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Date: August 31, 2021
Refer To: N3B-2021-0276

Michelle Hunter, Chief
 Ground Water Quality Bureau
 New Mexico Environment Department
 1190 S. St. Francis Drive
 P.O. Box 5469
 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 2021 Quarter 2, Class V Underground Injection Control Wells

Dear Ms. Hunter:

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 to Newport News Nuclear BWXT-Los Alamos, LLC (N3B) from LANS. Pursuant to Condition No. 10 of the above-referenced discharge permit, DOE/N3B are required to submit quarterly reports for the previous quarter 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 for the April 1 through June 30 discharge period.

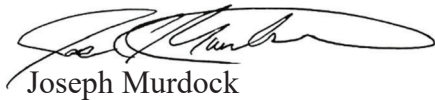
During the CY 2021 Quarter 2 reporting period for DP-1835, discharge of treated groundwater to the regional aquifer occurred at five UIC wells: CrIN-1 through CrIN-5. Groundwater originated predominantly from five extraction wells: CrEX-1 through CrEX-5. The groundwater was treated

by chromium treatment unit A (CTUA) and chromium treatment unit C (CTUC) before injection at the UIC wells.

The enclosed “Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer under Discharge Permit 1835, Calendar Year 2021 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,



Joseph Murdock
Program Manager
Environment, Safety and Health
N3B-Los Alamos

Sincerely,

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DURAN

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Date: 2021.08.31
13:43:05 -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 2021 Quarter 2 (EM2021-0452)

cc (letter and enclosure[s] emailed):

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Pamela T. Maestas

From: Romero, Andrew C, NMENV <AndrewC.Romero@state.nm.us>
Sent: Tuesday, August 31, 2021 4:34 PM
To: Pamela T. Maestas; Hunter, Michelle, NMENV
Cc: Pullen, Steve, NMENV; Longmire, Patrick, NMENV; Emily M. Day; Regulatory Documentation; cheryl.rodriguez@em.doe.gov; Christian T. Maupin; Kenneth Ocker
Subject: RE: Submittal to NMED on 8/31/2021 of DP-1835 Quarterly Rpt 2QCY21

Pamela,

GWQB acknowledges receipt of this email. Thank you for your timely submittal.

Regards,

Andrew C. Romero

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New Mexico Environment Department
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From: Pamela T. Maestas <pamela.maestas@em-la.doe.gov>
Sent: Tuesday, August 31, 2021 4:27 PM
To: Hunter, Michelle, NMENV <Michelle.Hunter@state.nm.us>
Cc: Pullen, Steve, NMENV <steve.pullen@state.nm.us>; Romero, Andrew C, NMENV <AndrewC.Romero@state.nm.us>; Longmire, Patrick, NMENV <Patrick.Longmire@state.nm.us>; Emily M. Day <Emily.Day@em-la.doe.gov>; Regulatory Documentation <RegDocs@EM-LA.DOE.GOV>; cheryl.rodriguez@em.doe.gov; Christian T. Maupin <Christian.Maupin@em-la.doe.gov>; Kenneth Ocker <kenneth.ocker@em.doe.gov>
Subject: Submittal to NMED on 8/31/2021 of DP-1835 Quarterly Rpt 2QCY21

Ms. Hunter,

Attached for submittal is a pdf of the following:

- Submittal of the Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer under Discharge Permit 1835, Calendar Year 2021 Quarter 2, Class V Underground Injection Control Wells (N3B-2021-0276, letter and enclosure)

Please acknowledge receipt of this submittal by responding to this email. Hard copies of the report will be taken to your office later this week.

Let me know if you have any questions.

Thank you.

Pamela T. Maestas

Regulatory Documentation Manager

Newport News Nuclear BWXT-Los Alamos, LLC
c. 505-927-7882 / regdocs@em-la.doe.gov




1200 Trinity Drive, Suite 150
Los Alamos, NM 87544

September 2021
EM2021-0452

**Quarterly Report for the
Discharge of Treated
Groundwater to the
Regional Aquifer under
Discharge Permit 1835,
Calendar Year 2021 Quarter 2**





Newport News Nuclear BWXT-Los Alamos, LLC (N3B), under the U.S. Department of Energy Office of Environmental Management Contract No. 89303318CEM000007 (the Los Alamos Legacy Cleanup Contract), has prepared this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

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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. On July 21, 2017, NMED approved minor updates to DP-1835. 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). Pursuant to Condition No. 10 of the above-referenced discharge permit, DOE and N3B are required to submit quarterly reports.

During the 2021 Quarter 2 reporting period for DP-1835, discharge of treated groundwater to the regional aquifer occurred at five UIC wells: CrIN-1 through CrIN-5. Groundwater originated predominantly from five extraction wells: CrEX-1 through CrEX-5. The groundwater was treated by chromium treatment unit A (CTUA) and chromium treatment unit C (CTUC) before injection at the UIC wells.

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, as follows:

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 (Condition No. 10 and 13)
3. Quarterly depth-to-groundwater and groundwater-quality sampling results (Condition No. 10 and 14)
4. Any operations/maintenance activities performed (Condition No. 10)
5. Any periodic test of mechanical integrity conducted (Condition No. 11)
6. Any replacement of primary or secondary IX vessels or associated treatment system infrastructure (Condition No. 11)
7. Any well workovers conducted (Condition No. 11)
8. Any additional operational changes with the potential to markedly affect the discharge (Condition No. 11)
9. Monthly average, maximum, and minimum values for flow rate and volume of treated effluent transferred to each UIC well (Condition No. 12)
10. Total monthly volume of treated effluent transferred to each UIC well (Condition No. 12)
11. Monthly average, maximum, and minimum values of injection water level (pressure head) above static level for each UIC well (Condition No. 12)
12. Daily volume injected at each UIC well (Condition No. 12)
13. Daily volume pumped from each extraction well (Condition No. 12)
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 influent and discharge volumes for IX treatment systems during 2021 Quarter 2 for activities completed under DP-1835. As previously identified, injection occurred at UIC wells CrIN-1 through CrIN-5 during the quarter. Treated discharge, which originated from extraction wells CrEX-1 through CrEX-5, was treated with treatment units CTUA and CTUC.

**Table 2.1-1
Total Influent and Discharge Volumes
for IX Treatment Systems – CY 2021 Quarter 2, DP-1835**

Treatment Unit	Influent Volume ^a (gal.)	Effluent Volume ^b (gal.)
CTUA	35,220,210	20,667,672
CTUC		14,554,484

Note: Individual flow meter accurate to ±5%.

^a Influent volume based on CrEX-1 through CrEX-5 extraction volumes.

^b Effluent volume based on CTUA and CTUC flow-meter readings.

2.2 Quarterly Treated Effluent Sampling Results from Each IX Treatment System (Requirement 2)

Treated effluent analytical results from samples collected during 2021 Quarter 2 for activities completed under DP-1835 are summarized in Table 2.2-1. No sample results for total chromium, nitrate, perchlorate, sulfate, fluoride, chloride, or total dissolved solids exceeded 90% of the numeric standards of 20.6.2.3103 New Mexico Administrative Code (NMAC) or 90% of the numeric screening levels established for tap water in Table A-1 of the 2019 NMED “Risk Assessment Guidance for Site Investigations and Remediation” for constituents not listed in 20.6.2.3103 NMAC. The 90% values for these seven analytes are as follows:

- Chromium 45 µg/L
- Nitrate 9 mg/L
- Perchlorate 12.4 µg/L
- Sulfate 540 mg/L
- Fluoride 1.44 mg/L
- Chloride 225 mg/L
- Total dissolved solids 900 mg/L

**Table 2.2-1
Treated Effluent Analytical Results Summary Table – CY 2021 Quarter 2, DP-1835**

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUA	CTUA-21-218238	4/1/2021	Chloride	20.1	mg/L	225 mg/L	n/a ^b	Y ^c	Y	0.335
CTUA	CTUA-21-211180	4/6/2021	Chloride	19.2	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-218237	4/13/2021	Chloride	19.4	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-222352	4/19/2021	Chloride	19.5	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-222353	4/26/2021	Chloride	20.7	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-222354	5/4/2021	Chloride	20.3	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-222355	5/13/2021	Chloride	18.3	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-222356	5/20/2021	Chloride	19.5	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-222357	5/25/2021	Chloride	63.5	mg/L	225 mg/L	n/a	Y	Y	0.67
CTUA	CTUA-21-222358	6/3/2021	Chloride	19.7	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-229159	6/8/2021	Chloride	20.7	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-229160	6/15/2021	Chloride	20.2	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-229162	6/22/2021	Chloride	17.8	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUA	CTUA-21-229163	6/29/2021	Chloride	18.5	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-210962	4/1/2021	Chloride	102	mg/L	225 mg/L	n/a	Y	Y	1.34
CTUC	CTUC-21-222373	4/6/2021	Chloride	19.9	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222374	4/13/2021	Chloride	19.6	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222375	4/19/2021	Chloride	20.4	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222376	4/26/2021	Chloride	18.6	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222377	5/4/2021	Chloride	20.1	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222378	5/13/2021	Chloride	18	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222379	5/20/2021	Chloride	19.9	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222380	5/25/2021	Chloride	19.2	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222381	6/3/2021	Chloride	19.8	mg/L	225 mg/L	n/a	Y	Y	0.335

Table 2.2-1 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222382	6/8/2021	Chloride	19.8	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222383	6/15/2021	Chloride	19.2	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-222384	6/22/2021	Chloride	17.8	mg/L	225 mg/L	n/a	Y	Y	0.335
CTUC	CTUC-21-229260	6/29/2021	Chloride	70.1	mg/L	225 mg/L	n/a	Y	Y	0.67
CTUA	CTUA-21-218238	4/1/2021	Chromium	3	µg/L	45 µg/L	U ^d	N ^e	Y	3
CTUA	CTUA-21-211180	4/6/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-218237	4/13/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-222352	4/19/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-222353	4/26/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-222354	5/4/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-222355	5/13/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-222356	5/20/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-222357	5/25/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-222358	6/3/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-229159	6/8/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-229160	6/15/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-229162	6/22/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-229163	6/29/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-210962	4/1/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222373	4/6/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222374	4/13/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222375	4/19/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222376	4/26/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222377	5/4/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222378	5/13/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222379	5/20/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3

Table 2.2-1 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222380	5/25/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222381	6/3/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222382	6/8/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222383	6/15/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-222384	6/22/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUC	CTUC-21-229260	6/29/2021	Chromium	3	µg/L	45 µg/L	U	N	Y	3
CTUA	CTUA-21-218238	4/1/2021	Fluoride	0.295	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-211180	4/6/2021	Fluoride	0.285	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-218237	4/13/2021	Fluoride	0.309	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-222352	4/19/2021	Fluoride	0.274	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-222353	4/26/2021	Fluoride	0.254	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-222354	5/4/2021	Fluoride	0.282	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-222355	5/13/2021	Fluoride	0.247	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-222356	5/20/2021	Fluoride	0.248	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-222357	5/25/2021	Fluoride	0.301	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-222358	6/3/2021	Fluoride	0.298	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-229159	6/8/2021	Fluoride	0.281	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-229160	6/15/2021	Fluoride	0.245	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-229162	6/22/2021	Fluoride	0.246	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-229163	6/29/2021	Fluoride	0.239	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-210962	4/1/2021	Fluoride	0.233	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222373	4/6/2021	Fluoride	0.28	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222374	4/13/2021	Fluoride	0.304	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222375	4/19/2021	Fluoride	0.274	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222376	4/26/2021	Fluoride	0.252	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222377	5/4/2021	Fluoride	0.286	mg/L	1.44 mg/L	n/a	Y	Y	0.033

