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GROUND WATER
QUALITY BUREAU

Environmental Management
Los Alamos Field Office
1200 Trinity Drive, Suite 400
Los Alamos, New Mexico 87544
(240) 562-1122

Date: August 31, 2023
Refer To: N3B-2023-0301

Justin Ball, Chief
Ground Water Quality Bureau
New Mexico Environment Department
1190 S. St. Francis Drive
Santa Fe, NM 87502-5469

Subject: Submittal of the Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer under Discharge Permit 1835, Calendar Year 2023 Quarter 2, Class V Underground Injection Control Wells

Dear Mr. Ball:

On August 31, 2016, the New Mexico Environment Department (NMED) issued Discharge Permit 1835 (DP-1835) to the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) for the discharge of treated groundwater to the regional aquifer from up to six Class V underground injection control (UIC) wells. On July 21, 2017, NMED approved minor updates to DP-1835. During the second quarter of calendar year (CY) 2018, ownership of the discharge permit transferred from LANS to Newport News Nuclear BWXT-Los Alamos, LLC (N3B). Pursuant to Condition No. 10 of the above-referenced discharge permit, DOE/N3B are required to submit quarterly reports to document the following:

1. influent and discharge volumes from the treatment systems,
2. quarterly groundwater and treated effluent sampling results, and
3. operations and maintenance activities.

Pursuant to Condition No. 11, 12, and 13 of DP-1835, the quarterly reports shall also contain general information, performance information, and monitoring data for treated effluent from each ion-exchange treatment system. Condition No. 10 requires submission of a quarterly report to NMED by September 1, 2023, for the April 1 through June 30, 2023, discharge period.

During the CY 2023 Quarter 2 reporting period for DP-1835, no treated water was injected. Monthly sampling occurred at all injection and extraction wells, and the extracted water was treated through Chromium Treatment Unit-A, and held in storage tanks. The sample water will be re-treated through Chromium Treatment Unit-B and stored in the ponds for future land application.

The enclosed "Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer under Discharge Permit 1835, Calendar Year 2023 Quarter 2," provides the information required under DP-1835 for this reporting period.

If you have questions, please contact Christian Maupin at (505) 695-4281 (christian.maupin@em-la.doe.gov) or Cheryl Rodriguez at (505) 414-0450 (cheryl.rodriguez@em.doe.gov).

Sincerely,

Robert E Edwards III

Robert Edwards III
Acting Program Manager
Environment, Safety, Health and Quality
N3B-Los Alamos

Sincerely,

ARTURO DURAN
Digitally signed by ARTURO DURAN
Date: 2023.08.31 07:08:13 -06'00'

Arturo Q. Duran
Office of Quality and Regulatory Compliance
U.S. Department of Energy
Environmental Management
Los Alamos Field Office

Enclosure(s):
1. Two hard copies with electronic files – Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer under Discharge Permit 1835, Calendar Year 2023 Quarter 2 (EM2023-0552)

cc (letter and enclosure[s] emailed):
Laurie King, EPA Region 6, Dallas, TX
Raymond Martinez, San Ildefonso Pueblo, NM
Dino Chavarria, Santa Clara Pueblo, NM
Steve Yanicak, NMED-DOE-OB
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September 2023
EM2023-0552

Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer under Discharge Permit 1835, Calendar Year 2023 Quarter 2

N3B Los Alamos

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Figures

Tables

1.0 INTRODUCTION

On August 31, 2016, the New Mexico Environment Department (NMED) issued Discharge Permit 1835 (DP-1835) to the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) for the discharge of treated groundwater to the regional aquifer through Class V underground injection control (UIC) wells (NMED 2016). On July 21, 2017, NMED approved minor updates to DP-1835 (NMED 2017a). During Quarter 2 of calendar year (CY) 2018, ownership of the discharge permit transferred from LANS to Newport News Nuclear BWXT-Los Alamos, LLC (N3B) (LANL 2018).

On June 6, 2022, the NMED Groundwater Quality Bureau (GWQB) issued the "Notice of Violation, Los Alamos National Laboratory Underground Injection Control Wells, DP-1835" to the DOE Environmental Management Los Alamos Field Office (EM-LA) based on measured concentrations of total dissolved chromium in the regional aquifer at well R-45 screen 2 that exceeded the 20.6.2.3103 New Mexico Administrative Code (NMAC) groundwater standard of 50 µg/L (NMED 2022a). EM-LA reported this exceedance to NMED-GWQB on February 26, 2021, in the "Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer Under Discharge Permit 1835, Calendar Year 2020 Quarter 4, Class V Underground Injection Control Wells," (N3B 2021).

On September 30, 2022, EM-LA submitted the "Regional Aquifer Monitoring Well R-45 Action Plan" (R-45 Action Plan), providing activities that EM-LA proposed for addressing chromium in the regional aquifer (N3B 2022). On December 12, 2022, NMED-GWQB provided a review of the R-45 Action Plan and direction to cease all injection of treated water authorized under DP-1835 by April 1, 2023, "until the Permittees complete the proposed corrective actions and can definitively prove through qualitative and quantitative analyses, simulations, monitoring well installation, and continued monitoring that further migration is not occurring" (NMED 2022b).

During the CY 2023 Quarter 2 reporting period for DP-1835, no treated water was injected. Monthly sampling occurred at all injection and extraction wells, and the extracted water was treated through Chromium Treatment Unit A (CTUA) and held in storage tanks. The sample water will be retreated through Chromium Treatment Unit B (CTUB) and stored in the ponds for future land application.

Condition No. 10 of DP-1835 requires submission of a quarterly report to NMED by September 1 for the April 1 through June 30 discharge period. Several conditions within the permit identify information to be submitted in the quarterly report. These conditions are addressed in this report in the following requirements:

1. Influent and discharge volumes for the ion exchange (IX) treatment systems (Condition No. 10)
2. Quarterly treated-effluent sampling results from each IX treatment system (Conditions No. 10 and 13)
3. Quarterly depth-to-groundwater and groundwater-quality sampling results (Conditions No. 10 and 14)
4. Any operations/maintenance activities performed (Condition No. 10)
5. Any periodic test of mechanical integrity conducted (Condition No. 11.a)
6. Any replacement of primary or secondary IX vessels or associated treatment system infrastructure (Condition No. 11.b)
7. Any well workovers conducted (Condition No. 11.c)
8. Any additional operational changes with the potential to markedly affect the discharge (Condition No. 11.d)

9. Monthly average, maximum, and minimum values for flow rate and volume of treated effluent transferred to each UIC well (Condition No. 12.a)
10. Total monthly volume of treated effluent transferred to each UIC well (Condition No. 12.b)
11. Monthly average, maximum, and minimum values of injection water level (pressure head) above static level for each UIC well (Condition No. 12.c)
12. Daily volume injected at each UIC well (Condition No. 12.d)
13. Daily volume pumped from each extraction well (Condition No. 12.e)
14. Facility layout map (Condition No. 14)
15. Groundwater elevation contour map (Condition No. 15)

This report addresses each of these requirements.

2.0 REQUIREMENTS

2.1 Influent and Discharge Volumes for the Ion-Exchange Treatment Systems (Requirement 1)

Table 2.1-1 provides the total influent volume to the IX system and the discharge volumes from IX treatment systems CTUA and Chromium Treatment Unit C (CTUC) during CY 2023 Quarter 2 for activities completed under DP-1835.

Table 2.1-1
Total Influent and Discharge Volumes
for IX Treatment Systems – CY 2023 Quarter 2, DP-1835

Treatment Unit	Influent Volume[a] (gal.)	Effluent Volume[b] (gal.)
CTUA	0	0
CTUB	53,911	48,960
CTUC	0	0

Note: Individual flow meter accurate to ±5%.

[a] Influent volume based on CrEX-1, CrEX-2, CrEX-3, CrEX-4, and CrEX-5 extraction volumes.

[b] Effluent volume based on CTUB flow meter reading.

2.2 Quarterly Treated Effluent Sampling Results from Each Ion-Exchange Treatment System (Requirement 2)

Analytical results from samples of treated effluent collected during CY 2023 Quarter 2 for activities completed under DP-1835 are summarized in Table 2.2-1. No sample results for total chromium, nitrate, or perchlorate exceeded 90% of the numeric standards of 20.6.2.3103 NMAC or, for constituents not listed in 20.6.2.3103 NMAC, 90% of the numeric screening levels established for tap water in Table A-1 of the 2022 NMED "Risk Assessment Guidance for Site Investigations and Remediation Volume 1, Soil Screening Guidance for Human Health Risk Assessments" (NMED 2022c). The values representing 90% of the applicable standards or screening levels for these seven analytes follow:

- Chromium 45 µg/L
- Nitrate 9 mg/L
- Perchlorate 12.4 µg/L

There were no effluent samples takenfor sulfate, fluoride, chloride, or total dissolved solids.

2.3 Quarterly Depth to Groundwater and Groundwater Quality Sampling Results (Requirement 3)

Depth to groundwater is expressed as the elevation of the groundwater above sea level. Figure 2.3-1 is the groundwater elevation map, and Table 2.3-1 provides the quarterly groundwater elevation measurements for a nonexhaustive selection of wells. An explanation of how the groundwater elevation map was generated is provided below. Quarterly groundwater analytical results from samples collected during CY 2023 Quarter 2 for the monitoring wells listed in Condition No. 14 are summarized in Table 2.3-2. Note that some analytes reported in this table exceed their corresponding groundwater standard or screening level.

Table 2.2-1
Treated Effluent Analytical Results Summary Table – CY 2023 Quarter 2, DP-1835

Location ID	Sample ID	Sample Datea	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUB	CrTMT-23-261606	5/11/2023	Perchlorate	0.0590	µg/L	12.4	J	Y	Y	0.0500
CTUB	CrTMT-23-261606	5/11/2023	Chromium	3.00	µg/L	45	U	N	Y	3.00
CTUB	CrTMT-23-261606	5/11/2023	Nitrate-Nitrite as Nitrogen	1.93	mg/L	9	n/ab	Y	Y	0.0850
CTUB	CrTMT-23-261607	5/17/2023	Perchlorate	0.0510	µg/L	12.4	J	Y	Y	0.0500
CTUB	CrTMT-23-261607	5/17/2023	Chromium	3.00	µg/L	45	U	N	Y	3.00
CTUB	CrTMT-23-261607	5/17/2023	Nitrate-Nitrite as Nitrogen	1.99	mg/L	9	n/a	Y	Y	0.170

Notes: The pilot-scale molasses and sodium dithionite amendment studies, which began with NMED conditional approvals during CY 2017 Quarter 4 (NMED 2017b, NMED 2017c), continued during CY 2023 Quarter 2. NMED determined that no permit was required for the deployment of these amendments. Effluent analytical results are not available for iron, manganese, or arsenic.

