EMID-702088

DEPARTMENT OF ENERGY

Environmental Management Los Alamos Field Office (EM-LA)
Los Alamos, New Mexico 87544

EMLA-2022-BF099-02-001

May 31, 2022

Mr. Rick Shean
Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

Subject: Submittal of the Quarterly Status Report for Westbay Well R-25 Plugging and Abandonment Activities, February 16, 2022–May 11, 2022

Dear Mr. Shean:

Enclosed please find two hard copies with electronic files of the "Quarterly Status Report for Westbay Well R-25 Plugging and Abandonment Activities, February 16, 2022–May 11, 2022." This report is the ninth of a series of quarterly reports fulfilling the reporting requirement specified by the New Mexico Environment Department Hazardous Waste Bureau in correspondence dated March 18, 2020, "Approval of Request for Extension of Fiscal Year 2020 Appendix B Milestone #6, Westbay Well Plugging and Abandonment Completion Report for R-25, Los Alamos National Laboratory."

If you have any 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,

ARTURO DURAN

Digitally signed by ARTURO DURAN
Date: 2022.05.23 13:16:00 -06'00'

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

Enclosure(s):

1. Two hard copies with electronic files – Quarterly Status Report for Westbay Well R-25 Plugging and Abandonment Activities, February 16, 2022–May 11, 2022 (EM2022-0338)

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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May 2022
EM2022-0338

Quarterly Status Report for Westbay Well R-25 Plugging and Abandonment Activities, February 16, 2022–May 11, 2022

N3B Los Alamos

EM2022-0338

Quarterly Status Report for Westbay Well R-25 Plugging and Abandonment Activities, February 16, 2022–May 11, 2022

May 2022

Responsible program director:

Printed Name	Signature	Title	Organization	Date
Steve Veenis	Steve Veenis	Program Director	Water Program	5/20/22

Responsible N3B representative:

Printed Name	Signature	Title	Organization	Date
Troy Thomson	Troy Thomson	Program Manager	N3B Environmental Remediation Program	5/19/22

Responsible DOE EM-LA representative:

Printed Name	Signature	Title	Organization	Date
Arturo Q. Duran	ARTURO DURAN Digitally signed by ARTURO DURAN Date: 2022.05.23 13:16:28 -06'00'	Compliance and Permitting Manager	Office of Quality and Regulatory Compliance	

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Appendix

1.0 PURPOSE

This is the ninth quarterly status report on plugging and abandonment activities for Westbay Well R-25. The report fulfills the quarterly reporting requirement specified by the New Mexico Environment Department (NMED) Hazardous Waste Bureau in correspondence dated March 18, 2020, "Approval, Request for Extension of Fiscal Year 2020 Appendix B Milestone #6, Westbay Well Plugging and Abandonment Completion Report for R-25, Los Alamos National Laboratory" (NMED 2020, 700808), and the "Revised Plugging Plan of Operations for RG-98113 (R-25)" approved by the New Mexico Office of the State Engineer (NMOSE) with amendments (N3B 2020, 700936; NMOSE 2020, 700937).

This report covers the period from February 16, 2022, through May 11, 2022, the ninth quarter since the extension for R-25 plugging and abandonment activities was requested by the U.S. Department of Energy Environmental Management Los Alamos Field Office (EM-LA) on February 24, 2020 (DOE 2020, 700774). It summarizes activities related to Westbay System removal from well R-25, reviews planned activities for the next quarter, and provides expectations for project completion.

2.0 OVERVIEW

EM-LA and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) are in the process of plugging and abandoning R-25. Requirements for work at well R-25 were set forth in the "Work Plan to Plug and Abandon Well R-25" (LANL 2012, 232352), NMED's approval with direction received January 11, 2013 (NMED 2013, 521801), and guidance provided in the 2016 Compliance Order on Consent (Consent Order) Appendix F, Sampling/Analytical/Field Method Regulatory Guidance, Section II.D, Well Abandonment. NMOSE originally approved the "Plugging Plan of Operations for RG-98113 (R-25)" in correspondence to Los Alamos National Laboratory (LANL or the Laboratory) dated July 15, 2019 (NMOSE 2019, 700876).