Table 2.2-1 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222378	5/13/2021	Fluoride	0.316	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222379	5/20/2021	Fluoride	0.277	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222380	5/25/2021	Fluoride	0.277	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222381	6/3/2021	Fluoride	0.286	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222382	6/8/2021	Fluoride	0.28	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222383	6/15/2021	Fluoride	0.248	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-222384	6/22/2021	Fluoride	0.246	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUC	CTUC-21-229260	6/29/2021	Fluoride	0.278	mg/L	1.44 mg/L	n/a	Y	Y	0.033
CTUA	CTUA-21-218238	4/1/2021	Nitrate-Nitrite as Nitrogen	4.02	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-211180	4/6/2021	Nitrate-Nitrite as Nitrogen	3.85	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-218237	4/13/2021	Nitrate-Nitrite as Nitrogen	3.22	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-222352	4/19/2021	Nitrate-Nitrite as Nitrogen	3.41	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-222353	4/26/2021	Nitrate-Nitrite as Nitrogen	5.52	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-222354	5/4/2021	Nitrate-Nitrite as Nitrogen	3.48	mg/L	9 mg/L	n/a	Y	Y	0.085
CTUA	CTUA-21-222355	5/13/2021	Nitrate-Nitrite as Nitrogen	3.43	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-222356	5/20/2021	Nitrate-Nitrite as Nitrogen	3.49	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-222357	5/25/2021	Nitrate-Nitrite as Nitrogen	0.017	mg/L	9 mg/L	U	N	Y	0.017
CTUA	CTUA-21-222358	6/3/2021	Nitrate-Nitrite as Nitrogen	3.51	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-229159	6/8/2021	Nitrate-Nitrite as Nitrogen	3.5	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-229160	6/15/2021	Nitrate-Nitrite as Nitrogen	1.44	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-229162	6/22/2021	Nitrate-Nitrite as Nitrogen	3.43	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUA	CTUA-21-229163	6/29/2021	Nitrate-Nitrite as Nitrogen	3.89	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-210962	4/1/2021	Nitrate-Nitrite as Nitrogen	0.0205	mg/L	9 mg/L	J ^f	Y	Y	0.017
CTUC	CTUC-21-222373	4/6/2021	Nitrate-Nitrite as Nitrogen	4.19	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222374	4/13/2021	Nitrate-Nitrite as Nitrogen	3.46	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222375	4/19/2021	Nitrate-Nitrite as Nitrogen	3.43	mg/L	9 mg/L	n/a	Y	Y	0.17

Table 2.2-1 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222376	4/26/2021	Nitrate-Nitrite as Nitrogen	3.4	mg/L	9 mg/L	n/a	Y	Y	0.085
CTUC	CTUC-21-222377	5/4/2021	Nitrate-Nitrite as Nitrogen	3.58	mg/L	9 mg/L	n/a	Y	Y	0.085
CTUC	CTUC-21-222378	5/13/2021	Nitrate-Nitrite as Nitrogen	3.42	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222379	5/20/2021	Nitrate-Nitrite as Nitrogen	3.48	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222380	5/25/2021	Nitrate-Nitrite as Nitrogen	3.4	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222381	6/3/2021	Nitrate-Nitrite as Nitrogen	3.53	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222382	6/8/2021	Nitrate-Nitrite as Nitrogen	3.44	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222383	6/15/2021	Nitrate-Nitrite as Nitrogen	3.35	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-222384	6/22/2021	Nitrate-Nitrite as Nitrogen	3.44	mg/L	9 mg/L	n/a	Y	Y	0.17
CTUC	CTUC-21-229260	6/29/2021	Nitrate-Nitrite as Nitrogen	0.017	mg/L	9 mg/L	U	N	Y	0.017
CTUA	CTUA-21-218238	4/1/2021	Perchlorate	0.634	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-211180	4/6/2021	Perchlorate	0.676	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-218237	4/13/2021	Perchlorate	0.717	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-222352	4/19/2021	Perchlorate	0.659	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-222353	4/26/2021	Perchlorate	0.349	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-222354	5/4/2021	Perchlorate	0.533	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-222355	5/13/2021	Perchlorate	0.719	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-222356	5/20/2021	Perchlorate	0.922	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-222357	5/25/2021	Perchlorate	0.212	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-222358	6/3/2021	Perchlorate	0.903	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-229159	6/8/2021	Perchlorate	0.934	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-229160	6/15/2021	Perchlorate	0.905	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-229162	6/22/2021	Perchlorate	0.784	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUA	CTUA-21-229163	6/29/2021	Perchlorate	0.06	µg/L	12.4 µg/L	J	Y	Y	0.05
CTUC	CTUC-21-210962	4/1/2021	Perchlorate	0.103	µg/L	12.4 µg/L	J	Y	Y	0.05
CTUC	CTUC-21-222373	4/6/2021	Perchlorate	0.3	µg/L	12.4 µg/L	n/a	Y	Y	0.05

Table 2.2-1 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222374	4/13/2021	Perchlorate	0.501	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUC	CTUC-21-222375	4/19/2021	Perchlorate	0.586	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUC	CTUC-21-222376	4/26/2021	Perchlorate	0.589	µg/L	12.4 µg/L	n/a	Y	Y	0.05
CTUC	CTUC-21-222377	5/4/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-222378	5/13/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-222379	5/20/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-222380	5/25/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-222381	6/3/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-222382	6/8/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-222383	6/15/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-222384	6/22/2021	Perchlorate	0.05	µg/L	12.4 µg/L	U	N	Y	0.05
CTUC	CTUC-21-229260	6/29/2021	Perchlorate	0.055	µg/L	12.4 µg/L	J	Y	Y	0.05
CTUA	CTUA-21-218238	4/1/2021	Sulfate	28.6	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-211180	4/6/2021	Sulfate	28.3	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-218237	4/13/2021	Sulfate	28.2	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-222352	4/19/2021	Sulfate	28.3	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-222353	4/26/2021	Sulfate	4.67	mg/L	540 mg/L	n/a	Y	Y	0.133
CTUA	CTUA-21-222354	5/4/2021	Sulfate	28.8	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-222355	5/13/2021	Sulfate	26.6	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-222356	5/20/2021	Sulfate	28.2	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-222357	5/25/2021	Sulfate	0.133	mg/L	540 mg/L	U	N	Y	0.133
CTUA	CTUA-21-222358	6/3/2021	Sulfate	28.5	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-229159	6/8/2021	Sulfate	28.6	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-229160	6/15/2021	Sulfate	27.8	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-229162	6/22/2021	Sulfate	26.3	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUA	CTUA-21-229163	6/29/2021	Sulfate	23.7	mg/L	540 mg/L	n/a	Y	Y	0.665

Table 2.2-1 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-210962	4/1/2021	Sulfate	0.192	mg/L	540 mg/L	J	Y	Y	0.133
CTUC	CTUC-21-222373	4/6/2021	Sulfate	25	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222374	4/13/2021	Sulfate	28	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222375	4/19/2021	Sulfate	28.5	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222376	4/26/2021	Sulfate	27.4	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222377	5/4/2021	Sulfate	27.4	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222378	5/13/2021	Sulfate	26.7	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222379	5/20/2021	Sulfate	28.2	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222380	5/25/2021	Sulfate	28	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222381	6/3/2021	Sulfate	28.1	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222382	6/8/2021	Sulfate	28.6	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222383	6/15/2021	Sulfate	27.5	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-222384	6/22/2021	Sulfate	26.4	mg/L	540 mg/L	n/a	Y	Y	0.665
CTUC	CTUC-21-229260	6/29/2021	Sulfate	0.133	mg/L	540 mg/L	U	N	Y	0.133
CTUA	CTUA-21-218238	4/1/2021	Total Dissolved Solids	240	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-211180	4/6/2021	Total Dissolved Solids	243	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-218237	4/13/2021	Total Dissolved Solids	221	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-222352	4/19/2021	Total Dissolved Solids	213	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-222353	4/26/2021	Total Dissolved Solids	234	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-222354	5/4/2021	Total Dissolved Solids	223	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-222355	5/13/2021	Total Dissolved Solids	253	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-222356	5/20/2021	Total Dissolved Solids	243	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-222357	5/25/2021	Total Dissolved Solids	250	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-222358	6/3/2021	Total Dissolved Solids	227	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-229159	6/8/2021	Total Dissolved Solids	234	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-229160	6/15/2021	Total Dissolved Solids	227	mg/L	900 mg/L	n/a	Y	Y	3.4

Table 2.2-1 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUA	CTUA-21-229162	6/22/2021	Total Dissolved Solids	236	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUA	CTUA-21-229163	6/29/2021	Total Dissolved Solids	233	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-210962	4/1/2021	Total Dissolved Solids	273	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222373	4/6/2021	Total Dissolved Solids	254	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222374	4/13/2021	Total Dissolved Solids	229	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222375	4/19/2021	Total Dissolved Solids	229	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222376	4/26/2021	Total Dissolved Solids	230	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222377	5/4/2021	Total Dissolved Solids	223	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222378	5/13/2021	Total Dissolved Solids	237	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222379	5/20/2021	Total Dissolved Solids	251	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222380	5/25/2021	Total Dissolved Solids	249	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222381	6/3/2021	Total Dissolved Solids	247	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222382	6/8/2021	Total Dissolved Solids	233	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222383	6/15/2021	Total Dissolved Solids	226	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-222384	6/22/2021	Total Dissolved Solids	237	mg/L	900 mg/L	n/a	Y	Y	3.4
CTUC	CTUC-21-229260	6/29/2021	Total Dissolved Solids	256	mg/L	900 mg/L	n/a	Y	Y	3.4

^a In accordance with Condition No. 13 of DP-1835, analysis of the treated effluent from each IX unit is required only once every month for the CY 2021 Q2 reporting period.

^b n/a = Not applicable: no qualifiers applied.

^c Y = Detected.

^d U = Analyte is classified as not detected.

^e N = Not detected.

^f J = Analyte is classified as estimated.

The pilot-scale molasses and sodium dithionite amendment studies continued during 2021 Quarter 2. NMED determined that no permit was required for the deployment of these amendments, and these studies began with NMED conditional approvals during 2017 Quarter 4 (NMED 2017a, NMED 2017b). In accordance with the NMED conditional approvals, iron, manganese, and arsenic sampling in the treated water from extraction wells was completed, and the results were submitted in the quarterly monitoring reports under DP-1835. These results for 2021 Quarter 2 are provided in Table 2.2-2. No results for iron, manganese, or arsenic exceeded 90% of the numeric standards of 20.6.2.3103 NMAC. The 90% values for iron, manganese, and arsenic are 900 µg/L, 180 µg/L, and 9 µg/L, respectively.

DP-1835 Permit Condition No. 13 requires treated effluent to be analyzed annually for all water contaminants listed in 20.6.2.3103 NMAC and all toxic pollutants defined in 20.6.2.7.T(2) NMAC. The annual sample for 2021 was not obtained during Quarter 2 but is expected to be obtained during Quarter 3.