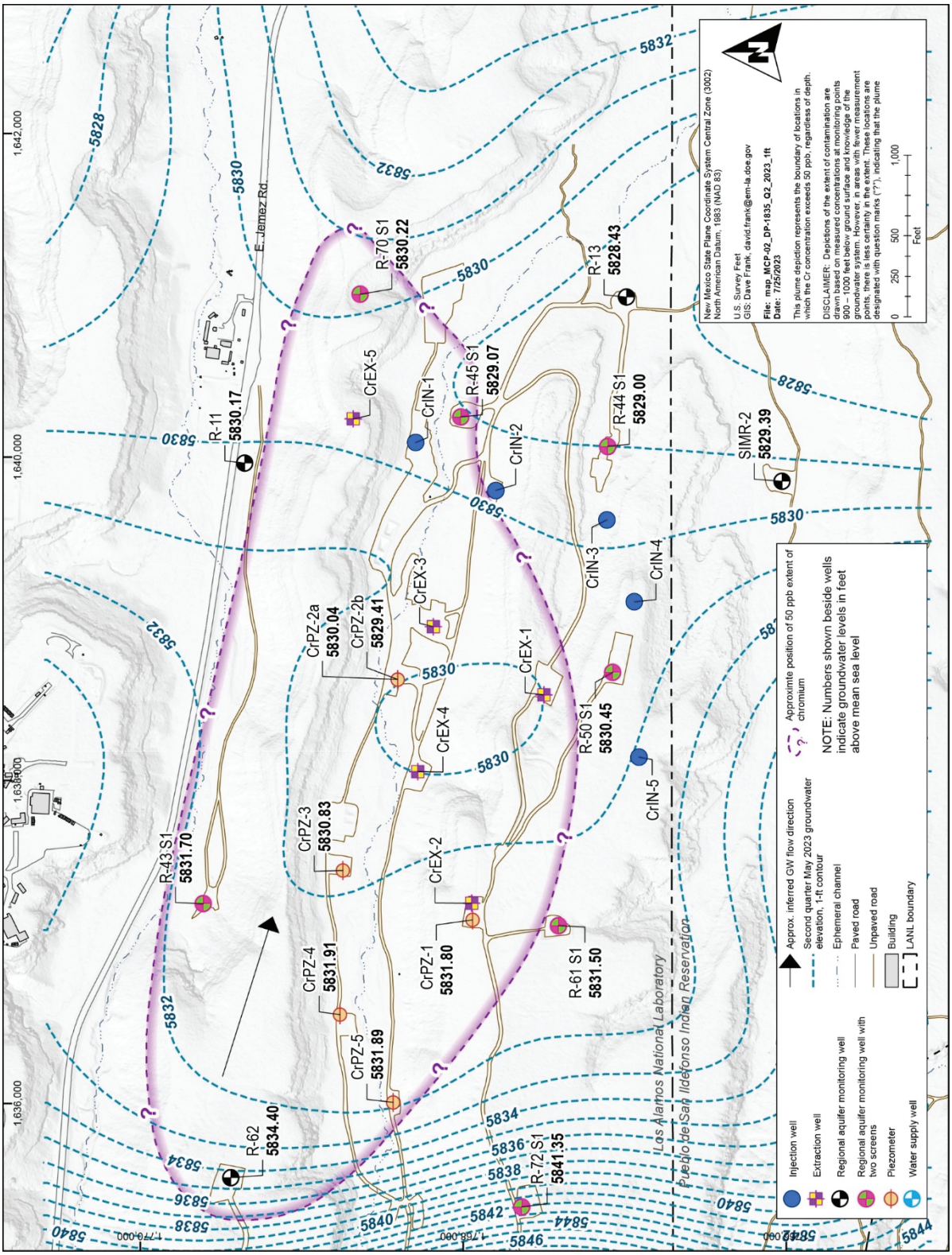

Figure 2.3-1 Groundwater elevation contour map – CY 2023 Quarter 2, DP-1835

Table 2.3-1
Groundwater Elevations Summary for
Groundwater Monitoring Wells – CY 2023 Quarter 2, DP-1835

Monitoring Well	Groundwater Elevation[a] (ft)
CrPZ-1 (CrCH-1)	5831.80
CrPZ-2a (CrCH-2a)	5830.04
CrPZ-2b (CrCH-2b)	5829.41
CrPZ-3 (CrCH-3)	5830.83
CrPZ-4 (CrCH-4)	5831.91
CrPZ-5 (CrCH-5)	5831.89
R-11	5830.17
R-13	5828.43
R-43 S1[b]	5831.70
R-43 S2[c]	5831.14
R-44 S1	5829.00
R-44 S2	5828.79
R-45 S1	5829.07
R-45 S2	5828.94
R-50 S1	5830.45
R-50 S2	5829.99
R-61 S1	5831.50
R-61 S2	5831.57
R-62	5834.40
R-70 S1	5830.22
R-72 S1	5841.35
SIMR-2[d]	5829.39

[a] Groundwater elevations provided are based on average May 2023 values from transducers.

[b] S1 = Screen 1.

[c] S2 = Screen 2.

[d] SIMR-2 data are reported here in accordance with the memorandum of agreement and protocol agreement between Pueblo de San Ildefonso and DOE.

Table 2.3-2
Groundwater Monitoring Wells Analytical Results Summary Table – CY 2023 Quarter 2, DP-1835

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CASA-23-280050	R-11	04/14/2023	Chloride	3.90	mg/L	250	No	n/a[a]	Y[b]	Y[c]	0.0670
CASA-23-280050	R-11	04/14/2023	Perchlorate	0.796	µg/L	13.8	No	n/a	Y	Y	0.0500
CASA-23-280050	R-11	04/14/2023	Chromium	12.9	µg/L	50	No	n/a	Y	Y	3.00
CASA-23-280050	R-11	04/14/2023	Fluoride	0.661	mg/L	1.6	No	n/a	Y	Y	0.0330
CASA-23-280050	R-11	04/14/2023	Nitrate-Nitrite as Nitrogen	6.75	mg/L	10	No	n/a	Y	Y	0.425
CASA-23-280050	R-11	04/14/2023	Sulfate	10.5	mg/L	600	No	n/a	Y	Y	0.133
CASA-23-280050	R-11	04/14/2023	Total Dissolved Solids	178	mg/L	1000	No	n/a	Y	Y	2.38
CASA-23-282064	R-11	05/09/2023	Chloride	3.84	mg/L	250	No	n/a	Y	Y	0.0670
CASA-23-282064	R-11	05/09/2023	Perchlorate	0.778	µg/L	13.8	No	n/a	Y	Y	0.0500
CASA-23-282064	R-11	05/09/2023	Chromium	10.6	µg/L	50	No	n/a	Y	Y	3.00
CASA-23-282064	R-11	05/09/2023	Fluoride	0.451	mg/L	1.6	No	n/a	Y	Y	0.0330
CASA-23-282064	R-11	05/09/2023	Nitrate-Nitrite as Nitrogen	7.94	mg/L	10	No	n/a	Y	Y	0.850
CASA-23-282064	R-11	05/09/2023	Sulfate	10.9	mg/L	600	No	n/a	Y	Y	0.133
CASA-23-282064	R-11	05/09/2023	Total Dissolved Solids	195	mg/L	1000	No	n/a	Y	Y	2.38
CASA-23-287745	R-11	06/09/2023	Chloride	3.45	mg/L	250	No	n/a	Y	Y	0.0670
CASA-23-287745	R-11	06/09/2023	Perchlorate	0.850	µg/L	13.8	No	n/a	Y	Y	0.0500
CASA-23-287745	R-11	06/09/2023	Chromium	7.71	µg/L	50	No	J[d]	Y	Y	3.00
CASA-23-287745	R-11	06/09/2023	Fluoride	0.450	mg/L	1.6	No	n/a	Y	Y	0.0330
CASA-23-287745	R-11	06/09/2023	Nitrate-Nitrite as Nitrogen	8.33	mg/L	10	No	n/a	Y	Y	0.850
CASA-23-287745	R-11	06/09/2023	Sulfate	11.0	mg/L	600	No	n/a	Y	Y	0.133
CASA-23-287745	R-11	06/09/2023	Total Dissolved Solids	196	mg/L	1000	No	n/a	Y	Y	2.38
CASA-23-287748	R-11	06/09/2023	Chloride	3.48	mg/L	250	No	n/a	Y	Y	0.0670
CASA-23-287748	R-11	06/09/2023	Perchlorate	0.859	µg/L	13.8	No	n/a	Y	Y	0.0500
CASA-23-287748	R-11	06/09/2023	Chromium	7.39	µg/L	50	No	J	Y	Y	3.00
CASA-23-287748	R-11	06/09/2023	Fluoride	0.459	mg/L	1.6	No	n/a	Y	Y	0.0330

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CASA-23-287748	R-11	06/09/2023	Nitrate-Nitrite as Nitrogen	8.28	mg/L	10	No	n/a	Y	Y	0.0170
CASA-23-287748	R-11	06/09/2023	Sulfate	11.0	mg/L	600	No	n/a	Y	Y	0.133
CASA-23-287748	R-11	06/09/2023	Total Dissolved Solids	197	mg/L	1000	No	n/a	Y	Y	2.38
CASA-23-287749	R-11	06/09/2023	Chloride	0.0955	mg/L	250	No	J	Y	N[e]	0.0670
CASA-23-287749	R-11	06/09/2023	Perchlorate	0.0500	µg/L	13.8	No	U[f]	N[g]	N	0.0500
CASA-23-287749	R-11	06/09/2023	Chromium	3.00	µg/L	50	No	U	N	N	3.00
CASA-23-287749	R-11	06/09/2023	Fluoride	0.0330	mg/L	1.6	No	U	N	N	0.0330
CASA-23-287749	R-11	06/09/2023	Nitrate-Nitrite as Nitrogen	0.0170	mg/L	10	No	U	N	N	0.0170
CASA-23-287749	R-11	06/09/2023	Sulfate	0.133	mg/L	600	No	U	N	N	0.133
CASA-23-287749	R-11	06/09/2023	Total Dissolved Solids	2.38	mg/L	1000	No	U	N	N	2.38
CAMO-23-281993	R-15	05/01/2023	Chloride	4.05	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-281993	R-15	05/01/2023	Perchlorate	12.8	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-281993	R-15	05/01/2023	Chromium	17.4	µg/L	50	No	n/a	Y	Y	3.00
CAMO-23-281993	R-15	05/01/2023	Fluoride	0.230	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-281993	R-15	05/01/2023	Nitrate-Nitrite as Nitrogen	2.18	mg/L	10	No	n/a	Y	Y	0.425
CAMO-23-281993	R-15	05/01/2023	Sulfate	6.39	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-281993	R-15	05/01/2023	Total Dissolved Solids	122	mg/L	1000	No	n/a	Y	Y	2.38
CASA-23-282081	R-43 S1[h]	05/01/2023	Chloride	6.75	mg/L	250	No	n/a	Y	Y	0.0670
CASA-23-282081	R-43 S1	05/01/2023	Perchlorate	0.660	µg/L	13.8	No	n/a	Y	Y	0.250
CASA-23-282081	R-43 S1	05/01/2023	Chromium	175	µg/L	50	No	n/a	Y	Y	3.00
CASA-23-282081	R-43 S1	05/01/2023	Fluoride	0.403	mg/L	1.6	No	n/a	Y	Y	0.0330
CASA-23-282081	R-43 S1	05/01/2023	Nitrate-Nitrite as Nitrogen	5.00	mg/L	10	No	n/a	Y	Y	0.0850
CASA-23-282081	R-43 S1	05/01/2023	Sulfate	14.8	mg/L	600	No	n/a	Y	Y	0.133
CASA-23-282081	R-43 S1	05/01/2023	Total Dissolved Solids	157	mg/L	1000	No	n/a	Y	Y	2.38
CASA-23-282083	R-43 S2[i]	05/01/2023	Chloride	6.62	mg/L	250	No	n/a	Y	Y	0.0670
CASA-23-282083	R-43 S2	05/01/2023	Perchlorate	0.777	µg/L	13.8	No	n/a	Y	Y	0.0500
CASA-23-282083	R-43 S2	05/01/2023	Chromium	32.5	µg/L	50	No	n/a	Y	Y	3.00