Monitoring well R-25, located in Technical Area 16 on the mesa top above Cañon de Valle in the southwestern portion of the Laboratory, was the third well installed as part of the implementation of the "Hydrogeologic Workplan" (LANL 1998, 059599). Well R-25 was primarily designed to provide water-quality, geochemical, hydrologic, and geologic information that would contribute to the understanding of the hydrogeologic setting beneath the Laboratory. Drilling, well installation, and site restoration operations occurred from July 1998 through May 2001. The location of well R-25 is depicted in Figures 2.0-1 and 2.0-2.

The R-25 borehole was drilled to a depth of 1942 ft below ground surface (bgs) using air-rotary drilling methods. Well R-25 was constructed with nine screened intervals; however, two of the screens, screens 3 and 9, were damaged during well-installation activities. Screens 3 and 9 were restored to partial usefulness, and all well screen intervals were developed prior to installation of a Westbay multiport sampling system. Because of groundwater sample quality concerns, NMED directed in 2012 that well R-25 be removed from service from the LANL monitoring network and plugged and abandoned. A plugging and abandonment plan was submitted on December 13, 2012 (LANL 2012, 232352), and NMED approved the plan with modifications on January 11, 2013 (NMED 2013, 521801).

The original scope of the R-25 plugging and abandonment project included extraction of the 1834-ft, 9-port Westbay sampling system from the R-25 well casing using a hoist rig; perforation of select intervals of well casing; and plugging of the well. Work completed through February 2020 consisted of the removal of approximately 1155 ft of the Westbay system to above packer 11 (of 26 packers total on the Westbay system) using a hoist rig. During retrieval or "fishing" operations to remove the Westbay system, a portion of the steel pipe fishing string (BQ pipe) became lodged adjacent to and at the top of the remaining Westbay casing and debris. Conventional operations were unable to retrieve the remainder of the

components in the well. Depth of the top of the Westbay fish (remaining Westbay system and BQ pipe) was approximately 1088 ft bgs, with approximately 681 ft of the Westbay system remaining in the well.

The R-25 well site was placed in safe configuration for Mexican spotted owl restrictions starting March 1, 2020. The hoist rig and related equipment were demobilized from the site. Spotted owl restrictions were lifted on March 10, 2020, for the R-25 project after Triad National Security, LLC, biologists reevaluated the well maintenance biological assessment (Hathcock et al. 2017, 700877) and determined that the R-25 work would not interfere with spotted owl activities.

On March 23, 2020, N3B and EM-LA transitioned to essential mission critical activities (EMCA) status as a prudent measure in response to the situation involving the COVID-19 pandemic in New Mexico. Under the EMCA status, the only Consent Order activity that remained operational was the maintenance of groundwater monitoring well packer systems. The R-25 location was placed in safe configuration and field activities remained suspended during EMCA status.

Following the transition to EMCA status, the R-25 Integrated Project Team (IPT) was created to plan, coordinate, and execute project activities. This team has continued to meet regularly to delegate and execute project work, discuss progress, and work through planning and project preparedness issues. Under the EMCA status, the IPT staff were actively working on the R-25 project through telecommuting. Several important R-25 project-related communications via correspondence were generated during the first quarter of the EMCA status. These communications included the following:

- In a letter dated March 17, 2020, EM-LA had provided information to NMED regarding the methods for the removal of pipe and Westbay components in R-25 and a listing of potential drilling fluid additives that might be required to complete the work (DOE 2020, 700806). NMED approved the use of a variety of drilling fluids to assist with the recovery of the Westbay system from R-25 in the letter titled “Approval, Drilling Fluid Additive Use Options for Well R-25, Westbay Sampling System Removal,” dated April 7, 2020 (NMED 2020, 700840). Per the approval letter, upon resumption of the field program, details describing the use of drilling fluids and transducer pressure responses recorded at nearby wells R-25b, CdV-16-4ip, and CdV-16-1i would be reported in the monthly project status updates and quarterly reports.
- The “Revised Plugging Plan of Operations for RG-98113 (R-25)” was approved by NMOSE with amendments in a letter dated June 19, 2020 (N3B 2020, 700936; NMOSE 2020, 700937).