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. An explanation of how the groundwater elevation map was generated is provided below. Quarterly groundwater analytical results from samples collected during 2021 Quarter 2 for the monitoring wells listed in Condition No. 14 are summarized in Table 2.3-2.

The regional aquifer beneath Los Alamos National Laboratory (LANL or the Laboratory) is a complex hydrogeological system. The shape of the regional water table beneath the Pajarito Plateau is predominantly controlled by the areas of recharge to the west (i.e., the flanks of the Sierra de los Valles and the Pajarito fault zone) and discharge to the east (i.e., the Rio Grande and the White Rock Canyon Springs). At a more local scale, such as 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 are all lines of evidence that 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 (far outside the boundary depicted in Figure 2.3-1) 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 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; and nearby water-supply pumping. Although it is difficult to infer absolute groundwater flow directions from the relatively flat contours in the chromium plume area, groundwater elevation data and contaminant transport observations indicate that groundwater flows generally toward the east-southeast.

**Table 2.2-2
Treated Effluent Analytical Results Summary Table Related to Molasses and
Sodium Dithionite Pilot Studies under NMED Conditional Approval – CY 2021 Quarter 2, DP-1835**

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUA	CTUA-21-218238	4/1/2021	Arsenic	3.82	µg/L	9 µg/L	J ^b	Y ^c	Y	2
CTUA	CTUA-21-211180	4/6/2021	Arsenic	2	µg/L	9 µg/L	U ^d	N ^e	Y	2
CTUA	CTUA-21-218237	4/13/2021	Arsenic	2.02	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-222352	4/19/2021	Arsenic	2.1	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-222353	4/26/2021	Arsenic	3.27	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-222354	5/4/2021	Arsenic	2.05	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-222355	5/13/2021	Arsenic	2	µg/L	9 µg/L	U	N	Y	2
CTUA	CTUA-21-222356	5/20/2021	Arsenic	3.23	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-222357	5/25/2021	Arsenic	2.13	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-222358	6/3/2021	Arsenic	2.12	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-229159	6/8/2021	Arsenic	3.3	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-229160	6/15/2021	Arsenic	2.8	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-229162	6/22/2021	Arsenic	3.03	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-229163	6/29/2021	Arsenic	3.4	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-210962	4/1/2021	Arsenic	2.92	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222373	4/6/2021	Arsenic	2.93	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222374	4/13/2021	Arsenic	2	µg/L	9 µg/L	U	N	Y	2
CTUC	CTUC-21-222375	4/19/2021	Arsenic	2.27	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222376	4/26/2021	Arsenic	2.49	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222377	5/4/2021	Arsenic	2.36	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222378	5/13/2021	Arsenic	2	µg/L	9 µg/L	U	N	Y	2
CTUC	CTUC-21-222379	5/20/2021	Arsenic	3.2	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222380	5/25/2021	Arsenic	2.93	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222381	6/3/2021	Arsenic	2.23	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222382	6/8/2021	Arsenic	2.85	µg/L	9 µg/L	J	Y	Y	2

Table 2.2-2 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222383	6/15/2021	Arsenic	2.86	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-222384	6/22/2021	Arsenic	2.88	µg/L	9 µg/L	J	Y	Y	2
CTUC	CTUC-21-229260	6/29/2021	Arsenic	2.3	µg/L	9 µg/L	J	Y	Y	2
CTUA	CTUA-21-218238	4/1/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-211180	4/6/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-218237	4/13/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-222352	4/19/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-222353	4/26/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-222354	5/4/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-222355	5/13/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-222356	5/20/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-222357	5/25/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-222358	6/3/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-229159	6/8/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-229160	6/15/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-229162	6/22/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-229163	6/29/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-210962	4/1/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222373	4/6/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222374	4/13/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222375	4/19/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222376	4/26/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222377	5/4/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222378	5/13/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222379	5/20/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30

Table 2.2-2 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222380	5/25/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222381	6/3/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222382	6/8/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222383	6/15/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-222384	6/22/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUC	CTUC-21-229260	6/29/2021	Iron	30	µg/L	900 µg/L	U	N	Y	30
CTUA	CTUA-21-218238	4/1/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-211180	4/6/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-218237	4/13/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-222352	4/19/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-222353	4/26/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-222354	5/4/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-222355	5/13/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-222356	5/20/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-222357	5/25/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-222358	6/3/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-229159	6/8/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-229160	6/15/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-229162	6/22/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUA	CTUA-21-229163	6/29/2021	Manganese	2.32	µg/L	180 µg/L	J	Y	Y	2
CTUC	CTUC-21-210962	4/1/2021	Manganese	4.68	µg/L	180 µg/L	J	Y	Y	2
CTUC	CTUC-21-222373	4/6/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222374	4/13/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222375	4/19/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222376	4/26/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222377	5/4/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2

Table 2.2-2 (continued)

Location ID	Sample ID	Sample Date ^a	Parameter Name	Result	Report Unit	90% of Standard or Screening Level	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CTUC	CTUC-21-222378	5/13/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222379	5/20/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222380	5/25/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222381	6/3/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222382	6/8/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222383	6/15/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-222384	6/22/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2
CTUC	CTUC-21-229260	6/29/2021	Manganese	2	µg/L	180 µg/L	U	N	Y	2

^a In accordance with Condition No. 13 of DP-1835, analysis of the treated effluent from each IX unit is required only once every month for the CY 2021 Q2 reporting period.

^b J = Analyte is classified as estimated.

^c Y = Detected.

^d U = Analyte is classified as not detected.

^e N = Not detected.

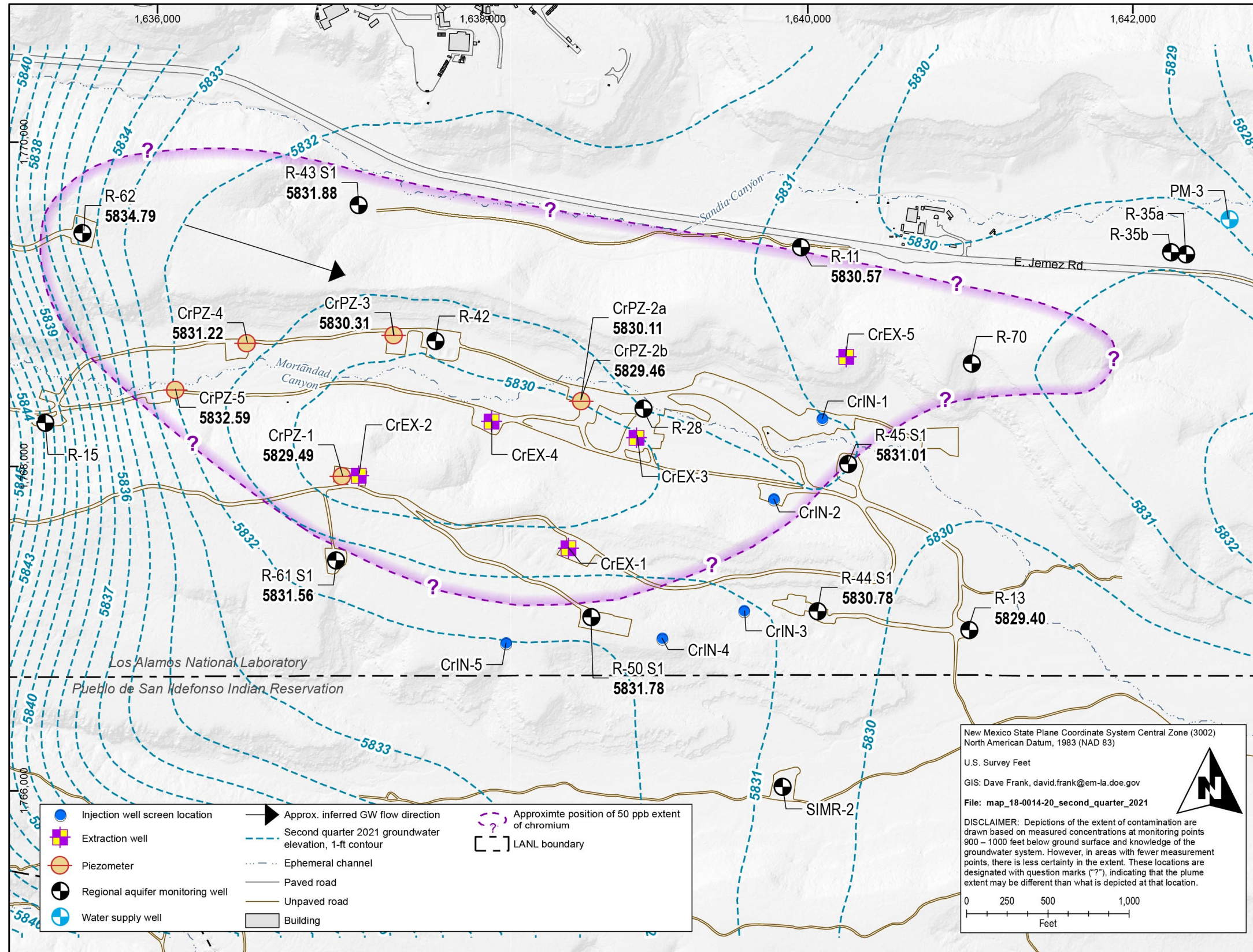


Figure 2.3-1 Groundwater elevation contour map – CY 2021 Quarter 2, DP-1835

**Table 2.3-1
Groundwater Elevations Summary for
Groundwater Monitoring Wells – CY 2021 Quarter 2, DP-1835**

Monitoring Well	Groundwater Elevation ^a (ft)
CrPZ-1 (CrCH-1)	5829.49
CrPZ-2a (CrCH-2a)	5830.11
CrPZ-2b (CrCH-2b)	5829.46
CrPZ-3 (CrCH-3)	5830.31
CrPZ-4 (CrCH-4)	5831.22
CrPZ-5 (CrCH-5)	5832.59
R-11	5830.57
R-13	5829.40
R-43 S1 ^b	5831.88
R-43 S2 ^c	5831.23
R-44 S1	5830.78
R-44 S2	5830.15
R-45 S1	5831.01
R-45 S2	5829.96
R-50 S1	5831.78
R-50 S2	5830.47
R-61 S1	5831.56
R-61 S2	5831.39
R-62	5834.79
SIMR-2 ^d	5830.64

^a Groundwater elevations provided are based on average May 2021 values from transducers.

^b S1 = Screen 1.

^c S2 = Screen 2.

^d Fourth quarter average February 2021 SIMR-2 data are reported here in accordance with the DP-1835 2021 Quarter 1 report (N3B 2021). Data were unavailable at the time of that report's preparation and are included in this report in accordance with the memorandum of agreement between San Ildefonso Pueblo and DOE. Data from the current quarter are not available at this time and will be presented in the next quarterly report.