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CASA-23-282083	R-43 S2	05/01/2023	Fluoride	0.346	mg/L	1.6	No	n/a	Y	Y	0.0330
CASA-23-282083	R-43 S2	05/01/2023	Nitrate-Nitrite as Nitrogen	4.04	mg/L	10	No	n/a	Y	Y	0.170
CASA-23-282083	R-43 S2	05/01/2023	Sulfate	9.76	mg/L	600	No	n/a	Y	Y	0.133
CASA-23-282083	R-43 S2	05/01/2023	Total Dissolved Solids	149	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280063	R-44 S1	04/11/2023	Chloride	20.2	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-280063	R-44 S1	04/11/2023	Perchlorate	0.415	µg/L	13.8	No	n/a	Y	Y	0.250
CAMO-23-280063	R-44 S1	04/11/2023	Chromium	3.00	µg/L	50	No	U	N	Y	3.00
CAMO-23-280063	R-44 S1	04/11/2023	Fluoride	0.0919	mg/L	1.6	No	J	Y	Y	0.0330
CAMO-23-280063	R-44 S1	04/11/2023	Nitrate-Nitrite as Nitrogen	2.67	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-280063	R-44 S1	04/11/2023	Sulfate	18.9	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-280063	R-44 S1	04/11/2023	Total Dissolved Solids	180	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-282002	R-44 S1	05/02/2023	Chloride	21.2	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-282002	R-44 S1	05/02/2023	Perchlorate	0.291	µg/L	13.8	No	n/a	Y	Y	0.250
CAMO-23-282002	R-44 S1	05/02/2023	Chromium	3.00	µg/L	50	No	U	N	Y	3.00
CAMO-23-282002	R-44 S1	05/02/2023	Fluoride	0.254	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-282002	R-44 S1	05/02/2023	Nitrate-Nitrite as Nitrogen	3.06	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-282002	R-44 S1	05/02/2023	Sulfate	19.7	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-282002	R-44 S1	05/02/2023	Total Dissolved Solids	198	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-287757	R-44 S1	06/06/2023	Chloride	21.0	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-287757	R-44 S1	06/06/2023	Perchlorate	0.367	µg/L	13.8	No	n/a	Y	Y	0.250
CAMO-23-287757	R-44 S1	06/06/2023	Chromium	3.72	µg/L	50	No	J	Y	Y	3.00
CAMO-23-287757	R-44 S1	06/06/2023	Fluoride	0.295	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-287757	R-44 S1	06/06/2023	Nitrate-Nitrite as Nitrogen	0.875	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-287757	R-44 S1	06/06/2023	Sulfate	19.9	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-287757	R-44 S1	06/06/2023	Total Dissolved Solids	210	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280066	R-44 S2	04/11/2023	Chloride	3.22	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-280066	R-44 S2	04/11/2023	Perchlorate	0.341	µg/L	13.8	No	n/a	Y	Y	0.250

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-280066	R-44 S2	04/11/2023	Chromium	6.51	µg/L	50	No	J	Y	Y	3.00
CAMO-23-280066	R-44 S2	04/11/2023	Fluoride	0.309	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-280066	R-44 S2	04/11/2023	Nitrate-Nitrite as Nitrogen	0.860	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-280066	R-44 S2	04/11/2023	Sulfate	3.48	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-280066	R-44 S2	04/11/2023	Total Dissolved Solids	120	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-282005	R-44 S2	05/02/2023	Chloride	2.91	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-282005	R-44 S2	05/02/2023	Perchlorate	0.323	µg/L	13.8	No	n/a	Y	Y	0.250
CAMO-23-282005	R-44 S2	05/02/2023	Chromium	6.52	µg/L	50	No	J	Y	Y	3.00
CAMO-23-282005	R-44 S2	05/02/2023	Fluoride	0.391	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-282005	R-44 S2	05/02/2023	Nitrate-Nitrite as Nitrogen	0.960	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-282005	R-44 S2	05/02/2023	Sulfate	3.19	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-282005	R-44 S2	05/02/2023	Total Dissolved Solids	127	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-287760	R-44 S2	06/06/2023	Chloride	2.68	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-287760	R-44 S2	06/06/2023	Perchlorate	0.315	µg/L	13.8	No	n/a	Y	Y	0.250
CAMO-23-287760	R-44 S2	06/06/2023	Chromium	7.95	µg/L	50	No	J	Y	Y	3.00
CAMO-23-287760	R-44 S2	06/06/2023	Fluoride	0.424	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-287760	R-44 S2	06/06/2023	Nitrate-Nitrite as Nitrogen	2.89	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-287760	R-44 S2	06/06/2023	Sulfate	2.91	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-287760	R-44 S2	06/06/2023	Total Dissolved Solids	133	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280069	R-45 S1	04/12/2023	Chloride	20.4	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-280069	R-45 S1	04/12/2023	Perchlorate	0.360	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-280069	R-45 S1	04/12/2023	Chromium	3.48	µg/L	50	No	J	Y	Y	3.00
CAMO-23-280069	R-45 S1	04/12/2023	Fluoride	0.373	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-280069	R-45 S1	04/12/2023	Nitrate-Nitrite as Nitrogen	2.92	mg/L	10	No	n/a	Y	Y	0.170
CAMO-23-280069	R-45 S1	04/12/2023	Sulfate	19.5	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-280069	R-45 S1	04/12/2023	Total Dissolved Solids	198	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-282008	R-45 S1	05/03/2023	Chloride	20.5	mg/L	250	No	n/a	Y	Y	0.335

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-282008	R-45 S1	05/03/2023	Perchlorate	0.373	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-282008	R-45 S1	05/03/2023	Chromium	3.00	µg/L	50	No	U	N	Y	3.00
CAMO-23-282008	R-45 S1	05/03/2023	Fluoride	0.312	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-282008	R-45 S1	05/03/2023	Nitrate-Nitrite as Nitrogen	3.22	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-282008	R-45 S1	05/03/2023	Sulfate	20.0	mg/L	600	No	n/a	Y	Y	0.665
CAMO-23-282008	R-45 S1	05/03/2023	Total Dissolved Solids	196	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-287764	R-45 S1	06/05/2023	Chloride	20.8	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-287764	R-45 S1	06/05/2023	Perchlorate	0.378	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-287764	R-45 S1	06/05/2023	Chromium	3.33	µg/L	50	No	J	Y	Y	3.00
CAMO-23-287764	R-45 S1	06/05/2023	Fluoride	0.361	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-287764	R-45 S1	06/05/2023	Nitrate-Nitrite as Nitrogen	3.30	mg/L	10	No	n/a	Y	Y	0.0170
CAMO-23-287764	R-45 S1	06/05/2023	Sulfate	20.2	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-287764	R-45 S1	06/05/2023	Total Dissolved Solids	203	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280072	R-45 S2	04/12/2023	Chloride	5.70	mg/L	250	No	n/a	Y	Y	0.335
CAMO-23-280072	R-45 S2	04/12/2023	Perchlorate	0.384	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-280072	R-45 S2	04/12/2023	Chromium	41.7	µg/L	50	No	n/a	Y	Y	3.00
CAMO-23-280072	R-45 S2	04/12/2023	Fluoride	0.643	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-280072	R-45 S2	04/12/2023	Nitrate-Nitrite as Nitrogen	1.02	mg/L	10	No	n/a	Y	Y	0.170
CAMO-23-280072	R-45 S2	04/12/2023	Sulfate	6.76	mg/L	600	No	n/a	Y	Y	0.665
CAMO-23-280072	R-45 S2	04/12/2023	Total Dissolved Solids	140	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-282011	R-45 S2	05/03/2023	Chloride	6.65	mg/L	250	No	n/a	Y	Y	0.335
CAMO-23-282011	R-45 S2	05/03/2023	Perchlorate	0.400	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-282011	R-45 S2	05/03/2023	Chromium	46.2	µg/L	50	No	n/a	Y	Y	3.00
CAMO-23-282011	R-45 S2	05/03/2023	Fluoride	0.412	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-282011	R-45 S2	05/03/2023	Nitrate-Nitrite as Nitrogen	1.16	mg/L	10	No	n/a	Y	Y	0.170
CAMO-23-282011	R-45 S2	05/03/2023	Sulfate	7.90	mg/L	600	No	n/a	Y	Y	0.665
CAMO-23-282011	R-45 S2	05/03/2023	Total Dissolved Solids	152	mg/L	1000	No	n/a	Y	Y	2.38

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-287767	R-45 S2	06/05/2023	Chloride	7.03	mg/L	250	No	n/a	Y	Y	0.335
CAMO-23-287767	R-45 S2	06/05/2023	Perchlorate	0.439	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-287767	R-45 S2	06/05/2023	Chromium	56.4	µg/L	50	Yes	n/a	Y	Y	3.00
CAMO-23-287767	R-45 S2	06/05/2023	Fluoride	0.597	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-287767	R-45 S2	06/05/2023	Nitrate-Nitrite as Nitrogen	1.39	mg/L	10	No	n/a	Y	Y	0.170
CAMO-23-287767	R-45 S2	06/05/2023	Sulfate	8.61	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-287767	R-45 S2	06/05/2023	Total Dissolved Solids	154	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280075	R-50 S1	04/10/2023	Chloride	20.9	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-280075	R-50 S1	04/10/2023	Perchlorate	0.485	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-280075	R-50 S1	04/10/2023	Chromium	5.70	µg/L	50	No	J	Y	Y	3.00
CAMO-23-280075	R-50 S1	04/10/2023	Fluoride	0.188	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-280075	R-50 S1	04/10/2023	Nitrate-Nitrite as Nitrogen	2.96	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-280075	R-50 S1	04/10/2023	Sulfate	19.8	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-280075	R-50 S1	04/10/2023	Total Dissolved Solids	196	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-282014	R-50 S1	05/10/2023	Chloride	21.7	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-282014	R-50 S1	05/10/2023	Perchlorate	0.411	µg/L	13.8	No	n/a	Y	**Y**	0.0500
CAMO-23-282014	R-50 S1	05/10/2023	Chromium	5.74	µg/L	50	No	J	Y	**Y**	3.00
CAMO-23-282014	R-50 S1	05/10/2023	Fluoride	0.162	mg/L	1.6	No	n/a	Y	**Y**	0.0330
CAMO-23-282014	R-50 S1	05/10/2023	Nitrate-Nitrite as Nitrogen	3.08	mg/L	10	No	n/a	Y	**Y**	0.0850
CAMO-23-282014	R-50 S1	05/10/2023	Sulfate	20.4	mg/L	600	No	n/a	Y	**Y**	0.133
CAMO-23-282014	R-50 S1	05/10/2023	Total Dissolved Solids	211	mg/L	1000	No	n/a	Y	**Y**	2.38
CAMO-23-287770	R-50 S1	06/15/2023	Chloride	22.2	mg/L	250	No	n/a	**Y**	**Y**	0.0670
CAMO-23-287770	R-50 S1	06/15/2023	Perchlorate	0.450	µg/L	13.8	No	n/a	**Y**	**Y**	0.0500
CAMO-23-287770	R-50 S1	06/15/2023	Chromium	6.47	µg/L	50	No	J	**Y**	**Y**	3.00
CAMO-23-287770	R-50 S1	06/15/2023	Fluoride	0.163	mg/L	1.6	No	n/a	**Y**	**Y**	0.0330
CAMO-23-287770	R-50 S1	06/15/2023	Nitrate-Nitrite as Nitrogen	3.18	mg/L	10	No	n/a	**Y**	**Y**	0.0850
CAMO-23-287770	R-50 S1	06/15/2023	Sulfate	20.8	mg/L	600	No	n/a	**Y**	**Y**	0.133