Following the lifting of EMCA status, and the finalization of planning for the continued fishing operations to extract the remaining 681 ft of Westbay system remaining in R-25, a rotary drilling rig was mobilized to site in November 2020. Milling operations began on November 19 after reprogramming of pressure transducers in nearby wells R-25b, CdV-16-4ip, and CdV-16-1i to record pressure data at 5-min intervals. An estimated 150.5 ft of Westbay sampling system and extraneous metal debris (dropped wrench, grapple dies, dropped BQ pipe) was removed by rotary milling during November 19–December 7, 2020, using air/foam circulation, with an additional downward push of 51 ft of the system recorded, leaving the top of the fish at 1291.5 ft bgs. On December 7, 2020, a partial collapse of the compromised screen 3 interval was discovered. Video evidence confirmed that the collapsed and unstable zone from 1054 ft to 1071 ft bgs presented significant hazards to continued milling operations, with formation material and screen fragments lodged in screen 4.

The rotary rig was demobilized from December 10 through December 16, 2020, because of the timeframe anticipated for discussions of potential paths forward, the upcoming holiday break, and limitations posed by the rig. After investigating available options, the project team decided to use a hydraulic workover rig (HWU) to install an expandable steel casing patch liner in the screen 3 zone and continue milling/fishing operations. Mobilization of the HWU and ancillary equipment to R-25 was completed on

February 7, 2021, followed by caliper and video logging of the damaged zone during February 7–February 9, 2021, in preparation for the casing patch installation.

After programming the nearby wells R-25b, CdV-16-4ip, and CdV-16-1i to record pressure data in 5-min intervals, the 40-ft-long, 4.25-in. inside-diameter (ID) casing patch liner was successfully installed from 1044 ft to 1084 ft bgs on March 2, 2021. Milling operations with a 4.25-in. concave mill began on March 3, 2021, at a depth of 1293 ft bgs, and progressed to 1305.4 ft bgs on March 7, 2021, just below screen 5, when the work string became stuck while being pulled upwards. After 2 days of working the stuck tool string with rotation, air/foam circulation, and up to 90,000 lb of rig over-pull (rig pull in excess of the tool string weight), the field team was successful in freeing the stuck tools and removing them from the well.

A subsequent camera survey revealed that a 69-ft section of well casing had parted at a coupling and had been raised and forced into the section of casing above. The top of the lifted section was lodged at 1155 ft bgs and the base at 1224 ft bgs, with exposed Puye Formation sediments from 1224 ft bgs to 1252 ft bgs and formation slough below. This situation made any further Westbay extraction operation impossible.

A 4.25-in. string mill was run through the lifted casing section to smooth the torn and ragged edges, to ensure later passage of a knife perforator in this zone during the anticipated plugging and abandonment operations. A retrievable packer below screen 2 was then installed to prevent the downward movement and commingling of contaminated groundwater. Discussion began with the NMED Hazardous Waste Bureau regarding a revised plugging and abandonment plan consistent with current well conditions, as well as communication of well status to NMOSE. Demobilization of the hydraulic workover rig began on March 19, 2021, and was completed on March 25, 2021. The well site was secured and no further activities have taken place at the site. IPT meetings were discontinued in March, 2021 pending decisions on forward progress.

In April 2021, N3B proposed to NMOSE a revision to the plugging and abandonment plan (Gaddy 2021, 701382). On February 7, 2022, NMOSE provided direction on plugging and abandonment in a letter titled “Re: Request for Amendment to Approved [Amended] Well Plugging Plan of Operation Conditions of Approval for RG-98113” (NMOSE 2022, 701871). A follow-up meeting was held on February 8, 2022, with representatives of NMOSE, NMED, EM-LA, and N3B to discuss the details of the amended and approved plugging plan of operations.

2.1 Fluids Injected and Fluids Circulated to Surface

No circulation has been conducted since the retrievable packer was installed in March 2021. The following are totals of fluids injected and circulated from November 2020 through March 2021.