**Table 2.3-2
Groundwater Monitoring Wells Analytical Results Summary Table – CY 2021 Quarter 2, DP-1835**

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CASA-21-221865	R-11	4/15/2021	Chloride	4.75	mg/L	n/a ^a	Y ^b	Y	0.200
CASA-21-221865	R-11	4/15/2021	Perchlorate	0.712	mg/L	n/a	Y	Y	0.200
CASA-21-221865	R-11	4/15/2021	Chromium	14.0	mg/L	n/a	Y	Y	10.0
CASA-21-221865	R-11	4/15/2021	Fluoride	0.463	mg/L	n/a	Y	Y	0.100
CASA-21-221865	R-11	4/15/2021	Nitrate-Nitrite as Nitrogen	5.53	mg/L	n/a	Y	Y	0.500
CASA-21-221865	R-11	4/15/2021	Sulfate	9.72	µg/L	n/a	Y	Y	0.400
CASA-21-221865	R-11	4/15/2021	Total Dissolved Solids	187	µg/L	n/a	Y	Y	14.3
CASA-21-224402	R-11	5/14/2021	Chloride	4.18	mg/L	n/a	Y	Y	0.200
CASA-21-224402	R-11	5/14/2021	Perchlorate	0.777	mg/L	n/a	Y	Y	0.200
CASA-21-224402	R-11	5/14/2021	Chromium	12.6	mg/L	n/a	Y	Y	10.0
CASA-21-224402	R-11	5/14/2021	Fluoride	0.520	mg/L	n/a	Y	Y	0.100
CASA-21-224402	R-11	5/14/2021	Nitrate-Nitrite as Nitrogen	5.30	µg/L	n/a	Y	Y	0.500
CASA-21-224402	R-11	5/14/2021	Sulfate	9.73	µg/L	n/a	Y	Y	0.400
CASA-21-224402	R-11	5/14/2021	Total Dissolved Solids	201	mg/L	n/a	Y	Y	14.3
CASA-21-229320	R-11	6/08/2021	Chloride	4.16	mg/L	n/a	Y	Y	0.200
CASA-21-229320	R-11	6/08/2021	Perchlorate	0.783	mg/L	n/a	Y	Y	0.200
CASA-21-229320	R-11	6/08/2021	Chromium	13.0	mg/L	n/a	Y	Y	10.0
CASA-21-229320	R-11	6/08/2021	Fluoride	0.454	µg/L	n/a	Y	Y	0.100
CASA-21-229320	R-11	6/08/2021	Nitrate-Nitrite as Nitrogen	5.70	µg/L	n/a	Y	Y	0.500
CASA-21-229320	R-11	6/08/2021	Sulfate	9.69	mg/L	n/a	Y	Y	0.400
CASA-21-229320	R-11	6/08/2021	Total Dissolved Solids	187	mg/L	n/a	Y	Y	14.3
CAMO-21-224066	R-13	5/10/2021	Chloride	2.58	mg/L	n/a	Y	Y	0.200
CAMO-21-224066	R-13	5/10/2021	Perchlorate	0.424	mg/L	n/a	Y	Y	0.200
CAMO-21-224066	R-13	5/10/2021	Chromium	3.91	mg/L	n/a	Y	Y	10.0
CAMO-21-224066	R-13	5/10/2021	Fluoride	0.282	µg/L	n/a	Y	Y	0.100

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-21-224066	R-13	5/10/2021	Nitrate-Nitrite as Nitrogen	0.775	mg/L	n/a	Y	Y	0.250
CAMO-21-224066	R-13	5/10/2021	Sulfate	3.50	mg/L	n/a	Y	Y	0.400
CAMO-21-224066	R-13	5/10/2021	Total Dissolved Solids	119	mg/L	n/a	Y	Y	14.3
CASA-21-228744	R-43 S1 ^c	5/05/2021	Chloride	8.34	mg/L	n/a	Y	Y	0.200
CASA-21-228744	R-43 S1	5/05/2021	Perchlorate	0.774	mg/L	n/a	Y	Y	0.200
CASA-21-228744	R-43 S1	5/05/2021	Chromium	194	µg/L	n/a	Y	Y	10.0
CASA-21-228744	R-43 S1	5/05/2021	Fluoride	0.340	µg/L	n/a	Y	Y	0.100
CASA-21-228744	R-43 S1	5/05/2021	Nitrate-Nitrite as Nitrogen	5.14	mg/L	n/a	Y	Y	0.500
CASA-21-228744	R-43 S1	5/05/2021	Sulfate	17.5	mg/L	n/a	Y	Y	0.400
CASA-21-228744	R-43 S1	5/05/2021	Total Dissolved Solids	194	mg/L	n/a	Y	Y	14.3
CASA-21-228748	R-43 S2 ^d	5/20/2021	Chloride	8.66	mg/L	n/a	Y	Y	0.200
CASA-21-228748	R-43 S2	5/20/2021	Perchlorate	0.917	mg/L	n/a	Y	Y	0.200
CASA-21-228748	R-43 S2	5/20/2021	Chromium	40.8	mg/L	n/a	Y	Y	10.0
CASA-21-228748	R-43 S2	5/20/2021	Fluoride	0.308	mg/L	n/a	Y	Y	0.100
CASA-21-228748	R-43 S2	5/20/2021	Nitrate-Nitrite as Nitrogen	4.03	µg/L	n/a	Y	Y	0.500
CASA-21-228748	R-43 S2	5/20/2021	Sulfate	11.0	µg/L	n/a	Y	Y	0.400
CASA-21-228748	R-43 S2	5/20/2021	Total Dissolved Solids	184	mg/L	n/a	Y	Y	14.3
CAMO-21-221895	R-44 S1	4/23/2021	Chloride	20.2	mg/L	n/a	Y	Y	0.200
CAMO-21-221895	R-44 S1	4/23/2021	Perchlorate	0.362	mg/L	n/a	Y	Y	1.0
CAMO-21-221895	R-44 S1	4/23/2021	Chromium	3.54	mg/L	J ^e	Y	Y	10.0
CAMO-21-221895	R-44 S1	4/23/2021	Fluoride	0.172	mg/L	n/a	Y	Y	0.100
CAMO-21-221895	R-44 S1	4/23/2021	Nitrate-Nitrite as Nitrogen	2.71	mg/L	n/a	Y	Y	0.250
CAMO-21-221895	R-44 S1	4/23/2021	Sulfate	19.8	µg/L	n/a	Y	Y	2.00
CAMO-21-221895	R-44 S1	4/23/2021	Total Dissolved Solids	221	µg/L	n/a	Y	Y	14.3
CAMO-21-224089	R-44 S1	5/17/2021	Chloride	20.6	mg/L	n/a	Y	Y	1.0
CAMO-21-224089	R-44 S1	5/17/2021	Perchlorate	0.400	mg/L	n/a	Y	Y	0.200

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-21-224089	R-44 S1	5/17/2021	Chromium	3.18	mg/L	J	Y	Y	10.0
CAMO-21-224089	R-44 S1	5/17/2021	Fluoride	0.278	mg/L	n/a	Y	Y	0.100
CAMO-21-224089	R-44 S1	5/17/2021	Nitrate-Nitrite as Nitrogen	2.63	µg/L	n/a	Y	Y	0.500
CAMO-21-224089	R-44 S1	5/17/2021	Sulfate	20.6	µg/L	n/a	Y	Y	2.0
CAMO-21-224089	R-44 S1	5/17/2021	Total Dissolved Solids	183	mg/L	n/a	Y	Y	14.3
CAMO-21-229335	R-44 S1	6/15/2021	Chloride	20.1	mg/L	n/a	Y	Y	1.0
CAMO-21-229335	R-44 S1	6/15/2021	Perchlorate	0.405	µg/L	n/a	Y	Y	0.200
CAMO-21-229335	R-44 S1	6/15/2021	Chromium	3.57	µg/L	J	Y	Y	10.0
CAMO-21-229335	R-44 S1	6/15/2021	Fluoride	0.179	mg/L	n/a	Y	Y	0.100
CAMO-21-229335	R-44 S1	6/15/2021	Nitrate-Nitrite as Nitrogen	2.75	mg/L	n/a	Y	Y	0.500
CAMO-21-229335	R-44 S1	6/15/2021	Sulfate	20.1	mg/L	n/a	Y	Y	2.0
CAMO-21-229335	R-44 S1	6/15/2021	Total Dissolved Solids	224	mg/L	n/a	Y	Y	14.3
CAMO-21-221898	R-44 S2	4/23/2021	Chloride	2.40	mg/L	n/a	Y	Y	0.200
CAMO-21-221898	R-44 S2	4/23/2021	Perchlorate	0.318	mg/L	n/a	Y	Y	0.200
CAMO-21-221898	R-44 S2	4/23/2021	Chromium	5.50	mg/L	J	Y	Y	10.0
CAMO-21-221898	R-44 S2	4/23/2021	Fluoride	0.379	mg/L	n/a	Y	Y	0.100
CAMO-21-221898	R-44 S2	4/23/2021	Nitrate-Nitrite as Nitrogen	0.687	mg/L	n/a	Y	Y	0.050
CAMO-21-221898	R-44 S2	4/23/2021	Sulfate	2.51	µg/L	n/a	Y	Y	0.400
CAMO-21-221898	R-44 S2	4/23/2021	Total Dissolved Solids	146	µg/L	n/a	Y	Y	14.3
CAMO-21-224091	R-44 S2	5/17/2021	Chloride	2.22	mg/L	n/a	Y	Y	0.200
CAMO-21-224091	R-44 S2	5/17/2021	Perchlorate	0.342	µg/L	n/a	Y	Y	0.200
CAMO-21-224091	R-44 S2	5/17/2021	Chromium	5.18	µg/L	J	Y	Y	10.0
CAMO-21-224091	R-44 S2	5/17/2021	Fluoride	0.463	mg/L	n/a	Y	Y	0.100
CAMO-21-224091	R-44 S2	5/17/2021	Nitrate-Nitrite as Nitrogen	0.685	mg/L	n/a	Y	Y	0.250
CAMO-21-224091	R-44 S2	5/17/2021	Sulfate	2.56	mg/L	n/a	Y	Y	0.400
CAMO-21-224091	R-44 S2	5/17/2021	Total Dissolved Solids	117	mg/L	n/a	Y	Y	14.3