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-287770	R-50 S1	06/15/2023	Total Dissolved Solids	203	mg/L	1000	No	n/a	**Y**	**Y**	2.38
CAMO-23-280078	R-50 S2	04/10/2023	Chloride	2.05	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-280078	R-50 S2	04/10/2023	Perchlorate	0.343	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-280078	R-50 S2	04/10/2023	Chromium	4.12	µg/L	50	No	J	Y	Y	3.00
CAMO-23-280078	R-50 S2	04/10/2023	Fluoride	0.338	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-280078	R-50 S2	04/10/2023	Nitrate-Nitrite as Nitrogen	0.600	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-280078	R-50 S2	04/10/2023	Sulfate	2.40	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-280078	R-50 S2	04/10/2023	Total Dissolved Solids	129	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280081	R-50 S2	04/10/2023	Chloride	2.10	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-280081	R-50 S2	04/10/2023	Perchlorate	0.379	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-280081	R-50 S2	04/10/2023	Chromium	4.09	µg/L	50	No	J	Y	Y	3.00
CAMO-23-280081	R-50 S2	04/10/2023	Fluoride	0.323	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-280081	R-50 S2	04/10/2023	Nitrate-Nitrite as Nitrogen	0.610	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-280081	R-50 S2	04/10/2023	Sulfate	2.42	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-280081	R-50 S2	04/10/2023	Total Dissolved Solids	128	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280082	R-50 S2	04/10/2023	Chloride	0.0670	mg/L	250	No	U	N	N	0.0670
CAMO-23-280082	R-50 S2	04/10/2023	Perchlorate	0.0500	µg/L	13.8	No	U	N	N	0.0500
CAMO-23-280082	R-50 S2	04/10/2023	Chromium	3.00	µg/L	50	No	U	N	N	3.00
CAMO-23-280082	R-50 S2	04/10/2023	Fluoride	0.0330	mg/L	1.6	No	U	N	N	0.0330
CAMO-23-280082	R-50 S2	04/10/2023	Nitrate-Nitrite as Nitrogen	0.0170	mg/L	10	No	U	N	N	0.0170
CAMO-23-280082	R-50 S2	04/10/2023	Sulfate	0.133	mg/L	600	No	U	N	N	0.133
CAMO-23-280082	R-50 S2	04/10/2023	Total Dissolved Solids	2.38	mg/L	1000	No	U	N	N	2.38
CAMO-23-282017	R-50 S2	05/10/2023	Chloride	2.15	mg/L	250	No	n/a	Y	Y	0.335
CAMO-23-282017	R-50 S2	05/10/2023	Perchlorate	0.306	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-282017	R-50 S2	05/10/2023	Chromium	3.99	µg/L	50	No	J	Y	Y	3.00
CAMO-23-282017	R-50 S2	05/10/2023	Fluoride	0.348	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-282017	R-50 S2	05/10/2023	Nitrate-Nitrite as Nitrogen	0.625	mg/L	10	No	n/a	Y	Y	0.170

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-282017	R-50 S2	05/10/2023	Sulfate	2.54	mg/L	600	No	n/a	Y	Y	0.665
CAMO-23-282017	R-50 S2	05/10/2023	Total Dissolved Solids	135	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-287773	R-50 S2	06/15/2023	Chloride	2.15	mg/L	250	No	n/a	Y	Y	0.335
CAMO-23-287773	R-50 S2	06/15/2023	Perchlorate	0.343	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-287773	R-50 S2	06/15/2023	Chromium	4.02	µg/L	50	No	J	Y	Y	3.00
CAMO-23-287773	R-50 S2	06/15/2023	Fluoride	0.344	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-287773	R-50 S2	06/15/2023	Nitrate-Nitrite as Nitrogen	0.648	mg/L	10	No	n/a	Y	Y	0.170
CAMO-23-287773	R-50 S2	06/15/2023	Sulfate	2.56	mg/L	600	No	n/a	Y	Y	0.665
CAMO-23-287773	R-50 S2	06/15/2023	Total Dissolved Solids	122	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-282025	R-62	05/04/2023	Chloride	16.5	mg/L	250	No	n/a	Y	Y	0.335
CAMO-23-282025	R-62	05/04/2023	Perchlorate	0.844	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-282025	R-62	05/04/2023	Chromium	254	µg/L	50	Yes	n/a	Y	Y	3.00
CAMO-23-282025	R-62	05/04/2023	Fluoride	0.238	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-282025	R-62	05/04/2023	Nitrate-Nitrite as Nitrogen	2.10	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-282025	R-62	05/04/2023	Sulfate	27.9	mg/L	600	No	n/a	Y	Y	0.665
CAMO-23-282025	R-62	05/04/2023	Total Dissolved Solids	201	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280086	R-70 S1	04/11/2023	Chloride	4.42	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-280086	R-70 S1	04/11/2023	Perchlorate	0.516	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-280086	R-70 S1	04/11/2023	Chromium	11.1	µg/L	50	No	n/a	Y	Y	3.00
CAMO-23-280086	R-70 S1	04/11/2023	Fluoride	0.349	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-280086	R-70 S1	04/11/2023	Nitrate-Nitrite as Nitrogen	1.99	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-280086	R-70 S1	04/11/2023	Sulfate	5.22	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-280086	R-70 S1	04/11/2023	Total Dissolved Solids	140	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-282027	R-70 S1	05/08/2023	Chloride	4.64	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-282027	R-70 S1	05/08/2023	Perchlorate	0.503	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-282027	R-70 S1	05/08/2023	Chromium	11.8	µg/L	50	No	n/a	Y	Y	3.00
CAMO-23-282027	R-70 S1	05/08/2023	Fluoride	0.433	mg/L	1.6	No	n/a	Y	Y	0.0330

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-282027	R-70 S1	05/08/2023	Nitrate-Nitrite as Nitrogen	2.27	mg/L	10	No	n/a	Y	Y	0.0170
CAMO-23-282027	R-70 S1	05/08/2023	Sulfate	5.48	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-282027	R-70 S1	05/08/2023	Total Dissolved Solids	153	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-287778	R-70 S1	06/16/2023	Chloride	4.65	mg/L	250	No	n/a	Y	Y	0.0670
CAMO-23-287778	R-70 S1	06/16/2023	Perchlorate	0.529	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-287778	R-70 S1	06/16/2023	Chromium	12.3	µg/L	50	No	n/a	Y	Y	3.00
CAMO-23-287778	R-70 S1	06/16/2023	Fluoride	0.342	mg/L	1.6	No	n/a	Y	Y	0.0330
CAMO-23-287778	R-70 S1	06/16/2023	Nitrate-Nitrite as Nitrogen	2.29	mg/L	10	No	n/a	Y	Y	0.0170
CAMO-23-287778	R-70 S1	06/16/2023	Sulfate	5.52	mg/L	600	No	n/a	Y	Y	0.133
CAMO-23-287778	R-70 S1	06/16/2023	Total Dissolved Solids	142	mg/L	1000	No	U	N	N	2.38
CAMO-23-287779	R-70 S1	06/16/2023	Chloride	0.0670	mg/L	250	No	U	N	N	0.335
CAMO-23-287779	R-70 S1	06/16/2023	Perchlorate	0.0500	µg/L	13.8	No	U	N	N	0.0500
CAMO-23-287779	R-70 S1	06/16/2023	Chromium	3.00	µg/L	50	No	U	N	N	3.00
CAMO-23-287779	R-70 S1	06/16/2023	Fluoride	0.0330	mg/L	1.6	No	U	N	N	0.0330
CAMO-23-287779	R-70 S1	06/16/2023	Nitrate-Nitrite as Nitrogen	0.0170	mg/L	10	No	U	N	N	0.0850
CAMO-23-287779	R-70 S1	06/16/2023	Sulfate	0.133	mg/L	600	No	U	N	N	0.665
CAMO-23-287779	R-70 S1	06/16/2023	Total Dissolved Solids	2.38	mg/L	1000	No	U	N	N	2.38
CAMO-23-287780	R-70 S1	06/16/2023	Chloride	0.0670	mg/L	250	No	U	N	N	0.335
CAMO-23-287780	R-70 S1	06/16/2023	Perchlorate	0.0500	µg/L	13.8	No	U	N	N	0.0500
CAMO-23-287780	R-70 S1	06/16/2023	Chromium	3.00	µg/L	50	No	U	N	N	3.00
CAMO-23-287780	R-70 S1	06/16/2023	Fluoride	0.0330	mg/L	1.6	No	U	N	N	0.0330
CAMO-23-287780	R-70 S1	06/16/2023	Nitrate-Nitrite as Nitrogen	0.0170	mg/L	10	No	U	N	N	0.0850
CAMO-23-287780	R-70 S1	06/16/2023	Sulfate	0.133	mg/L	600	No	U	N	N	0.665
CAMO-23-287780	R-70 S1	06/16/2023	Total Dissolved Solids	2.38	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-287782	R-70 S1	06/16/2023	Chloride	4.64	mg/L	250	No	n/a	Y	Y	0.335
CAMO-23-287782	R-70 S1	06/16/2023	Perchlorate	0.548	µg/L	13.8	No	n/a	Y	Y	0.0500
CAMO-23-287782	R-70 S1	06/16/2023	Chromium	12.3	µg/L	50	No	n/a	Y	Y	3.00

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-287782	R-70 S1	06/16/2023	Fluoride	0.347	mg/L	1.6	No	J	Y	Y	0.0330
CAMO-23-287782	R-70 S1	06/16/2023	Nitrate-Nitrite as Nitrogen	0.208	mg/L	10	No	n/a	Y	Y	0.0850
CAMO-23-287782	R-70 S1	06/16/2023	Sulfate	5.50	mg/L	600	No	n/a	Y	Y	0.665
CAMO-23-287782	R-70 S1	06/16/2023	Total Dissolved Solids	136	mg/L	1000	No	n/a	Y	Y	2.38
CAMO-23-280089	R-70 S2	04/11/2023	Chloride	11.3	mg/L	250	No	n/a	Y	Y	0.0850
CAMO-23-280089	R-70 S2	04/11/2023	Perchlorate	0.800	mg/L	13.8	No	n/a	Y	Y	0.665
CAMO-23-280089	R-70 S2	04/11/2023	Chromium	136	mg/L	50	Yes	n/a	Y	Y	2.38
CAMO-23-280089	R-70 S2	04/11/2023	Fluoride	0.361	mg/L	1.6	No	n/a	Y	Y	0.335
CAMO-23-280089	R-70 S2	04/11/2023	Nitrate-Nitrite as Nitrogen	2.61	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-280089	R-70 S2	04/11/2023	Sulfate	17.5	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-280089	R-70 S2	04/11/2023	Total Dissolved Solids	177	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-282030	R-70 S2	05/08/2023	Chloride	12.1	mg/L	250	No	n/a	Y	Y	0.0850
CAMO-23-282030	R-70 S2	05/08/2023	Perchlorate	1.39	mg/L	13.8	No	n/a	Y	Y	0.665
CAMO-23-282030	R-70 S2	05/08/2023	Chromium	151	mg/L	50	Yes	n/a	Y	Y	2.38
CAMO-23-282030	R-70 S2	05/08/2023	Fluoride	0.408	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-282030	R-70 S2	05/08/2023	Nitrate-Nitrite as Nitrogen	3.00	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-282030	R-70 S2	05/08/2023	Sulfate	19.0	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-282030	R-70 S2	05/08/2023	Total Dissolved Solids	195	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-287784	R-70 S2	06/16/2023	Chloride	13.7	mg/L	250	No	n/a	Y	Y	0.0850
CAMO-23-287784	R-70 S2	06/16/2023	Perchlorate	0.783	mg/L	13.8	No	n/a	Y	Y	0.133
CAMO-23-287784	R-70 S2	06/16/2023	Chromium	172	mg/L	50	Yes	n/a	Y	Y	2.38
CAMO-23-287784	R-70 S2	06/16/2023	Fluoride	0.276	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-287784	R-70 S2	06/16/2023	Nitrate-Nitrite as Nitrogen	3.60	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-287784	R-70 S2	06/16/2023	Sulfate	21.1	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-287784	R-70 S2	06/16/2023	Total Dissolved Solids	193	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-280092	R-71 S1	04/14/2023	Chloride	3.25	mg/L	250	No	n/a	Y	Y	0.0850
CAMO-23-280092	R-71 S1	04/14/2023	Perchlorate	0.625	mg/L	13.8	No	J	Y	Y	0.133