- 345 gal. of AQF-2 foaming agent injected
- 84,000 gal. of potable water injected and pumped (includes water introduced during milling, video logging, and casing patch expansion)
- 59,000 gal. of water (injected and formation), foaming agent, suspended fine Westbay solid material, and suspended formation fines circulated to surface and collected as waste

Approximately 30,000 gal. of this liquid waste has been shipped off-site for disposal in this quarter, with the remaining 29,000 gal. to be shipped when weather and wildland fire conditions permit.

2.2 Solid Waste Generated

Solid waste generated from November 2020 through March 2021 totaled

- eight 55-gal. drums of Westbay solid and formation debris and
- three 5-gal. pails of oil-stained base course material (hydraulic fluid).

All solid waste was disposed of during the sixth quarterly reporting period. No additional solid waste has been generated during this reporting period.

2.3 Pressure Response in Nearby Wells

Pressure data for wells R-25b, CdV-161i, and CdV-16-4ip, and air/foam circulation dates and times during milling operations, are presented in Appendix A.

Cross-hole aquifer tests performed in 2016 indicated that hydraulic communication between water bearing zones in the upper Puye Formation in CdV-16-1i, CdV-16-4ip, R-25b, and R-25 screen 2 occurs as a laterally interconnected saturated zone that is at least as large as the rough triangle formed by these wells. As would be expected, water-level responses were noted in adjacent wells during open-hole drilling of the three wells in question. In the recent R-25 fishing operations, however, the air/foam circulation discharge was constrained within the 5-in. ID stainless-steel well casing and exposed to the formation only through screens 1 and 2, both of which are located in relatively tight strata. Therefore, it is not surprising that pressure responses in the nearby wells were not apparent in the pressure data.

3.0 SUMMARY OF WORK COMPLETED DURING THE NINTH QUARTERLY REPORTING PERIOD

As required during the ninth quarterly reporting period, EM-LA submitted two monthly status reports to NMED, on March 24, 2022 and April 28, 2022. This ninth quarterly report summarizes project work completed through the end of the ninth quarter of the reporting period (February 16, 2022–May 11, 2022). IPT meetings were resumed on February 10, 2022, after receipt of the amended and approved plugging plan of operations from NMOSE on February 7, 2022.

Project progress during the ninth quarter included the following:

- conducting weekly Storm Water Pollution Prevention Plan inspections and regular waste management activities;
- preparing the March and April R-25 monthly status reports and the R-25 ninth quarterly report for NMED, due May 31, 2022;
- communicating with NMOSE to discuss questions regarding the amended and approved plugging plan of operations received from NMOSE on February 7, 2022; and
- planning for execution of the amended and approved plugging plan of operations.

4.0 SUMMARY OF WORK PLANNED FOR THE NEXT QUARTER

The remaining 29,000 gal. of wastewater discharged during fishing and milling will be transported for disposal off-site as weather and wildland fire conditions permit. Any waste generated during upcoming plugging and abandonment operations will be characterized and processed for disposal.

N3B and EM-LA are engaged in planning and preparation for the re-start of plugging and abandonment operations as directed by NMOSE.

The next required monthly project status updates will be submitted by June 24, 2022, and July 29, 2022, and the next quarterly report will be submitted by August 31, 2022.

5.0 PROJECT COMPLETION

N3B and EM-LA will continue to provide NMED with monthly updates and quarterly reports as required through the completion of the project. As field operations continue, the project will be brought to completion by

- implementing the amended and approved plugging and abandonment plan,
- restoring the well pad, and
- preparing the R-25 plugging and abandonment completion report.

6.0 REFERENCES

The following reference list includes documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ERID, ESHID, or EMID.ERIDs were assigned by Los Alamos National Laboratory's (the Laboratory's) Associate Directorate for Environmental Management (IDs through 599999); ESHIDs were assigned by the Laboratory's Associate Directorate for Environment, Safety, and Health (IDs 600000 through 699999); and EMIDs are assigned by N3B (IDs 700000 and above).