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-21-229341	R-44 S2	6/15/2021	Chloride	2.71	µg/L	n/a	Y	Y	0.200
CAMO-21-229341	R-44 S2	6/15/2021	Perchlorate	0.329	mg/L	n/a	Y	Y	0.200
CAMO-21-229341	R-44 S2	6/15/2021	Chromium	6.26	mg/L	J	Y	Y	10.0
CAMO-21-229341	R-44 S2	6/15/2021	Fluoride	0.352	mg/L	n/a	Y	Y	0.100
CAMO-21-229341	R-44 S2	6/15/2021	Nitrate-Nitrite as Nitrogen	1.35	mg/L	n/a	Y	Y	0.250
CAMO-21-229341	R-44 S2	6/15/2021	Sulfate	2.60	µg/L	n/a	Y	Y	0.400
CAMO-21-229341	R-44 S2	6/15/2021	Total Dissolved Solids	133	mg/L	n/a	Y	Y	14.3
CAMO-21-221901	R-45 S1	4/19/2021	Chloride	17.8	mg/L	n/a	Y	Y	1.0
CAMO-21-221901	R-45 S1	4/19/2021	Perchlorate	0.517	mg/L	n/a	Y	Y	0.200
CAMO-21-221901	R-45 S1	4/19/2021	Chromium	8.1/8	mg/L	J	Y	Y	10.0
CAMO-21-221901	R-45 S1	4/19/2021	Fluoride	0.245	mg/L	n/a	Y	Y	0.100
CAMO-21-221901	R-45 S1	4/19/2021	Nitrate-Nitrite as Nitrogen	2.84	mg/L	n/a	Y	Y	0.500
CAMO-21-221901	R-45 S1	4/19/2021	Sulfate	17.7	µg/L	n/a	Y	Y	0.200
CAMO-21-221901	R-45 S1	4/19/2021	Total Dissolved Solids	177	µg/L	n/a	Y	Y	14.3
CAMO-21-224102	R-45 S1	5/17/2021	Chloride	19.0	mg/L	n/a	Y	Y	1.0
CAMO-21-224102	R-45 S1	5/17/2021	Perchlorate	0.5471	mg/L	n/a	Y	Y	0.200
CAMO-21-224102	R-45 S1	5/17/2021	Chromium	7.08	mg/L	J	Y	Y	10.0
CAMO-21-224102	R-45 S1	5/17/2021	Fluoride	0.327	mg/L	n/a	Y	Y	0.100
CAMO-21-224102	R-45 S1	5/17/2021	Nitrate-Nitrite as Nitrogen	2.82	mg/L	n/a	Y	Y	0.500
CAMO-21-224102	R-45 S1	5/17/2021	Sulfate	19.3	µg/L	n/a	Y	Y	2.0
CAMO-21-224102	R-45 S1	5/17/2021	Total Dissolved Solids	203	µg/L	n/a	Y	Y	14.3
CAMO-21-229344	R-45 S1	6/16/2021	Chloride	19.5	mg/L	n/a	Y	Y	1.0
CAMO-21-229344	R-45 S1	6/16/2021	Perchlorate	0.486	mg/L	n/a	Y	Y	0.200
CAMO-21-229344	R-45 S1	6/16/2021	Chromium	6.15	µg/L	J	Y	Y	10.0
CAMO-21-229344	R-45 S1	6/16/2021	Fluoride	0.253	mg/L	n/a	Y	Y	0.100
CAMO-21-229344	R-45 S1	6/16/2021	Nitrate-Nitrite as Nitrogen	3.00	µg/L	n/a	Y	Y	0.500

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-21-229344	R-45 S1	6/16/2021	Sulfate	19.8	mg/L	n/a	Y	Y	2.0
CAMO-21-229344	R-45 S1	6/16/2021	Total Dissolved Solids	199	mg/L	n/a	Y	Y	14.3
CAMO-21-221904	R-45 S2	4/20/2021	Chloride	6.47	mg/L	n/a	Y	Y	0.200
CAMO-21-221904	R-45 S2	4/20/2021	Perchlorate	0.461	mg/L	n/a	Y	Y	0.200
CAMO-21-221904	R-45 S2	4/20/2021	Chromium	51.4	mg/L	n/a	Y	Y	10.0
CAMO-21-221904	R-45 S2	4/20/2021	Fluoride	0.498	mg/L	n/a	Y	Y	0.100
CAMO-21-221904	R-45 S2	4/20/2021	Nitrate-Nitrite as Nitrogen	1.27	mg/L	n/a	Y	Y	0.250
CAMO-21-221904	R-45 S2	4/20/2021	Sulfate	8.09	µg/L	n/a	Y	Y	0.400
CAMO-21-221904	R-45 S2	4/20/2021	Total Dissolved Solids	171	µg/L	n/a	Y	Y	14.3
CAMO-21-224103	R-45 S2	5/17/2021	Chloride	6.69	mg/L	n/a	Y	Y	0.200
CAMO-21-224103	R-45 S2	5/17/2021	Perchlorate	0.475	mg/L	n/a	Y	Y	0.200
CAMO-21-224103	R-45 S2	5/17/2021	Chromium	49.0	mg/L	n/a	Y	Y	10.0
CAMO-21-224103	R-45 S2	5/17/2021	Fluoride	0.420	mg/L	n/a	Y	Y	0.100
CAMO-21-224103	R-45 S2	5/17/2021	Nitrate-Nitrite as Nitrogen	1.26	mg/L	n/a	Y	Y	0.250
CAMO-21-224103	R-45 S2	5/17/2021	Sulfate	8.43	µg/L	n/a	Y	Y	0.400
CAMO-21-224103	R-45 S2	5/17/2021	Total Dissolved Solids	154	µg/L	n/a	Y	Y	14.3
CAMO-21-229350	R-45 S2	6/16/2021	Chloride	7.0	µg/L	n/a	Y	Y	0.200
CAMO-21-229350	R-45 S2	6/16/2021	Perchlorate	0.443	mg/L	n/a	Y	Y	0.200
CAMO-21-229350	R-45 S2	6/16/2021	Chromium	48.7	µg/L	n/a	Y	Y	10.0
CAMO-21-229350	R-45 S2	6/16/2021	Fluoride	0.448	mg/L	n/a	Y	Y	0.100
CAMO-21-229350	R-45 S2	6/16/2021	Nitrate-Nitrite as Nitrogen	1.37	mg/L	n/a	Y	Y	0.250
CAMO-21-229350	R-45 S2	6/16/2021	Sulfate	8.73	mg/L	n/a	Y	Y	0.400
CAMO-21-229350	R-45 S2	6/16/2021	Total Dissolved Solids	161	mg/L	n/a	Y	Y	14.3
CAMO-21-222129	R-50 S1	4/22/2021	Chloride	20.4	mg/L	n/a	Y	Y	1.00
CAMO-21-222129	R-50 S1	4/22/2021	Perchlorate	0.359	mg/L	n/a	Y	Y	0.200
CAMO-21-222129	R-50 S1	4/22/2021	Chromium	16.8	mg/L	n/a	Y	Y	10.0

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-21-222129	R-50 S1	4/22/2021	Fluoride	0.197	mg/L	n/a	Y	Y	0.100
CAMO-21-222129	R-50 S1	4/22/2021	Nitrate-Nitrite as Nitrogen	2.69	µg/L	n/a	Y	Y	0.250
CAMO-21-222129	R-50 S1	4/22/2021	Sulfate	19.3	µg/L	n/a	Y	Y	2.00
CAMO-21-222129	R-50 S1	4/22/2021	Total Dissolved Solids	207	mg/L	n/a	Y	Y	14.3
CAMO-21-224106	R-50 S1	5/11/2021	Chloride	21.4	mg/L	n/a	Y	Y	1.0
CAMO-21-224106	R-50 S1	5/11/2021	Perchlorate	0.412	mg/L	n/a	Y	Y	0.200
CAMO-21-224106	R-50 S1	5/11/2021	Chromium	15.5	mg/L	n/a	Y	Y	10.0
CAMO-21-224106	R-50 S1	5/11/2021	Fluoride	0.217	mg/L	n/a	Y	Y	0.100
CAMO-21-224106	R-50 S1	5/11/2021	Nitrate-Nitrite as Nitrogen	2.65	mg/L	n/a	Y	Y	0.500
CAMO-21-224106	R-50 S1	5/11/2021	Sulfate	20.8	µg/L	n/a	Y	Y	2.00
CAMO-21-224106	R-50 S1	5/11/2021	Total Dissolved Solids	201	µg/L	n/a	Y	Y	14.3
CAMO-21-222132	R-50 S2	4/22/2021	Chloride	2.43	mg/L	n/a	Y	Y	0.200
CAMO-21-222132	R-50 S2	4/22/2021	Perchlorate	0.288	mg/L	n/a	Y	Y	0.200
CAMO-21-222132	R-50 S2	4/22/2021	Chromium	3.86	mg/L	J	Y	Y	10.0
CAMO-21-222132	R-50 S2	4/22/2021	Fluoride	0.405	mg/L	n/a	Y	Y	0.100
CAMO-21-222132	R-50 S2	4/22/2021	Nitrate-Nitrite as Nitrogen	0.582	mg/L	n/a	Y	Y	0.050
CAMO-21-222132	R-50 S2	4/22/2021	Sulfate	2.63	µg/L	n/a	Y	Y	0.400
CAMO-21-222132	R-50 S2	4/22/2021	Total Dissolved Solids	157	µg/L	n/a	Y	Y	14.3
CAMO-21-224122	R-50 S2	5/13/2021	Chloride	2.13	µg/L	n/a	Y	Y	0.200
CAMO-21-224122	R-50 S2	5/13/2021	Perchlorate	0.3296	mg/L	n/a	Y	Y	0.200
CAMO-21-224122	R-50 S2	5/13/2021	Chromium	4.07	mg/L	J	Y	Y	10.0
CAMO-21-224122	R-50 S2	5/13/2021	Fluoride	0.387	mg/L	n/a	Y	Y	0.100
CAMO-21-224122	R-50 S2	5/13/2021	Nitrate-Nitrite as Nitrogen	0.605	mg/L	n/a	Y	Y	0.250
CAMO-21-224122	R-50 S2	5/13/2021	Sulfate	2.57	mg/L	n/a	Y	Y	0.400
CAMO-21-224122	R-50 S2	5/13/2021	Total Dissolved Solids	150	µg/L	n/a	Y	Y	14.3
CAMO-21-224128	R-62	5/14/2021	Chloride	21.3	mg/L	n/a	Y	Y	1.00

Table 2.3-2 (continued)

Field Sample ID	Location ID	Sample Date	Parameter Name	Report Result	Report Unit	Lab Qualifier	Detect Flag	Filtered	Method Detection Limit
CAMO-21-224128	R-62	5/14/2021	Perchlorate	0.935	mg/L	n/a	Y	Y	0.200
CAMO-21-224128	R-62	5/14/2021	Chromium	319	mg/L	n/a	Y	Y	10.0
CAMO-21-224128	R-62	5/14/2021	Fluoride	0.207	µg/L	n/a	Y	Y	0.100
CAMO-21-224128	R-62	5/14/2021	Nitrate-Nitrite as Nitrogen	2.26	µg/L	n/a	Y	Y	0.250
CAMO-21-224128	R-62	5/14/2021	Sulfate	37.4	mg/L	n/a	Y	Y	2.00
CAMO-21-224128	R-62	5/14/2021	Total Dissolved Solids	241	mg/L	n/a	Y	Y	14.3
CAMO-21-217488	SIMR-2 ^f	2/02/2021	Chloride	2.14	mg/L	n/a	Y	Y	0.067
CAMO-21-217488	SIMR-2	2/02/2021	Perchlorate	0.438	µg/L	n/a	Y	Y	0.050
CAMO-21-217488	SIMR-2	2/02/2021	Chromium	5.27	µg/L	J	Y	Y	3.00
CAMO-21-217488	SIMR-2	2/02/2021	Fluoride	0.330	mg/L	n/a	Y	Y	0.033
CAMO-21-217488	SIMR-2	2/02/2021	Nitrate-Nitrite as Nitrogen	0.800	mg/L	n/a	Y	Y	0.0850
CAMO-21-217488	SIMR-2	2/02/2021	Sulfate	2.77	mg/L	n/a	Y	Y	0.400
CAMO-21-217488	SIMR-2	2/02/2021	Total Dissolved Solids	149	mg/L	n/a	Y	Y	3.40
CAMO-21-220405	SIMR-2	3/26/2021	Chloride	2.17	mg/L	n/a	Y	Y	0.067
CAMO-21-220405	SIMR-2	3/26/2021	Perchlorate	0.435	µg/L	n/a	Y	Y	0.050
CAMO-21-220405	SIMR-2	3/26/2021	Chromium	5.07	mg/L	n/a	Y	Y	3.00
CAMO-21-220405	SIMR-2	3/26/2021	Fluoride	0.334	µg/L	n/a	Y	Y	0.033
CAMO-21-220405	SIMR-2	3/26/2021	Nitrate-Nitrite as Nitrogen	0.768	mg/L	n/a	Y	Y	0.017
CAMO-21-220405	SIMR-2	3/26/2021	Sulfate	2.81	mg/L	n/a	Y	Y	0.133
CAMO-21-220405	SIMR-2	3/26/2021	Total Dissolved Solids	130	mg/L	n/a	Y	Y	3.40

^a n/a = Not applicable: no qualifiers applied.