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-280092	R-71 S1	04/14/2023	Chromium	3.68	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-280092	R-71 S1	04/14/2023	Fluoride	0.494	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-280092	R-71 S1	04/14/2023	Nitrate-Nitrite as Nitrogen	5.24	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-280092	R-71 S1	04/14/2023	Sulfate	10.4	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-280092	R-71 S1	04/14/2023	Total Dissolved Solids	154	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-282033	R-71 S1	05/15/2023	Chloride	3.35	mg/L	250	No	n/a	Y	Y	0.0850
CAMO-23-282033	R-71 S1	05/15/2023	Perchlorate	0.572	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-282033	R-71 S1	05/15/2023	Chromium	4.24	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-282033	R-71 S1	05/15/2023	Fluoride	0.213	mg/L	1.6	No	n/a	Y	Y	0.134
CAMO-23-282033	R-71 S1	05/15/2023	Nitrate-Nitrite as Nitrogen	5.76	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-282033	R-71 S1	05/15/2023	Sulfate	11.3	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-282033	R-71 S1	05/15/2023	Total Dissolved Solids	151	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-287789	R-71 S1	06/08/2023	Chloride	3.33	mg/L	250	No	n/a	Y	Y	0.170
CAMO-23-287789	R-71 S1	06/08/2023	Perchlorate	0.661	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-287789	R-71 S1	06/08/2023	Chromium	3.65	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-287789	R-71 S1	06/08/2023	Fluoride	0.300	mg/L	1.6	No	n/a	Y	Y	0.134
CAMO-23-287789	R-71 S1	06/08/2023	Nitrate-Nitrite as Nitrogen	5.43	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-287789	R-71 S1	06/08/2023	Sulfate	9.21	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-287789	R-71 S1	06/08/2023	Total Dissolved Solids	150	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-280094	R-71 S2	04/17/2023	Chloride	3.25	mg/L	250	No	n/a	Y	Y	0.0850
CAMO-23-280094	R-71 S2	04/17/2023	Perchlorate	0.608	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-280094	R-71 S2	04/17/2023	Chromium	3.56	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-280094	R-71 S2	04/17/2023	Fluoride	0.198	mg/L	1.6	No	n/a	Y	Y	0.335
CAMO-23-280094	R-71 S2	04/17/2023	Nitrate-Nitrite as Nitrogen	4.51	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-280094	R-71 S2	04/17/2023	Sulfate	6.58	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-280094	R-71 S2	04/17/2023	Total Dissolved Solids	137	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-282042	R-71 S2	05/15/2023	Chloride	3.20	mg/L	250	No	n/a	Y	Y	0.0850

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-282042	R-71 S2	05/15/2023	Perchlorate	0.553	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-282042	R-71 S2	05/15/2023	Chromium	4.64	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-282042	R-71 S2	05/15/2023	Fluoride	0.193	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-282042	R-71 S2	05/15/2023	Nitrate-Nitrite as Nitrogen	5.13	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-282042	R-71 S2	05/15/2023	Sulfate	5.80	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-282042	R-71 S2	05/15/2023	Total Dissolved Solids	120	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-287791	R-71 S2	06/08/2023	Chloride	3.32	mg/L	250	No	n/a	Y	Y	0.170
CAMO-23-287791	R-71 S2	06/08/2023	Perchlorate	0.636	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-287791	R-71 S2	06/08/2023	Chromium	3.30	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-287791	R-71 S2	06/08/2023	Fluoride	0.273	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-287791	R-71 S2	06/08/2023	Nitrate-Nitrite as Nitrogen	5.05	µg/L	10	No	n/a	Y	Y	0.250
CAMO-23-287791	R-71 S2	06/08/2023	Sulfate	5.87	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-287791	R-71 S2	06/08/2023	Total Dissolved Solids	154	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-280096	R-72 S1	04/12/2023	Chloride	2.02	mg/L	250	No	n/a	Y	Y	0.170
CAMO-23-280096	R-72 S1	04/12/2023	Perchlorate	0.405	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-280096	R-72 S1	04/12/2023	Chromium	5.14	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-280096	R-72 S1	04/12/2023	Fluoride	0.460	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-280096	R-72 S1	04/12/2023	Nitrate-Nitrite as Nitrogen	0.341	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-280096	R-72 S1	04/12/2023	Sulfate	5.59	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-280096	R-72 S1	04/12/2023	Total Dissolved Solids	128	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-282046	R-72 S1	05/10/2023	Chloride	2.04	mg/L	250	No	n/a	Y	Y	0.0170
CAMO-23-282046	R-72 S1	05/10/2023	Perchlorate	0.472	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-282046	R-72 S1	05/10/2023	Chromium	5.17	mg/L	50	No	J	Y	Y	2.38
CAMO-23-282046	R-72 S1	05/10/2023	Fluoride	0.0962	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-282046	R-72 S1	05/10/2023	Nitrate-Nitrite as Nitrogen	0.380	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-282046	R-72 S1	05/10/2023	Sulfate	5.26	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-282046	R-72 S1	05/10/2023	Total Dissolved Solids	130	mg/L	1000	No	n/a	Y	Y	0.0330

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-287793	R-72 S1	06/07/2023	Chloride	2.04	mg/L	250	No	n/a	Y	Y	0.0170
CAMO-23-287793	R-72 S1	06/07/2023	Perchlorate	0.429	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-287793	R-72 S1	06/07/2023	Chromium	5.70	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-287793	R-72 S1	06/07/2023	Fluoride	0.416	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-287793	R-72 S1	06/07/2023	Nitrate-Nitrite as Nitrogen	0.374	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-287793	R-72 S1	06/07/2023	Sulfate	5.10	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-287793	R-72 S1	06/07/2023	Total Dissolved Solids	129	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-280098	R-72 S2	04/13/2023	Chloride	1.96	mg/L	250	No	n/a	Y	Y	0.0170
CAMO-23-280098	R-72 S2	04/13/2023	Perchlorate	0.342	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-280098	R-72 S2	04/13/2023	Chromium	5.14	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-280098	R-72 S2	04/13/2023	Fluoride	0.456	mg/L	1.6	No	n/a	Y	Y	0.0670
CAMO-23-280098	R-72 S2	04/13/2023	Nitrate-Nitrite as Nitrogen	0.355	µg/L	10	No	n/a	Y	Y	0.0500
CAMO-23-280098	R-72 S2	04/13/2023	Sulfate	3.85	µg/L	600	No	n/a	Y	Y	3.00
CAMO-23-280098	R-72 S2	04/13/2023	Total Dissolved Solids	121	mg/L	1000	No	n/a	Y	Y	0.0330
CAMO-23-282050	R-72 S2	05/17/2023	Chloride	2.03	mg/L	250	No	n/a	Y	Y	0.0170
CAMO-23-282050	R-72 S2	05/17/2023	Perchlorate	0.329	mg/L	13.8	No	J	Y	Y	0.133
CAMO-23-282050	R-72 S2	05/17/2023	Chromium	5.12	mg/L	50	No	n/a	Y	Y	2.38
CAMO-23-282050	R-72 S2	05/17/2023	Fluoride	0.243	mg/L	1.6	No	n/a	Y	Y	0.0170
CAMO-23-282050	R-72 S2	05/17/2023	Nitrate-Nitrite as Nitrogen	0.390	µg/L	10	No	n/a	Y	Y	0.133
CAMO-23-282050	R-72 S2	05/17/2023	Sulfate	4.30	µg/L	600	No	n/a	Y	Y	2.38
CAMO-23-282050	R-72 S2	05/17/2023	Total Dissolved Solids	125	mg/L	1000	No	n/a	Y	Y	0.0670
CAMO-23-287795	R-72 S2	06/07/2023	Chloride	2.00	mg/L	250	No	n/a	Y	Y	0.0500
CAMO-23-287795	R-72 S2	06/07/2023	Perchlorate	0.338	mg/L	13.8	No	J	Y	Y	3.00
CAMO-23-287795	R-72 S2	06/07/2023	Chromium	5.47	mg/L	50	No	n/a	Y	Y	0.0330
CAMO-23-287795	R-72 S2	06/07/2023	Fluoride	0.417	mg/L	1.6	No	n/a	Y	Y	0.0170
CAMO-23-287795	R-72 S2	06/07/2023	Nitrate-Nitrite as Nitrogen	0.375	µg/L	10	No	n/a	Y	Y	0.133
CAMO-23-287795	R-72 S2	06/07/2023	Sulfate	4.32	µg/L	600	No	n/a	Y	Y	2.38

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-287795	R-72 S2	06/07/2023	Total Dissolved Solids	129	mg/L	1000	No	n/a	Y	Y	0.0670
CAMO-23-280100	SIMR-2	04/13/2023	Chloride	2.09	mg/L	250	No	n/a	Y	Y	0.0500
CAMO-23-280100	SIMR-2	04/13/2023	Perchlorate	0.563	mg/L	13.8	No	J	Y	Y	3.00
CAMO-23-280100	SIMR-2	04/13/2023	Chromium	5.12	mg/L	50	No	n/a	Y	Y	0.0330
CAMO-23-280100	SIMR-2	04/13/2023	Fluoride	0.519	mg/L	1.6	No	n/a	Y	Y	0.0170
CAMO-23-280100	SIMR-2	04/13/2023	Nitrate-Nitrite as Nitrogen	0.778	µg/L	10	No	n/a	Y	Y	0.133
CAMO-23-280100	SIMR-2	04/13/2023	Sulfate	2.66	µg/L	600	No	n/a	Y	Y	2.38
CAMO-23-280100	SIMR-2	04/13/2023	Total Dissolved Solids	107	mg/L	1000	No	n/a	Y	Y	0.0670
CAMO-23-282056	SIMR-2	05/11/2023	Chloride	2.15	mg/L	250	No	n/a	Y	Y	0.0500
CAMO-23-282056	SIMR-2	05/11/2023	Perchlorate	0.714	mg/L	13.8	No	J	Y	Y	3.00
CAMO-23-282056	SIMR-2	05/11/2023	Chromium	5.02	mg/L	50	No	n/a	Y	Y	0.0330
CAMO-23-282056	SIMR-2	05/11/2023	Fluoride	0.217	mg/L	1.6	No	n/a	Y	Y	0.0170
CAMO-23-282056	SIMR-2	05/11/2023	Nitrate-Nitrite as Nitrogen	0.858	µg/L	10	No	n/a	Y	Y	0.133
CAMO-23-282056	SIMR-2	05/11/2023	Sulfate	2.72	µg/L	600	No	n/a	Y	Y	2.38
CAMO-23-282056	SIMR-2	05/11/2023	Total Dissolved Solids	113	mg/L	1000	No	U	N	N	0.0670
CAMO-23-282058	SIMR-2	05/11/2023	Chloride	0.0670	mg/L	250	No	U	N	N	0.0500
CAMO-23-282058	SIMR-2	05/11/2023	Perchlorate	0.0500	mg/L	13.8	No	U	N	N	3.00
CAMO-23-282058	SIMR-2	05/11/2023	Chromium	3.00	mg/L	50	No	U	N	N	0.0330
CAMO-23-282058	SIMR-2	05/11/2023	Fluoride	0.0330	mg/L	1.6	No	U	N	N	0.0170
CAMO-23-282058	SIMR-2	05/11/2023	Nitrate-Nitrite as Nitrogen	0.0170	µg/L	10	No	U	N	N	0.133
CAMO-23-282058	SIMR-2	05/11/2023	Sulfate	0.133	µg/L	600	No	U	N	N	2.38
CAMO-23-282058	SIMR-2	05/11/2023	Total Dissolved Solids	2.38	mg/L	1000	No	n/a	Y	Y	0.0670
CAMO-23-282920	SIMR-2	05/11/2023	Chloride	2.14	mg/L	250	No	n/a	Y	Y	0.0500
CAMO-23-282920	SIMR-2	05/11/2023	Perchlorate	0.555	mg/L	13.8	No	J	Y	Y	3.00
CAMO-23-282920	SIMR-2	05/11/2023	Chromium	5.28	mg/L	50	No	n/a	Y	Y	0.0330
CAMO-23-282920	SIMR-2	05/11/2023	Fluoride	0.218	mg/L	1.6	No	n/a	Y	Y	0.0170
CAMO-23-282920	SIMR-2	05/11/2023	Nitrate-Nitrite as Nitrogen	0.847	µg/L	10	No	n/a	Y	Y	0.133

