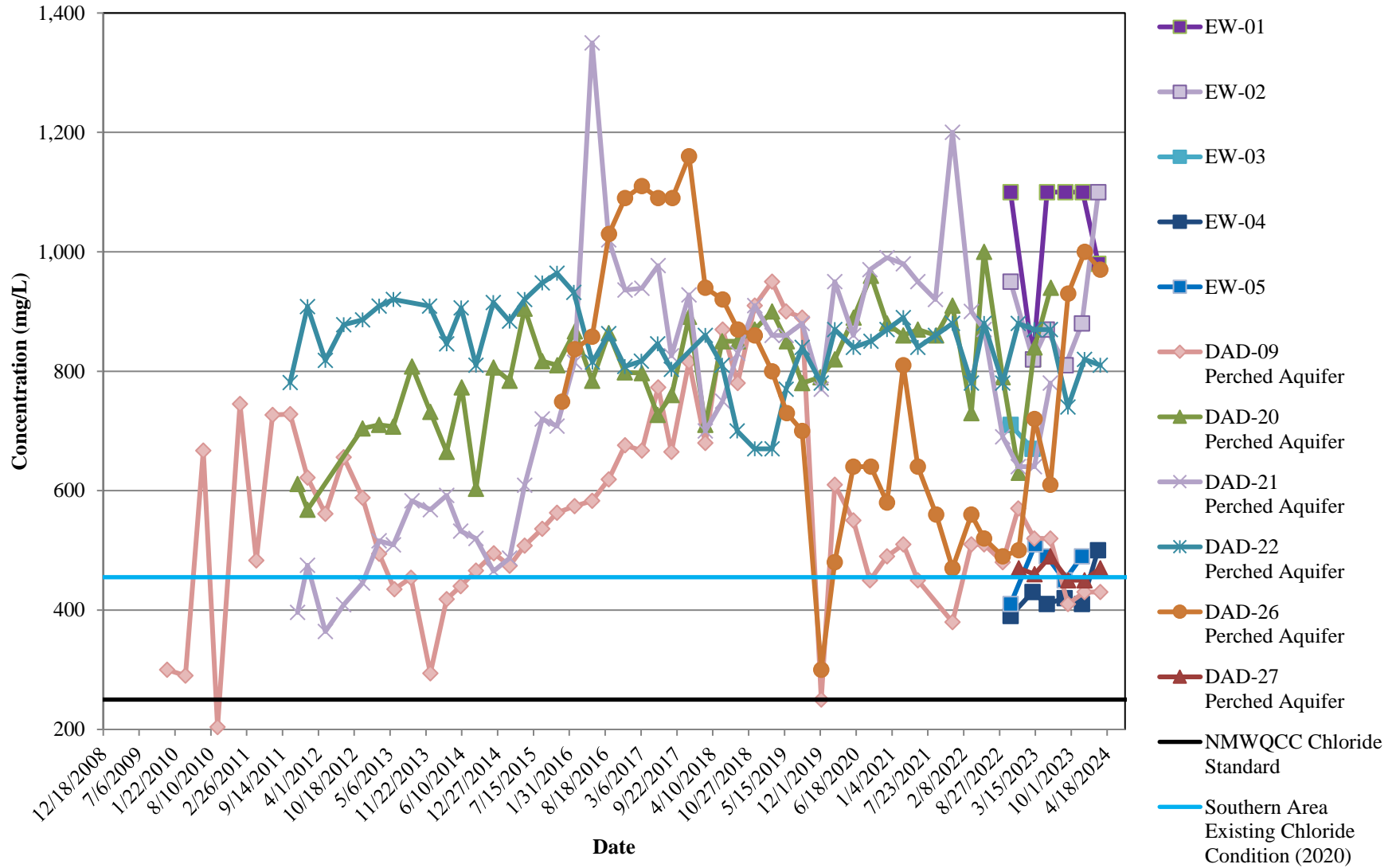
Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-0.7	Good	Not Present	Yogi		

**ATTACHMENT 3 – CONCENTRATION TRENDS FOR DEL ORO
EXTRACTION WELLS AND ABATEMENT PLAN MONITORING WELLS
IN THE PERCHED AQUIFER**

**NITRATE CONCENTRATION TRENDS
 DEL ORO EXTRACTION WELLS AND ABATEMENT PLAN MONITORING WELLS
 IN THE PERCHED AQUIFER
 DONA ANA DAIRIES, DONA ANA COUNTY, NEW MEXICO**



**CHLORIDE CONCENTRATION TRENDS
DEL ORO EXTRACTION WELLS AND ABATEMENT PLAN MONITORING WELLS
IN THE PERCHED AQUIFER
DONA ANA DAIRIES, DONA ANA COUNTY, NEW MEXICO**



**TDS CONCENTRATION TRENDS
 DEL ORO EXTRACTION WELLS AND ABATEMENT PLAN MONITORING WELLS
 IN THE PERCHED AQUIFER
 DONA ANA DAIRIES, DONA ANA COUNTY, NEW MEXICO**