^b Y = Detected.

^c S1 = Screen 1.

^d S2 = Screen 2.

^e J = Analyte is classified as estimated.

^f SIMR-2 data are reported here in accordance with the memorandum of agreement and protocol agreement between San Ildefonso Pueblo and DOE.

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 2021 Quarter 2 below.

Effects on flow direction from water-supply pumping are small compared with the local effects of extraction and injection at chromium IM wells. Observations of transience in the water levels observed at the monitoring wells within the plume area do 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).

A long-term decline of approximately 0.5 to 1 ft/yr has been observed in the regional water levels 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 2021. General flow direction is indicated by the vector.

To generate this quarterly contour map, average water levels are calculated using values from the middle month of the 3-mo reporting period. Monitoring wells within and surrounding the plume are used, including wells not presented on the map (i.e., 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. Only well screens near the water table are used for contouring.

Regular pumping at wells CrEX-1, CrEX-2, CrEX-3, CrIN-4, and CrIN-5 began on May 23, 2018, and therefore may have started to have a minor influence upon water levels as early as 2018 Quarter 2. During 2018 Quarter 3, an influence was readily recognized as demonstrated by a cone of depression in the area of the extraction wells. In 2018 Quarter 4, the trend continued, with the cone of depression expanding slightly over the previous quarter. The cone of depression continued to expand in northerly and westerly (upstream) directions, possibly in response to pumping at CrEX-2; and in southerly and easterly (downstream) directions, likely because of pumping at CrEX-1. In addition, comparing 2018 Quarter 4 with 2018 Quarter 3, increased water levels were observed to the southwest of the cone of depression, possibly in response to injection at CrIN-4 and CrIN-5. In 2019 Quarter 3, regular injection occurred at CrIN-3, CrIN-4, and CrIN-5, with regular extraction occurring at CrEX-1 and CrEX-2. The water table elevation appeared to respond strongly to extraction activities with a decrease in the center of the cone of depression near CrEX-2 and an extension of the cone further downstream from CrEX-1 as compared with the previous quarter. During 2019 Quarter 4, the cone of depression continued to expand, likely in response to regular pumping at CrEX-1 and CrEX-2 (N3B 2020). The largest injection rates in 2019 Quarter 4 occurred at CrIN-4 and CrIN-5, and an increase in water level at the nearest monitoring well (R-50) was observed. CrEX-5 (which was converted from CrIN-6), CrIN-1, and CrIN-2 began sustained operation in November 2019, and effects on water levels were not yet detectable in 2019 Quarter 4.

In 2020 Quarter 1, injection occurred regularly at CrIN-2, CrIN-4, and CrIN-5. A northward shift in the 5832-ft contour near CrIN-4 and CrIN-5 was evident, as was a westward shift in the 5831-ft contour around the cone of depression west of CrIN-2. The water table also appears to have responded to extraction at CrEX-1, CrEX-2, and CrEX-5. The cone of depression expanded toward CrEX-2, and the 5832-ft contour migrated toward CrEX-5. Consistent injection at CrIN-2, CrIN-4, and CrIN-5 and extraction at CrEX-1, CrEX-2, and CrEX-5 continued until late March 2020, when injection and extraction activities ceased because of the transition to essential mission critical activity (EMCA) status in response to the COVID-19 pandemic. In 2020 Quarter 2, changes in the water-level elevations appeared to be influenced more by seasonal variations than by injection/extraction, with the cone of depression shifting slightly

downgradient toward the east/southeast. In the 2020 Quarter 3 reporting period, water levels declined across the area of the chromium plume, with multiple wells indicating a decline of approximately 1 ft since the previous quarter, likely due in part to seasonal variations and regional drought conditions. Also, pumping recommenced in July 2020 after shutdown in March 2020 due to the EMCA status (DOE 2020). Extraction at CrEX-2 appeared to have a strong impact, with the cone of depression becoming deeper and translating toward CrEX-2. In 2020 Quarter 4, the upstream (western) edge of the central depression appeared less pronounced than in prior periods. The change in the upstream edge of the depression may be a lingering effect of the EMCA shut-off and/or related in particular to the lack of extraction at CrEX-2 and CrEX-4. This interpretation is supported by the observed increase in water level at CrPZ-1, which is close to CrEX-2, and could be expected to exhibit decreased water levels if pumping at CrEX-2 was strongly impacting water levels, as noted in prior quarters.

In 2021 Quarter 1, a slight increase in average water levels was apparent across the site, as compared with 2020 Quarter 4, likely due to seasonal trends in water table elevation. An exception is the decrease in water level recorded at CrPZ-2, which caused the contour for the central depression to expand northward as compared with the previous quarters, and which is likely linked to extraction at CrEX-3 during February 2021.

In the current reporting period of 2021 Quarter 2 (Figure 2.3-1), pumping occurred at all extraction wells with intermittent extraction at CrEX-3 and regular pumping at the other four extraction wells. Injection occurred at all CrIN wells. The apparent response in the water table was a large increase in the area of the central 5830-ft contour relative to the prior quarter, to encompass CrEX-4 and CrEX-2 and approach CrEX-1.

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.

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 (i.e., 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. As additional analysis is performed using historical and developing data sets from existing wells and data from proposed wells, the use of these control points is being reanalyzed, adjusted, or discontinued based on additional supporting data and contouring methods.

2.4 Any Operations/Maintenance Activities Performed (Requirement 4)

Extraction, treatment, and injection operations continued during 2021 Quarter 2. Operations and maintenance activities completed during 2021 Quarter 2 are listed in Table 2.4-1 for the extraction, treatment, and injection system.

**Table 2.4-1
Operations and Maintenance Activity Summary Table – CY 2021 Quarter 2, DP-1835**

Maintenance Date	Elements Impacted	Operation/Maintenance Description
4/1/21	CTUC	IX vessel exchanges were completed as follows because of an increase in the amount of hexavalent chromium at the primary IX vessel effluent as determined via Hach instrument analysis: <ul style="list-style-type: none"> • Treatment train A – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train B – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. Both influent and both effluent filter bags replaced.
4/1/21 through 4/21/21	CrEX-1, CrEX-2, CrEX-3, CrEX-4, CrEX-5, CTUA, CTUC, CrIN-1, CrIN-2, CrIN-3, CrIN-4, CrIN-5	Extraction, treatment, and injection of treated groundwater occurred per operational plan. CrIN-3 turned off 4/17/21 through 4/20/21. CrEX-3 turned off 4/17/21 through 4/26/21.
4/21/21	CTUA	IX vessel exchanges were completed as follows because of an increase in the amount of hexavalent chromium at the primary IX vessel effluent as determined via Hach instrument analysis: <ul style="list-style-type: none"> • Treatment train A – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train B – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train C – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. Both influent and all three effluent filter bags replaced.
4/21/21 through 4/28/21	CrEX-1, CrEX-2, CrEX-3, CrEX-4, CrEX-5, CTUA, CTUC, CrIN-1, CrIN-2, CrIN-3, CrIN-4, CrIN-5	Extraction, treatment, and injection of treated groundwater occurred per operational plan. CrEX-3 turned on 4/27/21.
4/28/21	CTUC	IX vessel exchanges were completed as follows because of an increase in the amount of hexavalent chromium at the primary IX vessel effluent as determined via Hach instrument analysis: <ul style="list-style-type: none"> • Treatment train A – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train B – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. Both influent and both effluent filter bags replaced.
4/28/21 through 5/24/21	CrEX-1, CrEX-2, CrEX-3, CrEX-4, CrEX-5, CTUA, CTUC, CrIN-1, CrIN-2, CrIN-3, CrIN-4, CrIN-5	Extraction, treatment, and injection of treated groundwater occurred per operational plan. CrEX-3 turned off 5/13/21 through 5/17/21.
5/24/21	CTUA	IX vessel exchanges were completed as follows because of an increase in the amount of hexavalent chromium at the primary IX vessel effluent as determined via Hach instrument analysis: <ul style="list-style-type: none"> • Treatment train A – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train B – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train C – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. Both influent and all three effluent filter bags replaced.

Table 2.4-1 (continued)

Maintenance Date	Elements Impacted	Operation/Maintenance Description
5/24/21 through 5/27/21	CrEX-1, CrEX-2, CrEX-3, CrEX-4, CrEX-5, CTUA, CTUC, CrIN-1, CrIN-2, CrIN-3, CrIN-4, CrIN-5	Extraction, treatment, and injection of treated groundwater occurred per operational plan.
5/27/21	CTUC	IX vessel exchanges were completed as follows because of an increase in the amount of hexavalent chromium at the primary IX vessel effluent as determined via Hach instrument analysis: <ul style="list-style-type: none"> • Treatment train A – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train B – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. Both influent and both effluent filter bags replaced.
5/27/21 through 6/23/21	CrEX-1, CrEX-2, CrEX-3, CrEX-4, CrEX-5, CTUA, CTUC, CrIN-1, CrIN-2, CrIN-3, CrIN-4, CrIN-5	Extraction, treatment, and injection of treated groundwater occurred per operational plan. CrEX-3 turned off 6/19/21 through 6/28/21.
6/23/21	CTUA	IX vessel exchanges were completed as follows because of an increase in the amount of hexavalent chromium at the primary IX vessel effluent as determined via Hach instrument analysis: <ul style="list-style-type: none"> • Treatment train A – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train B – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train C – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. Both influent and all three effluent filter bags replaced.
6/23/21 through 6/28/21	CrEX-1, CrEX-2, CrEX-3, CrEX-4, CrEX-5, CTUA, CTUC, CrIN-1, CrIN-2, CrIN-3, CrIN-4, CrIN-5	Extraction, treatment, and injection of treated groundwater occurred per operational plan.
6/28/21	CTUC	IX vessel exchanges were completed as follows because of an increase in the amount of hexavalent chromium at the primary IX vessel effluent as determined via Hach instrument analysis: <ul style="list-style-type: none"> • Treatment train A – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. • Treatment train B – replaced primary IX vessel with the secondary IX vessel; new secondary IX vessel installed. Both influent and both effluent filter bags replaced.
6/28/21 through 6/30/21	CrEX-1, CrEX-2, CrEX-3, CrEX-4, CrEX-5, CTUA, CTUC, CrIN-1, CrIN-2, CrIN-3, CrIN-4, CrIN-5	Extraction, treatment, and injection of treated groundwater occurred per operational plan. CrEX-3 turned on 6/29/21.

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

Periodic testing of mechanical integrity was not conducted or reported to NMED during 2021 Quarter 2. Mechanical integrity testing was performed and reported to NMED during the 2019 Quarter 2 reporting period. In accordance with Condition No. 3, mechanical integrity testing will occur at least once every five

years 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)

New primary and secondary IX vessels were installed at various times for treatment unit CTUA (all three treatment trains) and at CTUC (both treatment trains) during the reporting period, as cited in section 2.4.

2.7 Any Well Workovers Conducted (Requirement 7)

No well workovers were conducted during 2021 Quarter 2.