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Standard or Screening Level	Exceeds Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-23-282920	SIMR-2	05/11/2023	Sulfate	2.71	µg/L	600	No	n/a	Y	Y	2.38
CAMO-23-282920	SIMR-2	05/11/2023	Total Dissolved Solids	118	mg/L	1000	No	n/a	Y	Y	0.0670
CAMO-23-287797	SIMR-2	06/14/2023	Chloride	1.99	mg/L	250	No	n/a	Y	Y	0.0500
CAMO-23-287797	SIMR-2	06/14/2023	Perchlorate	0.632	mg/L	13.8	No	J	Y	Y	3.00
CAMO-23-287797	SIMR-2	06/14/2023	Chromium	5.18	mg/L	50	No	n/a	Y	Y	0.0330
CAMO-23-287797	SIMR-2	06/14/2023	Fluoride	0.487	mg/L	1.6	No	n/a	Y	Y	0.0170
CAMO-23-287797	SIMR-2	06/14/2023	Nitrate-Nitrite as Nitrogen	0.856	µg/L	10	No	n/a	Y	Y	0.133
CAMO-23-287797	SIMR-2	06/14/2023	Sulfate	2.51	µg/L	600	No	n/a	Y	Y	2.38
CAMO-23-287797	SIMR-2	06/14/2023	Total Dissolved Solids	127	mg/L	1000	No	n/a	Y	Y	0.0670

[a] n/a = Not applicable: no qualifiers applied.

[b] In the Detect Flag column, Y = detected.

[c] In the Filtered column, Y = filtered.

[d] J = Analyte is classified as estimated.

[e] In the Filtered column, N = not filtered.

[f] U =Analyte is classified as not detected.

[g] In the Detect Flag column, N = not detected.

[h] S1 = Screen 1.

[i] S2 = Screen 2.

Sample results for chloride, perchlorate, total chromium, fluoride, nitrate, sulfate, and total dissolved solids are compared with numeric standards of 20.6.2.3103 NMAC or, for constituents not listed in 20.6.2.3103 NMAC, the numeric screening levels established for tap water in Table A-1 of the 2022 NMED "Risk Assessment Guidance for Site Investigations and Remediation Volume 1, Soil Screening Guidance for Human Health Risk Assessments" (NMED 2022c). The values of the applicable standards or screening levels for these seven analytes follow:

- Chloride 250 mg/L
- Perchlorate 13.8 µg/L
- Chromium 50 µg/L
- Fluoride 1.6 mg/L
- Nitrate 10 mg/L
- Sulfate 600 mg/L
- Total dissolved solids 1000 mg/L

The regional aquifer beneath the Pajarito Plateau, on which Los Alamos National Laboratory (LANL or the Laboratory) is situated, is a complex hydrogeological system. The shape of the regional water table is predominantly controlled by the areas of recharge to the west (the flanks of the Sierra de los Valles and the Pajarito fault zone) and discharge to the east (the Rio Grande and the White Rock Canyon Springs). At a more local scale, such as within the chromium plume area, the structure of the regional water table and groundwater flow is also expected to be influenced by

- local infiltration zones and recharge areas (e.g., beneath canyons),
- heterogeneity and anisotropy in the aquifer properties, and
- extraction and injection locations (municipal water-supply wells and chromium interim measure [IM] extraction/injection wells).

Long-term water-level data, contaminant transport observations (travel times and direction of migration), and calibrated model results suggest that the water table was relatively flat in the area of the chromium plume before the implementation of CrEX extraction and CrIN injection wells. Steeper gradients are found to the west because of the mountain-front recharge and to the east toward the Rio Grande. The low ambient gradient in the chromium plume area could be related to any or all of the following:

- the relatively high permeability of the Puye Formation and Miocene pumiceous sediments
- anisotropy of the regional aquifer
- localized recharge along the canyons above the regional aquifer, faults, or other lineaments that affect regional-scale hydraulic conductivity
- nearby water-supply pumping

Although it is difficult to infer absolute groundwater flow directions from the relatively flat contours in the chromium plume area, the general flow of groundwater can be determined. Groundwater elevation data and contaminant transport observations indicated that, before operation of the IM, the groundwater flowed generally toward the east-southeast. The current groundwater flows generally towards the southeast, with the influence of IM operations being seen mainly in the vicinity of the extraction wells. Local flow direction near these wells is inward as influenced by the extraction-induced depression in potentiometric surface.

Water-table elevations in the chromium plume area can vary temporally as a result of transient effects that include injection into, and extraction from, the chromium IM infrastructure wells and pumping of Los Alamos County's water-supply wells. This is discussed for the case of CY 2023 Quarter 2 below.

In the chromium plume area, effects on flow direction from water-supply pumping are small compared with the local effects of extraction and injection at chromium IM wells. Transience in the water levels at time scales of hours to days observed at the monitoring wells within the plume area does not appear to be substantially affected by the water-supply pumping at the nearby production wells (PM-2, PM-3, PM-4, PM-5, and O-4) (LANL 2009). Impacts of production well pumping are observed over seasonal to yearly time scales and overall are associated with a fairly uniform decline in the water table across the plume area, in contrast to more immediate IM extraction and injection impacts.

A long-term decline of approximately 0.2 to 0.5 ft/yr in the regional water levels has been observed throughout the aquifer beneath the Pajarito Plateau. The decline could be caused by long-term changes in the aquifer recharge and discharge conditions. Because of the long-term declines and pumping transience described above, the water-level data and the respective water-table contour maps are variable over time; each map therefore represents a specific period of time. Figure 2.3-1 depicts the average water-level data and water-table contours for May 2023. General flow direction is indicated by the vector.

To generate this quarterly contour map, average water levels are calculated with a default of using values from the middle month of the three-month reporting period. In quarters where the middle month may not be representative, e.g., due to an IM well pumping hiatus, water-level values from times other than the middle month are selected. Monitoring wells within and surrounding the plume are used, including wells not presented on the map (e.g., R-21, R-31, R-32, R-37, and R-40) or in Table 2.3-1. Water levels in wells surrounding the plume provide useful control points for contouring along the edges of the area of interest for this report.

Simple interpolation methods for water-table data from a complex heterogeneous site could produce maps that do not represent physically realistic hydrological systems. This water-table map is contoured by incorporating process knowledge of groundwater hydraulics (e.g., flownet conformity rules) as well as conceptual models of groundwater flow in the project area as described above. Key inputs to the conceptual model include knowledge of long-term operations of extraction and injection wells, water-level elevations in monitoring wells near extraction and injection points, and cross-hole tracer data between injection wells and monitoring wells.

In 2018 and 2019, water-table maps for DP-1835 were generated using an interpolation method called Thin-Plate Spline (TPS) (e.g., https://www.jstor.org/stable/2241837). TPS is a special case of universal kriging. In 2020, an interpolation method called Bayesian Canonical Correlation Regression (BCCR) (Carson et al. 2020) was implemented. BCCR increased efficiency of map-making by using prior knowledge of water levels to generate an initial water-table map of the expected surface given quarterly water levels. Kriging was then used to update the map using residuals between the water levels and the expected surface for a given quarter. In CY 2023 Quarter 2, the interpolation method reverted to TPS. This change was made because of the greater representation of TPS in the scientific literature. Maps generated with the two methods are analogous because both methods use kriging-based interpolation; the primary difference between the two methods is the incorporation of prior information as an initial estimate of water levels.

Because of the spatial coverage of wells and piezometers, and the regional structure of significantly steeper gradients to the east and west of the chromium plume area, surrounding wells (e.g., R-21, R-31, R-32, R-37, and R-40) and control points based on expert opinion are used to provide estimated

water-level elevations in areas that do not have sufficient data to provide constraints (EPA 2008). As additional analysis is being performed using historical and developing data sets from existing wells and data that will be collected from proposed wells, the use of these control points is being reanalyzed, adjusted, or discontinued. The reanalysis is based on additional supporting data and contouring methods.

Over the course of operating the chromium IM system, changes to water-table elevations occur depending upon how the system has been operating. A quarter-by-quarter account of the water-table elevations is not provided as part of this quarterly report. Each quarterly report previously submitted provides information on the water-table elevation near the chromium IM wells along with possible causes for water-level variations for that specific quarter. Information on the quarterly depth to groundwater for CY 2023 Quarter 2 is provided below.

In the current reporting period of CY 2023 Quarter 2, the IM system was not active. No injection occurred in Quarter 2, and extraction was limited to brief sampling events. A closed contour in the central area of Figure 2.3-1 is present for the first time since CY 2022 Quarter 3. This occurs due to a lower water level at CrPZ-2 as compared with surrounding wells. Closed contours mean that water cannot flow out of a given region. However, caution is required in interpreting this feature. The water level at CrPZ-2 increased by 0.3 ft between CY 2023 Quarter 1 and CY 2023 Quarter 2, indicating that water levels are rebounding from IM extraction in the central region of the figure, with CrPZ-2 responding more slowly than neighboring wells, notably R-42 and R-11, where the water levels increased by 1.3 and 0.7 ft respectively between CY 2023 Quarter 1 and Quarter 2. If the CrPZ-2 rebound rate increases compared with neighboring wells, the closed contour may not be present on future maps. Alternatively, a faint depression may persist in this region. More (later) water-level data are required to determine the impact of turning off the IM wells on chromium transport. Also, with IM wells inactive, pumping at the Los Alamos County water supply wells may be newly apparent in this area.

2.4 Any Operations/Maintenance Activities Performed (Requirement 4)

Extraction and treatment for sampling only occurred during CY 2023 Quarter 2. Operations and maintenance activities completed during CY 2023 Quarter 2 are listed in Table 2.4-1.

2.5 Any Periodic Test of Mechanical Integrity Conducted (Requirement 5)

Periodic testing of mechanical integrity was not conducted or reported to NMED during CY 2023 Quarter 2. Mechanical integrity testing was performed and reported to NMED during the CY 2019 Quarter 4 reporting period. In accordance with Condition No. 3, mechanical integrity testing will occur at least once every 5 yr unless a UIC well is reconfigured. Under this scenario, a mechanical integrity test before reinjection of treated effluent at a specific reconfigured well will be completed pursuant to Condition No. 3.

2.6 Any Replacement of Primary or Secondary IX Vessels or Associated Treatment System Infrastructure (Requirement 6)

No replacement of vessels occurred during CY 2023 Quarter 2.

2.7 Any Well Workovers Conducted (Requirement 7)

No well workovers were conducted during CY 2023 Quarter 2.