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 continued. In accordance with NMED's conditional approval of these studies, analytical results from iron, manganese, and arsenic testing of the treated water from the extraction wells during the study are being provided in the quarterly monitoring reports under DP-1835. These results for 2021 Quarter 2 are provided in Table 2.2-2.

No results for arsenic, iron, or manganese exceeded 90% of the numeric standards of 20.6.2.3103 NMAC or 90% of the numeric standards established for tap water in Table A-1 for constituents not listed in 20.6.2.3103 NMAC. The 90% values for arsenic, iron, and manganese are 9 µg/L, 900 µg/L, and 180 µg/L, respectively.

Other than the activities cited in section 2.4, no additional operational changes occurred during the reporting period.

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 2021 Quarter 2.

**Table 2.9-1
Flows and Volumes of Treated Effluent Injected – CY 2021 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 2021							
CrIN-1	62.7	67.7	56.1	90,274	97,516	80,769	2,708,216
CrIN-2	62.6	73.1	39.1	90,198	105,314	56,284	2,705,933
CrIN-3	30.6	36.5	19.9	44,064	52,556	28,717	1,145,666
CrIN-4	60.5	64.2	50.7	87,189	92,397	72,975	2,615,658
CrIN-5	60.7	64.9	55.3	87,347	93,494	79,637	2,620,414

Table 2.9-1(continued)

Injection Well	Flow rate (gpm ^a)			Daily Volume (gal.)			Total Volume (gal.)
	Average ^b	Maximum	Minimum ^c	Average	Maximum	Minimum	
May 2021							
CrIN-1	63.2	66.4	57.0	91,019	95,663	82,076	2,821,600
CrIN-2	63.5	70.2	36.0	91,399	101,098	51,838	2,833,369
CrIN-3	31.2	34.9	22.6	44,902	50,246	32,615	1,391,952
CrIN-4	55.7	57.4	48.3	80,223	82,603	69,543	2,486,912
CrIN-5	57.3	60.4	50.6	82,554	86,959	72,840	2,559,166
June 2021							
CrIN-1	62.1	73.2	52.7	89,459	105,425	75,948	2,683,772
CrIN-2	64.2	71.0	57.2	92,417	102,290	82,357	2,772,513
CrIN-3	29.4	37.6	20.9	42,359	54,111	30,066	1,270,759
CrIN-4	54.2	57.0	48.4	78,082	82,100	69,757	2,342,452
CrIN-5	55.9	59.9	47.4	80,536	86,205	68,265	2,416,090

^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.

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. As previously identified, injection occurred at UIC wells CrIN-1, CrIN-2, CrIN-3, CrIN-4, and CrIN-5 during 2021 Quarter 2.

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 2.11-1
Water-Level Values Above Static Level by UIC Well – CY 2021 Quarter 2, DP-1835**

UIC Well	April 2021			May 2021			June 2021		
	Average* (ft)	Maximum (ft)	Minimum (ft)	Average (ft)	Maximum (ft)	Minimum (ft)	Average (ft)	Maximum (ft)	Minimum (ft)
CrIN-1	18.4	21.9	13.9	19.0	21.7	15.4	18.3	23.0	13.6
CrIN-2	7.5	9.7	2.0	8.7	11.4	5.6	8.8	11.3	3.6
CrIN-3	10.7	18.0	0.1	13.6	21.0	0.0	11.4	17.4	1.5
CrIN-4	8.0	9.4	6.1	8.1	8.9	2.8	8.0	9.3	6.4
CrIN-5	15.8	17.7	3.1	15.8	17.6	0.5	15.8	17.9	3.4

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

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

Daily volumes of groundwater injected (following treatment) during 2021 Quarter 2 are presented in Table 2.12-1.

**Table 2.12-1
Daily Injection Summary Table – CY 2021 Quarter 2, DP-1835**

Date	CrIN-1 (gal.)	CrIN-2 (gal.)	CrIN-3 (gal.)	CrIN-4 (gal.)	CrIN-5 (gal.)	Total (gal.)
4/1/2021	90,692	93,463	45,310	88,142	87,186	404,794
4/2/2021	94,399	97,929	45,876	88,126	87,492	413,822
4/3/2021	94,210	102,719	46,532	87,425	87,344	418,230
4/4/2021	94,031	105,314	46,465	86,947	87,302	420,060
4/5/2021	96,675	99,387	47,162	87,583	87,970	418,777
4/6/2021	97,516	99,038	46,182	86,113	85,638	414,487
4/7/2021	97,079	99,106	46,328	86,953	85,951	415,417
4/8/2021	90,890	95,504	46,057	88,522	86,302	407,274
4/9/2021	88,657	90,510	41,471	87,602	86,762	395,003
4/10/2021	87,821	87,621	46,216	88,992	86,517	397,166
4/11/2021	90,948	87,747	52,556	90,066	86,456	407,773
4/12/2021	86,176	88,578	47,355	88,460	86,479	397,049
4/13/2021	84,946	89,244	47,659	87,408	86,500	395,758
4/14/2021	84,959	88,361	46,078	86,791	87,421	393,609
4/15/2021	88,467	87,084	50,301	86,180	87,659	399,692
4/16/2021	91,608	88,856	31,638	88,371	89,720	390,192
4/17/2021	96,018	97,895	0	91,793	93,396	379,102
4/18/2021	94,400	99,255	0	91,949	93,494	379,099
4/19/2021	96,929	98,341	0	91,659	92,047	378,976
4/20/2021	92,522	98,842	0	92,397	92,481	376,242
4/21/2021	92,350	87,463	28,717	88,751	88,826	386,107
4/22/2021	85,260	86,708	37,127	82,651	87,100	378,845
4/23/2021	83,339	87,541	37,984	88,041	88,703	385,608
4/24/2021	86,440	83,084	40,459	88,951	84,056	382,991
4/25/2021	89,190	85,871	42,751	72,975	79,637	370,424
4/26/2021	88,451	56,284	42,436	79,718	87,556	354,445
4/27/2021	89,786	57,931	47,772	87,863	83,596	366,948
4/28/2021	83,865	89,147	43,738	86,677	83,630	387,057
4/29/2021	80,769	89,189	44,661	84,748	86,715	386,081
4/30/2021	89,821	87,921	46,835	83,801	86,478	394,857
5/1/2021	89,146	91,103	44,851	81,731	85,855	392,686
5/2/2021	90,521	51,838	44,620	82,298	86,368	355,646

Table 2.12-1 (continued)

Date	CrIN-1 (gal.)	CrIN-2 (gal.)	CrIN-3 (gal.)	CrIN-4 (gal.)	CrIN-5 (gal.)	Total (gal.)
5/3/2021	91,199	59,068	44,623	82,237	86,959	364,085
5/4/2021	93,750	94,164	44,654	81,625	82,514	396,707
5/5/2021	93,629	97,332	44,658	81,890	80,459	397,968
5/6/2021	92,335	88,698	32,615	82,603	82,075	378,327
5/7/2021	91,733	95,601	46,978	79,721	84,289	398,322
5/8/2021	89,746	98,498	44,764	81,490	81,565	396,064
5/9/2021	92,382	96,976	44,577	80,689	83,947	398,570
5/10/2021	91,951	89,536	46,776	80,662	84,743	393,669
5/11/2021	88,615	90,567	44,724	81,289	85,460	390,655
5/12/2021	92,802	91,650	45,154	80,465	84,941	395,012
5/13/2021	88,843	89,254	45,940	81,585	83,233	388,857
5/14/2021	88,174	89,389	46,030	82,052	82,418	388,062
5/15/2021	90,713	91,906	45,667	81,990	82,081	392,357
5/16/2021	90,773	91,352	50,246	81,048	81,961	395,380
5/17/2021	89,411	88,649	46,957	81,936	82,798	389,751
5/18/2021	93,040	94,562	43,218	81,214	82,650	394,683
5/19/2021	94,350	98,383	45,806	80,574	81,966	401,079
5/20/2021	87,509	99,278	46,161	80,707	82,156	395,812
5/21/2021	91,098	91,706	48,697	75,733	78,128	385,362
5/22/2021	95,663	91,815	50,120	76,344	80,329	394,271
5/23/2021	91,313	92,930	46,708	78,361	80,653	389,964
5/24/2021	82,076	85,794	41,772	69,543	72,840	352,026
5/25/2021	94,934	100,494	43,536	79,138	83,327	401,429
5/26/2021	95,054	101,098	43,170	80,946	85,026	405,294
5/27/2021	95,026	97,015	43,194	81,208	85,798	402,242
5/28/2021	90,951	93,983	35,800	79,815	82,429	382,977
5/29/2021	86,412	90,808	44,516	78,181	78,254	378,172
5/30/2021	91,110	100,317	47,878	80,062	81,475	400,841
5/31/2021	87,339	99,602	47,544	79,772	82,471	396,729
6/1/2021	89,060	99,051	47,630	80,185	85,026	400,952
6/2/2021	92,208	92,879	46,226	80,622	85,474	397,410
6/3/2021	91,306	88,718	47,571	77,676	79,687	384,959
6/4/2021	92,735	94,483	45,000	77,675	77,875	387,768
6/5/2021	93,075	95,387	43,679	78,365	81,895	392,400
6/6/2021	95,248	95,062	42,628	80,086	81,477	394,501
6/7/2021	103,407	102,290	47,197	79,891	82,635	415,421
6/8/2021	105,425	102,158	47,515	79,472	81,720	416,291
6/9/2021	99,172	101,783	48,940	79,236	81,566	410,697

Table 2.12-1 (continued)

Date	CrIN-1 (gal.)	CrIN-2 (gal.)	CrIN-3 (gal.)	CrIN-4 (gal.)	CrIN-5 (gal.)	Total (gal.)
6/10/2021	100,582	100,920	45,953	79,958	81,867	409,280
6/11/2021	95,234	95,053	41,795	81,434	81,853	395,371
6/12/2021	92,113	92,157	43,493	80,561	78,532	386,857
6/13/2021	92,187	93,127	52,803	79,572	82,585	400,274
6/14/2021	92,105	93,407	54,111	80,600	80,783	401,006
6/15/2021	92,126	96,422	43,376	80,627	80,517	393,068
6/16/2021	88,346	94,029	46,278	81,186	80,265	390,104
6/17/2021	88,512	91,088	47,535	82,100	82,468	391,703
6/18/2021	84,787	87,490	47,182	79,274	81,175	379,907
6/19/2021	80,717	84,025	40,494	76,656	85,396	367,288
6/20/2021	86,273	88,129	32,507	76,309	86,205	369,423
6/21/2021	89,294	93,350	30,066	76,555	85,498	374,763
6/22/2021	89,249	95,556	30,233	76,285	84,925	376,248
6/23/2021	82,450	85,653	30,204	71,895	77,117	347,318
6/24/2021	79,039	82,357	32,058	72,806	73,199	339,459
6/25/2021	78,386	87,845	33,128	75,329	77,633	352,322
6/26/2021	75,948	87,448	35,918	76,019	79,880	355,213
6/27/2021	79,644	85,848	35,031	74,001	75,006	349,529
6/28/2021	82,833	89,562	39,229	69,757	68,265	349,646
6/29/2021	86,985	88,489	50,235	79,773	74,976	380,458
6/30/2021	85,327	88,746	42,745	78,545	80,591	375,954
Total 35,374,954						

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

Daily volumes of groundwater pumped from extraction wells during 2021 Quarter 2 are presented in Table 2.13-1.