Table 2.4-1
Operations and Maintenance Activity Summary Table – CY 2023 Quarter 2, DP-1835

Maintenance Date	Elements Impacted	Operation/Maintenance Description
04/01/23 through 04/18/23	All extraction and injection wells, CTUA, CTUC	Extraction, treatment, and injection of treated groundwater ceased.
04/19/23 through 04/21/23	All extraction and injection wells, CTUA	Backflush of all injection wells, monthly sampling of all extraction and injection wells. Injection of treated groundwater ceased.
04/22/23 through 04/30/23	All extraction and injection wells, CTUA, CTUC	Extraction, treatment, and injection of treated groundwater ceased.
04/25/23	All extraction and injection wells	Monthly sampling of all extraction and injection wells occurred.
05/01/23 through 05/22/23	All extraction and injection wells, CTUA, CTUC	Extraction, treatment, and injection of treated groundwater ceased.
05/23/23	All extraction and injection wells	Monthly sampling of all extraction and injection wells occurred.
05/23/23 through 05/31/23	All extraction and injection wells, CTUA, CTUC	Extraction, treatment, and injection of treated groundwater ceased.
06/01/23 through 06/19/23	All extraction and injection wells, CTUA, CTUC	Extraction, treatment, and injection of treated groundwater ceased.
06/20/23	All extraction and injection wells	Monthly sampling of all extraction and injection wells occurred.
06/20/23 through 06/30/23	All extraction and injection wells, CTUA, CTUC	Extraction, treatment, and injection of treated groundwater ceased.

2.8 Any Additional Operational Changes with the Potential to Markedly Affect the Discharge (Requirement 8)

During the reporting period, the pilot-scale molasses amendment and sodium dithionite amendment studies did not occur due to no effluent treatment during CY 2023 Quarter 2.

2.9 Monthly Average, Maximum, and Minimum Values for Flow Rate and Volume of Treated Effluent Transferred to Each UIC Well (Requirement 9)

Table 2.9-1 provides the monthly average, maximum, and minimum values for flow rate and volume of treated effluent transferred to each well in CY 2023 Quarter 2.

2.10 Total Monthly Volume of Treated Effluent Transferred to Each UIC Well (Requirement 10)

Table 2.9-1 provides total monthly volumes of treated effluent transferred to each well..

2.11 Monthly Average, Maximum, and Minimum Values of Injection Water Level (Pressure Head) Above Static Level for Each UIC Well (Requirement 11)

Table 2.11-1 provides the monthly average, maximum, and minimum values for injection water level above static level for each UIC well.

Table 2.9-1
Flows and Volumes of Treated Effluent Injected – CY 2023 Quarter 2, DP-1835

Injection Well	Flow rate (gpm[a])			Daily Volume (gal.)			Total Volume (gal.)
	Average[b]	Maximum	Minimum[c]	Average	Maximum	Minimum	
April 2023							
CrIN-1	0.0	0.0	0.0	0	0	0	0
CrIN-2	0.0	0.0	0.0	0	0	0	0
CrIN-3	0.0	0.0	0.0	0	0	0	0
CrIN-4	0.0	0.0	0.0	0	0	0	0
CrIN-5	0.0	0.0	0.0	0	0	0	0
May 2023							
CrIN-1	0.0	0.0	0.0	0	0	0	0
CrIN-2	0.0	0.0	0.0	0	0	0	0
CrIN-3	0.0	0.0	0.0	0	0	0	0
CrIN-4	0.0	0.0	0.0	0	0	0	0
CrIN-5	0.0	0.0	0.0	0	0	0	0
June 2023							
CrIN-1	0.0	0.0	0.0	0	0	0	0
CrIN-2	0.0	0.0	0.0	0	0	0	0
CrIN-3	0.0	0.0	0.0	0	0	0	0
CrIN-4	0.0	0.0	0.0	0	0	0	0
CrIN-5	0.0	0.0	0.0	0	0	0	0

[a] gpm = Gallons per minute.

[b] Average flow rate and daily volume represent arithmetic mean values of results provided during periods when treated groundwater was being injected.

[c] Minimum values represent the minimum daily value recorded during days when pumping occurred.

Table 2.11-1
Water-Level Values Above Static Level by UIC Well – CY 2023 Quarter 2, DP-1835

UIC Well	April 2023			May 2023			June 2023		
	Average[a] (ft)	Maximum (ft)	Minimum (ft)	Average (ft)	Maximum (ft)	Minimum (ft)	Average (ft)	Maximum (ft)	Minimum (ft)
CrIN-1	n/a[b]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CrIN-2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CrIN-3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CrIN-4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CrIN-5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

[a] Average values provided represent arithmetic mean values of maximum daily values during periods when treated groundwater was being injected.

[b] n/a = Not applicable; treated groundwater not injected during the month at this location.

2.12 Daily Volume Injected at Each UIC Well (Requirement 12)

Daily volumes of groundwater injected (following treatment) during CY 2023 Quarter 2 are presented in Table 2.12-1.

Table 2.12-1
Daily Injection Summary Table – CY 2023 Quarter 2, DP-1835

Date	CrIN-1 (gal.)	CrIN-2 (gal.)	CrIN-3 (gal.)	CrIN-4 (gal.)	CrIN-5 (gal.)	Total (gal.)
04/01/2023	0	0	0	0	0	0
04/02/2023	0	0	0	0	0	0
04/03/2023	0	0	0	0	0	0
04/04/2023	0	0	0	0	0	0
04/05/2023	0	0	0	0	0	0
04/06/2023	0	0	0	0	0	0
04/07/2023	0	0	0	0	0	0
04/08/2023	0	0	0	0	0	0
04/09/2023	0	0	0	0	0	0
04/10/2023	0	0	0	0	0	0
04/11/2023	0	0	0	0	0	0
04/12/2023	0	0	0	0	0	0
04/13/2023	0	0	0	0	0	0
04/14/2023	0	0	0	0	0	0
04/15/2023	0	0	0	0	0	0
04/16/2023	0	0	0	0	0	0
04/17/2023	0	0	0	0	0	0
04/18/2023	0	0	0	0	0	0
04/19/2023	0	0	0	0	0	0
04/20/2023	0	0	0	0	0	0
04/21/2023	0	0	0	0	0	0
04/22/2023	0	0	0	0	0	0
04/23/2023	0	0	0	0	0	0
04/24/2023	0	0	0	0	0	0
04/25/2023	0	0	0	0	0	0
04/26/2023	0	0	0	0	0	0
04/27/2023	0	0	0	0	0	0
04/28/2023	0	0	0	0	0	0
04/29/2023	0	0	0	0	0	0
04/30/2023	0	0	0	0	0	0
05/01/2023	0	0	0	0	0	0
05/02/2023	0	0	0	0	0	0
05/03/2023	0	0	0	0	0	0
05/04/2023	0	0	0	0	0	0

Table 2.12-1 (continued)

Date	CrIN-1 (gal.)	CrIN-2 (gal.)	CrIN-3 (gal.)	CrIN-4 (gal.)	CrIN-5 (gal.)	Total (gal.)
05/05/2023	0	0	0	0	0	0
05/06/2023	0	0	0	0	0	0
05/07/2023	0	0	0	0	0	0
05/08/2023	0	0	0	0	0	0
05/09/2023	0	0	0	0	0	0
05/10/2023	0	0	0	0	0	0
05/11/2023	0	0	0	0	0	0
05/12/2023	0	0	0	0	0	0
05/13/2023	0	0	0	0	0	0
05/14/2023	0	0	0	0	0	0
05/15/2023	0	0	0	0	0	0
05/16/2023	0	0	0	0	0	0
05/17/2023	0	0	0	0	0	0
05/18/2023	0	0	0	0	0	0
05/19/2023	0	0	0	0	0	0
05/20/2023	0	0	0	0	0	0
05/21/2023	0	0	0	0	0	0
05/22/2023	0	0	0	0	0	0
05/23/2023	0	0	0	0	0	0
05/24/2023	0	0	0	0	0	0
05/25/2023	0	0	0	0	0	0
05/26/2023	0	0	0	0	0	0
05/27/2023	0	0	0	0	0	0
05/28/2023	0	0	0	0	0	0
05/29/2023	0	0	0	0	0	0
05/30/2023	0	0	0	0	0	0
05/31/2023	0	0	0	0	0	0
06/01/2023	0	0	0	0	0	0
06/02/2023	0	0	0	0	0	0
06/03/2023	0	0	0	0	0	0
06/04/2023	0	0	0	0	0	0
06/05/2023	0	0	0	0	0	0
06/06/2023	0	0	0	0	0	0
06/07/2023	0	0	0	0	0	0
06/08/2023	0	0	0	0	0	0
06/09/2023	0	0	0	0	0	0
06/10/2023	0	0	0	0	0	0
06/11/2023	0	0	0	0	0	0
06/12/2023	0	0	0	0	0	0

Table 2.12-1 (continued)

Date	CrIN-1 (gal.)	CrIN-2 (gal.)	CrIN-3 (gal.)	CrIN-4 (gal.)	CrIN-5 (gal.)	Total (gal.)
06/13/2023	0	0	0	0	0	0
06/14/2023	0	0	0	0	0	0
06/15/2023	0	0	0	0	0	0
06/16/2023	0	0	0	0	0	0
06/17/2023	0	0	0	0	0	0
06/18/2023	0	0	0	0	0	0
06/19/2023	0	0	0	0	0	0
06/20/2023	0	0	0	0	0	0
06/21/2023	0	0	0	0	0	0
06/22/2023	0	0	0	0	0	0
06/23/2023	0	0	0	0	0	0
06/24/2023	0	0	0	0	0	0
06/25/2023	0	0	0	0	0	0
06/26/2023	0	0	0	0	0	0
06/27/2023	0	0	0	0	0	0
06/28/2023	0	0	0	0	0	0
06/29/2023	0	0	0	0	0	0
06/30/2023	0	0	0	0	0	0
					Total	**0**

2.13 Daily Volume Pumped from Each Extraction Well (Requirement 13)

Daily volumes of groundwater pumped from extraction wells during 2023 Quarter 2 are presented in Table 2.13-1.