Table 2.13-1
Daily Extraction Summary Table – CY 2021 Quarter 2, DP-1835

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
4/1/2021	94,631	84,925	43,987	75,194	104,786	403,523
4/2/2021	101,557	89,919	44,673	77,810	100,006	413,964
4/3/2021	102,143	89,556	44,654	77,541	99,571	413,466
4/4/2021	102,300	90,285	44,092	77,724	99,553	413,954
4/5/2021	100,515	89,244	52,059	75,951	98,974	416,743
4/6/2021	97,378	87,445	57,918	73,133	97,135	413,009
4/7/2021	97,054	86,352	57,200	72,735	98,182	411,523

Table 2.13-1 (continued)

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
4/8/2021	101,322	88,128	63,881	74,522	98,764	426,617
4/9/2021	103,391	91,194	29,513	78,274	100,874	403,246
4/10/2021	102,676	90,693	44,252	75,309	98,284	411,215
4/11/2021	104,688	90,939	46,085	66,246	92,161	400,120
4/12/2021	103,786	90,856	45,600	66,117	91,960	398,320
4/13/2021	101,280	90,166	42,307	67,294	90,288	391,334
4/14/2021	88,178	91,360	40,198	71,070	96,078	386,884
4/15/2021	89,741	89,906	38,632	72,523	99,138	389,941
4/16/2021	98,708	84,884	24,893	77,037	100,815	386,336
4/17/2021	105,937	84,829	0	87,841	107,443	386,049
4/18/2021	109,764	86,269	0	87,706	101,184	384,923
4/19/2021	100,528	89,491	0	85,365	102,780	378,164
4/20/2021	102,725	92,410	0	84,537	100,684	380,355
4/21/2021	102,875	86,817	0	84,115	101,743	375,550
4/22/2021	109,316	93,197	0	86,953	69,619	359,085
4/23/2021	99,991	92,187	0	86,077	110,258	388,513
4/24/2021	108,121	61,587	0	89,723	113,158	372,589
4/25/2021	103,183	74,915	0	89,006	112,599	379,704
4/26/2021	103,897	92,420	0	53,544	111,775	361,637
4/27/2021	100,090	93,379	21,089	42,979	103,862	361,398
4/28/2021	97,547	88,768	42,775	54,160	96,654	379,903
4/29/2021	99,278	93,333	41,240	60,302	98,044	392,197
4/30/2021	98,512	92,836	40,812	62,690	97,711	392,562
5/1/2021	97,804	92,523	40,667	62,924	97,815	391,733
5/2/2021	101,404	93,102	22,820	34,204	103,323	354,853
5/3/2021	101,268	91,629	25,393	40,175	103,222	361,688
5/4/2021	97,840	90,504	40,777	67,984	93,377	390,483
5/5/2021	97,978	92,833	41,186	67,654	96,223	395,875
5/6/2021	102,431	81,281	45,416	78,764	65,766	373,658
5/7/2021	97,042	91,434	44,639	71,774	98,373	403,262
5/8/2021	93,421	90,782	43,067	70,210	99,808	397,288
5/9/2021	90,819	90,400	41,202	68,465	98,647	389,533
5/10/2021	92,096	87,874	40,491	74,505	93,845	388,812
5/11/2021	94,280	91,675	42,214	77,955	91,483	397,607
5/12/2021	98,895	90,653	18,453	81,831	95,419	385,251
5/13/2021	104,635	92,224	0	90,697	101,903	389,459
5/14/2021	104,817	92,123	0	90,837	101,929	389,705
5/15/2021	105,070	92,078	0	91,809	101,985	390,941

Table 2.13-1 (continued)

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
5/16/2021	105,114	92,071	0	91,264	101,915	390,365
5/17/2021	101,161	91,971	5,116	91,291	101,978	391,517
5/18/2021	91,685	92,438	28,507	83,949	98,653	395,233
5/19/2021	86,948	92,279	45,117	78,986	96,513	399,843
5/20/2021	86,907	88,966	44,844	76,797	93,796	391,311
5/21/2021	85,373	85,041	41,138	74,004	90,888	376,443
5/22/2021	90,449	90,071	40,720	73,770	94,165	389,174
5/23/2021	88,097	88,610	38,445	74,649	98,153	387,955
5/24/2021	81,817	78,380	27,999	73,409	88,325	349,931
5/25/2021	98,965	89,815	28,256	86,969	99,250	403,255
5/26/2021	99,194	89,147	27,346	86,428	99,079	401,194
5/27/2021	90,482	82,098	34,368	85,552	98,049	390,550
5/28/2021	92,704	87,289	34,928	78,832	95,875	389,627
5/29/2021	92,324	88,140	32,510	77,398	91,684	382,055
5/30/2021	92,463	91,111	29,652	81,828	103,122	398,176
5/31/2021	89,887	90,083	28,363	81,737	108,053	398,123
6/1/2021	89,638	88,975	26,216	81,143	106,995	392,967
6/2/2021	94,137	86,785	21,557	83,970	105,481	391,930
6/3/2021	94,595	86,774	23,449	80,307	99,635	384,760
6/4/2021	95,539	88,286	28,242	78,251	97,029	387,347
6/5/2021	96,825	86,988	29,330	80,733	95,895	389,771
6/6/2021	98,500	88,791	22,447	84,901	99,654	394,293
6/7/2021	101,233	88,812	26,632	88,574	108,205	413,456
6/8/2021	102,248	87,359	30,087	90,378	110,440	420,513
6/9/2021	99,207	88,001	29,973	87,766	105,349	410,296
6/10/2021	99,938	86,494	28,261	89,044	104,775	408,511
6/11/2021	96,376	75,223	25,994	85,353	97,879	380,826
6/12/2021	95,858	88,739	31,483	79,509	92,964	388,553
6/13/2021	91,164	86,974	31,158	84,059	102,773	396,128
6/14/2021	90,001	85,566	31,232	86,806	105,315	398,919
6/15/2021	94,252	85,027	29,297	82,704	100,194	391,474
6/16/2021	95,850	85,677	31,901	81,171	96,551	391,150
6/17/2021	95,942	85,403	31,623	80,583	93,998	387,549
6/18/2021	98,008	85,702	14,339	81,238	97,285	376,571
6/19/2021	96,165	87,717	0	84,407	98,230	366,518
6/20/2021	95,189	88,414	0	85,507	100,144	369,255
6/21/2021	95,054	89,028	0	85,871	102,249	372,201
6/22/2021	96,210	89,192	0	86,416	99,687	371,505

Table 2.13-1 (continued)

Date	CrEX-1 (gal.)	CrEX-2 (gal.)	CrEX-3 (gal.)	CrEX-4 (gal.)	CrEX-5 (gal.)	Total (gal.)
6/23/2021	85,698	80,764	0	80,714	89,087	336,264
6/24/2021	91,886	88,491	0	78,748	85,606	344,731
6/25/2021	93,832	89,413	0	78,241	87,045	348,531
6/26/2021	98,840	88,803	0	77,351	85,916	350,911
6/27/2021	92,896	90,047	0	64,508	99,066	346,517
6/28/2021	73,849	75,859	0	84,468	103,574	337,750
6/29/2021	88,672	90,638	14,664	83,390	105,711	383,075
6/30/2021	98,718	91,509	8,113	81,838	100,039	380,216
Total 35,220,210						

2.14 Facility Layout Map (Requirement 14)

Figure 2.14-1 is the facility layout map for 2021 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 and section 2.3 provides an explanation of how this map was generated.

3.0 REFERENCES

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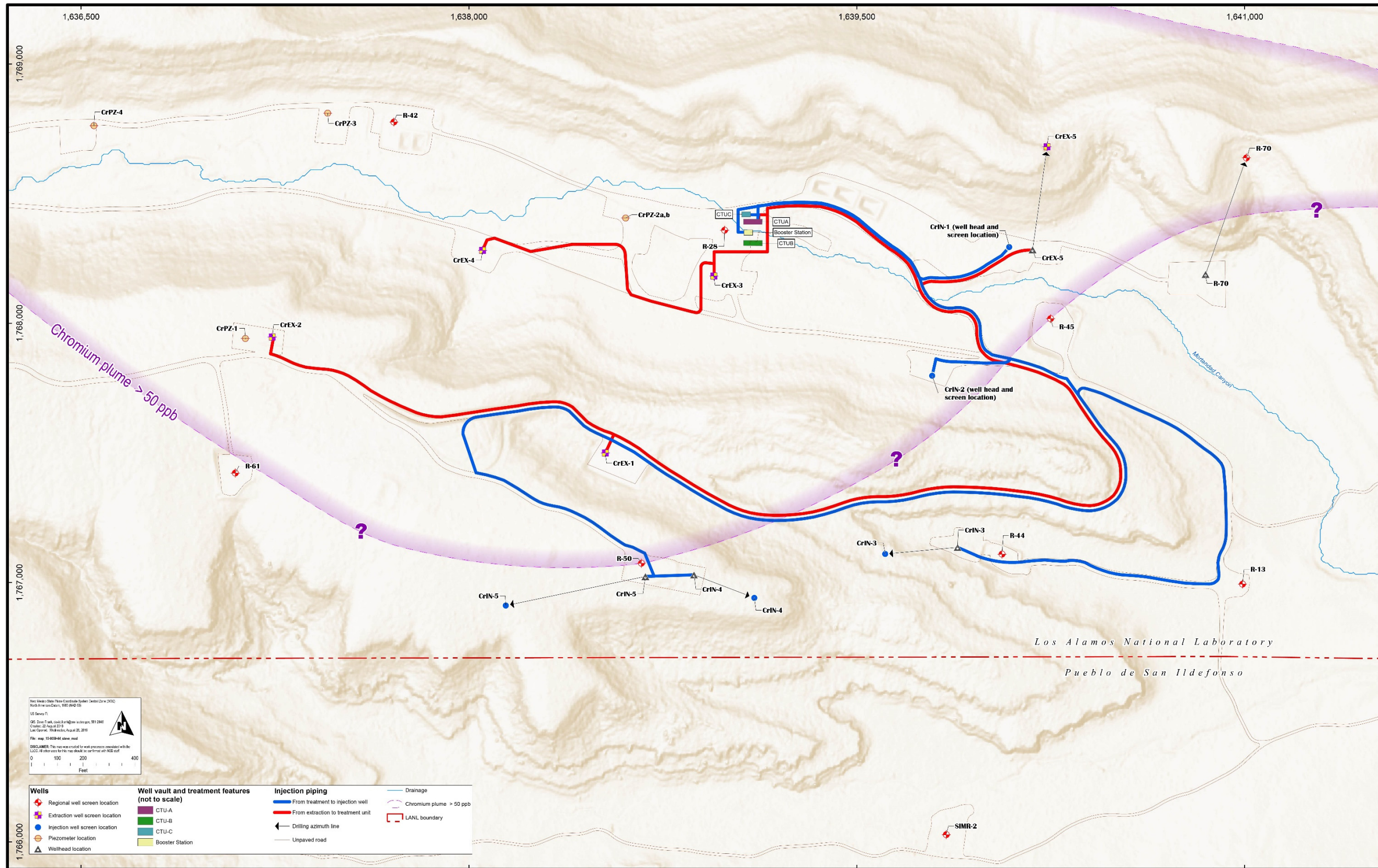


Figure 2.14-1 Facility layout map – CY 2021 Quarter 2, DP-1835