Table 2.13-1
Daily Extraction Summary Table – CY 2023 Quarter 2, DP-1835

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
04/01/2023	0	0	0	0	0	0
04/02/2023	0	0	0	0	0	0
04/03/2023	0	0	0	0	0	0
04/04/2023	0	0	0	0	0	0
04/05/2023	0	0	0	0	0	0
04/06/2023	0	0	0	0	0	0
04/07/2023	0	0	0	0	0	0
04/08/2023	0	0	0	0	0	0
04/09/2023	0	0	0	0	0	0
04/10/2023	0	0	0	0	0	0
04/11/2023	0	0	0	0	0	0
04/12/2023	0	0	0	0	0	0

Table 2.13-1 (continued)

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
04/13/2023	0	0	0	0	0	0
04/14/2023	0	0	0	0	0	0
04/15/2023	0	0	0	0	0	0
04/16/2023	0	0	0	0	0	0
04/17/2023	0	0	0	0	0	0
04/18/2023	0	0	0	0	0	0
04/19/2023	0	0	0	0	0	0
04/20/2023	0	0	0	0	0	0
04/21/2023	0	0	0	0	0	0
04/22/2023	0	0	0	0	0	0
04/23/2023	0	0	0	0	0	0
04/24/2023	0	0	0	0	0	0
04/25/2023	6,606	3,178	3,178	1,506	1,555	16,024
04/26/2023	0	0	0	0	0	0
04/27/2023	0	0	0	0	0	0
04/28/2023	0	0	0	0	0	0
04/29/2023	0	0	0	0	0	0
04/30/2023	0	0	0	0	0	0
05/01/2023	0	0	0	0	0	0
05/02/2023	0	0	0	0	0	0
05/03/2023	0	0	0	0	0	0
05/04/2023	0	0	0	0	0	0
05/05/2023	0	0	0	0	0	0
05/06/2023	0	0	0	0	0	0
05/07/2023	0	0	0	0	0	0
05/08/2023	0	0	0	0	0	0
05/09/2023	0	0	0	0	0	0
05/10/2023	0	0	0	0	0	0
05/11/2023	0	0	0	0	0	0
05/12/2023	0	0	0	0	0	0
05/13/2023	0	0	0	0	0	0
05/14/2023	0	0	0	0	0	0
05/15/2023	0	0	0	0	0	0
05/16/2023	0	0	0	0	0	0
05/17/2023	0	0	0	0	0	0
05/18/2023	0	0	0	0	0	0
05/19/2023	0	0	0	0	0	0
05/20/2023	0	0	0	0	0	0
05/21/2023	0	0	0	0	0	0

Table 2.13-1 (continued)

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
05/22/2023	0	0	0	0	0	0
05/23/2023	8,323	3,573	3,573	2,410	2,574	20,452
05/24/2023	0	0	0	0	0	0
05/25/2023	0	0	0	0	0	0
05/26/2023	0	0	0	0	0	0
05/27/2023	0	0	0	0	0	0
05/28/2023	0	0	0	0	0	0
05/29/2023	0	0	0	0	0	0
05/30/2023	0	0	0	0	0	0
05/31/2023	0	0	0	0	0	0
06/01/2023	0	0	0	0	0	0
06/02/2023	0	0	0	0	0	0
06/03/2023	0	0	0	0	0	0
06/04/2023	0	0	0	0	0	0
06/05/2023	0	0	0	0	0	0
06/06/2023	0	0	0	0	0	0
06/07/2023	0	0	0	0	0	0
06/08/2023	0	0	0	0	0	0
06/09/2023	0	0	0	0	0	0
06/10/2023	0	0	0	0	0	0
06/11/2023	0	0	0	0	0	0
06/12/2023	0	0	0	0	0	0
06/13/2023	0	0	0	0	0	0
06/14/2023	0	0	0	0	0	0
06/15/2023	0	0	0	0	0	0
06/16/2023	0	0	0	0	0	0
06/17/2023	0	0	0	0	0	0
06/18/2023	0	0	0	0	0	0
06/19/2023	0	0	0	0	0	0
06/20/2023	7,441	2,126	2,126	1,644	4,098	17,436
06/21/2023	0	0	0	0	0	0
06/22/2023	0	0	0	0	0	0
06/23/2023	0	0	0	0	0	0
06/24/2023	0	0	0	0	0	0
06/25/2023	0	0	0	0	0	0
06/26/2023	0	0	0	0	0	0
06/27/2023	0	0	0	0	0	0
06/28/2023	0	0	0	0	0	0

Table 2.13-1 (continued)

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
06/29/2023	0	0	0	0	0	0
06/30/2023	0	0	0	0	0	0
					Total	**53,912**

2.14 Facility Layout Map (Requirement 14)

Figure 2.14-1 is the facility layout map for CY 2023 Quarter 2, showing the location and number of each well.

2.15 Groundwater Elevation Contour Map (Requirement 15)

Figure 2.3-1 provides the groundwater elevation contour map. Section 2.3 provides an explanation of how this map was generated.

3.0 REFERENCES

Carson, J., A. Jordan, A. Rice, P. Black, T. Stockton, D. Katzman, and L. Foster, March 8–12, 2020, "Bayesian Approach to Estimation of Water Table Elevations Using Historical Rasters as Prior Information," paper presented at WM2020 Conference, March 8–12, 2020, Phoenix, Arizona (Carson et al. 2020).

EPA (U.S. Environmental Protection Agency) January 2008. "A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems Final Project Report," EPA document number EPA/600/R-08/003, Office of Research and Development National Risk Management Research Laboratory (Cincinnati, Ohio)/Groundwater and Ecosystems Restoration Division (Ada, Oklahoma) (EPA 2008).

LANL (Los Alamos National Laboratory) October 2009. "Investigation Report for Sandia Canyon," Los Alamos National Laboratory document LA-UR-09-6450, Los Alamos, New Mexico (LANL 2009).

LANL (Los Alamos National Laboratory) March 29, 2018. "Notification of Ground Water Discharge Plan No. 1835 (DP-1835)," Los Alamos National Laboratory letter (ADESH:18-023) to N. Lombardo (N3B) from W.R. Mairson (LANL), Los Alamos, New Mexico (LANL 2018).

N3B (Newport News Nuclear BWXT-Los Alamos, LLC), February 26, 2021. "Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer Under Discharge Permit 1835, Calendar Year 2020 Quarter 4, Class V Underground Injection Control Wells," Newport News Nuclear BWXT-Los Alamos, LLC, document EM2021-0056, Los Alamos, New Mexico. (N3B 2021)

N3B (Newport News Nuclear BWXT-Los Alamos, LLC), September 2022. "Regional Aquifer Monitoring Well R-45 Action Plan," Newport News Nuclear BWXT-Los Alamos, LLC, document EM2022-0318, Los Alamos, New Mexico. (N3B 2022)

NMED (New Mexico Environment Department), August 31, 2016. "Discharge Permit Issuance, Los Alamos National Laboratory Underground Injection Control Wells, Discharge Permit 1835," U1601882 to B. Beers (ENV-RCRA) from M. Hunter (NMED), Santa Fe, New Mexico. (NMED 2016)

NMED (New Mexico Environment Department) July 21, 2017. "Discharge Permit Amendment, Los Alamos National Laboratory Underground Injection Control Wells, DP-1835," New Mexico Environment Department letter to J.C. Bretzke (LANL) and C.L. Rodriguez (EM-LA) from M. Hunter (NMED-GWQB), Santa Fe, New Mexico (NMED 2017a).

NMED (New Mexico Environment Department) June 27, 2017. "Response to Notice of Intent to Discharge; Discharge Permit Not Required for Los Alamos National Laboratory Pilot Scale Molasses Amendment Study in Regional Aquifer Monitoring Well R-28, AI:856 PRD20170003," New Mexico Environment Department letter to J.C. Bretzke (LANL) and A.Q. Duran (EM-LA) from M. Hunter (NMED-GWQB), Santa Fe, New Mexico (NMED 2017b).

NMED (New Mexico Environment Department) July 18, 2017. "Response to Notice of Intent to Discharge; Discharge Permit Not Required for Los Alamos National Laboratory Pilot Scale Sodium Dithionite Amendment Study in Regional Aquifer Monitoring Well R-42, AI:856 PRD20170003," New Mexico Environment Department letter to J.C. Bretzke (LANL) and A.Q. Duran (EM-LA) from M. Hunter (NMED-GWQB), Santa Fe, New Mexico (NMED 2017c).

NMED (New Mexico Environment Department), June 6, 2022. "Notice of Violation, Los Alamos National Laboratory Underground Injection Control Wells, DP-1835," New Mexico Environment Department letter to A. Duran (DOE EM-LA) and J. Murdock (N3B) from J. Ball (NMED-GWQB), Santa Fe, New Mexico. (NMED 2022a)

NMED (New Mexico Environment Department), December 12, 2022. "Corrective Action Plan Response and Further Action Required, Los Alamos National Laboratory Underground Injection Control Wells, DP-1835," New Mexico Environment Department Ground Water Quality Bureau letter to A. Duran (DOE-EM-LA) and R. Macfarlane (N3B) from J. Ball (NMED-GWQB), Santa Fe, New Mexico. (NMED 2022b)

NMED (New Mexico Environment Department) June 2022. "Risk Assessment Guidance for Site Investigations and Remediation, Volume 1, Soil Screening Guidance for Human Health Risk Assessments," Hazardous Waste Bureau and Ground Water Quality Bureau, Santa Fe, New Mexico (NMED 2022c).

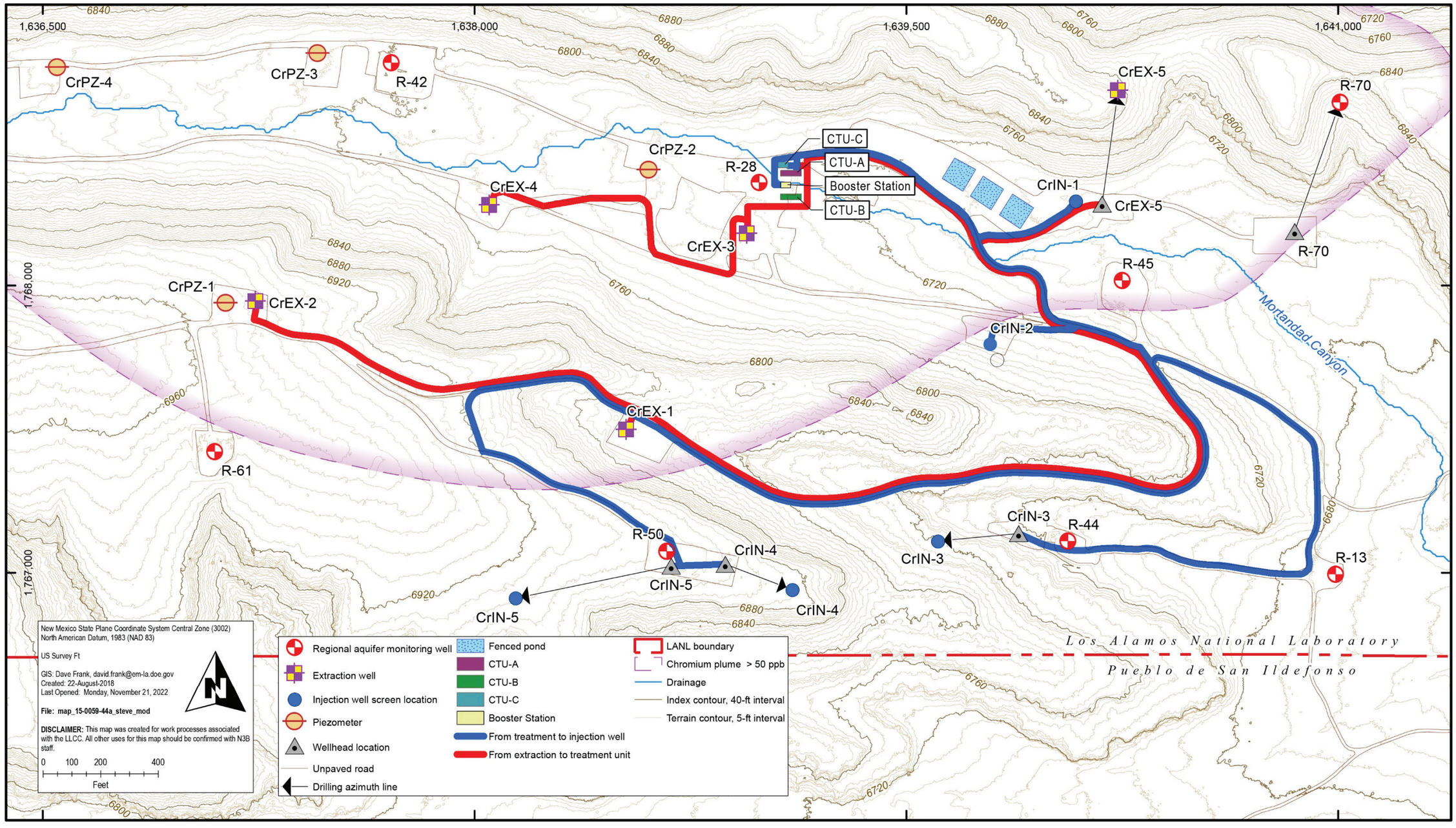

Figure 2.14-1 Facility layout map – CY 2023 Quarter 2, DP-1835