DOE (U.S. Department of Energy), February 24, 2020. "Status of Westbay Well R-25 Reconfiguration Efforts and Request for Extension of Fiscal Year 2020 Appendix B Milestone #6, Westbay Well Plugging and Abandonment Completion Report for R-25," U.S. Department of Energy letter (EMLA-2020-1275-02-001) to K. Pierard (NMED-HWB) from A. Duran (EM-LA), Los Alamos, New Mexico. (DOE 2020, 700774)

DOE (U.S. Department of Energy), March 17, 2020. "Drilling Fluid Additive Use Options for Well R-25 Westbay Sampling System Removal," U.S. Department of Energy letter (EMLA-2020-1274-02-001) to K. Pierard (NMED-HWB) from A. Duran (EM-LA), Los Alamos, New Mexico. (DOE 2020, 700806)

Gaddy, S.L., April 15, 2021. R-25 Plug and Abandonment meeting. E-mail message to C. Thornburg (NMOSE) from S.L. Gaddy (N3B), Los Alamos, New Mexico. (Gaddy 2021, 701382)

Hathcock, C.D., D.C. Keller, B.E. Thompson, and J. Berryhill, February 2017. "Biological Assessment of the Continued Operation and Expansion of the Water Monitoring Programs at Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-17-20753, Los Alamos, New Mexico. (Hathcock et al. 2017, 700877)

LANL (Los Alamos National Laboratory), May 22, 1998. "Hydrogeologic Workplan," Los Alamos National Laboratory document LA-UR-01-6511, Los Alamos, New Mexico. (LANL 1998, 059599)

LANL (Los Alamos National Laboratory), December 2012. "Work Plan to Plug and Abandon Well R-25," Los Alamos National Laboratory document LA-UR-12-26836, Los Alamos, New Mexico. (LANL 2012, 232352)

N3B (Newport News Nuclear BWXT-Los Alamos, LLC), May 28, 2020. "Revised Plugging Plan of Operations for RG-98113 (R-25)," N3B letter (N3B-2020-0181) to L. Garcia (NMOSE) from B. Smith (N3B) and A.Q. Duran (EM-LA), Los Alamos, New Mexico. (N3B 2020, 700936)

NMED (New Mexico Environment Department), January 11, 2013. "Approval with Modification, Work Plan to Plug and Abandon Well R-25," New Mexico Environment Department letter to P. Maggiore (DOE-LASO) and J.D. Mousseau (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2013, 521801)

NMED (New Mexico Environment Department), March 18, 2020. "Approval, Request for Extension of Fiscal Year 2020 Appendix B Milestone #6, Westbay Well Plugging and Abandonment Completion Report for R-25," New Mexico Environment Department letter to A. Duran (EM-LA) from K. Pierard (NMED-HWB), Santa Fe, New Mexico. (NMED 2020, 700808)

NMED (New Mexico Environment Department), April 7, 2020. "Approval, Drilling Fluid Additive Use Options for Well R-25, Westbay Sampling System Removal," New Mexico Environment Department letter to A. Duran (EM-LA) from K. Pierard (NMED-HWB), Santa Fe, New Mexico. (NMED 2020, 700840)

NMOSE (New Mexico Office of the State Engineer), July 15, 2019. "Re: Plugging Plan of Operations for RG-98113 (R-25)," NMOSE letter to M. Everett (N3B) from L. Garcia (NMOSE), Santa Fe, New Mexico. (NMOSE 2019, 700876)

NMOSE (New Mexico Office of the State Engineer), June 19, 2020. "Re: Plugging Plan of Operations for RG-98113 (R-25)," NMOSE letter to M. Everett (N3B) from L. Garcia (NMOSE), Santa Fe, New Mexico. (NMOSE 2020, 700937)

NMOSE (New Mexico Office of the State Engineer), February 7, 2022. "Re: Request for Amendment to Approved [Amended] Well Pluggin Plan of Operation Conditions of Approval for RG-98113," NMOSE letter to C. Maupin (N3B) from C. Thornburg (NMOSE), Santa Fe, New Mexico. (NMOSE 2022, 701871)

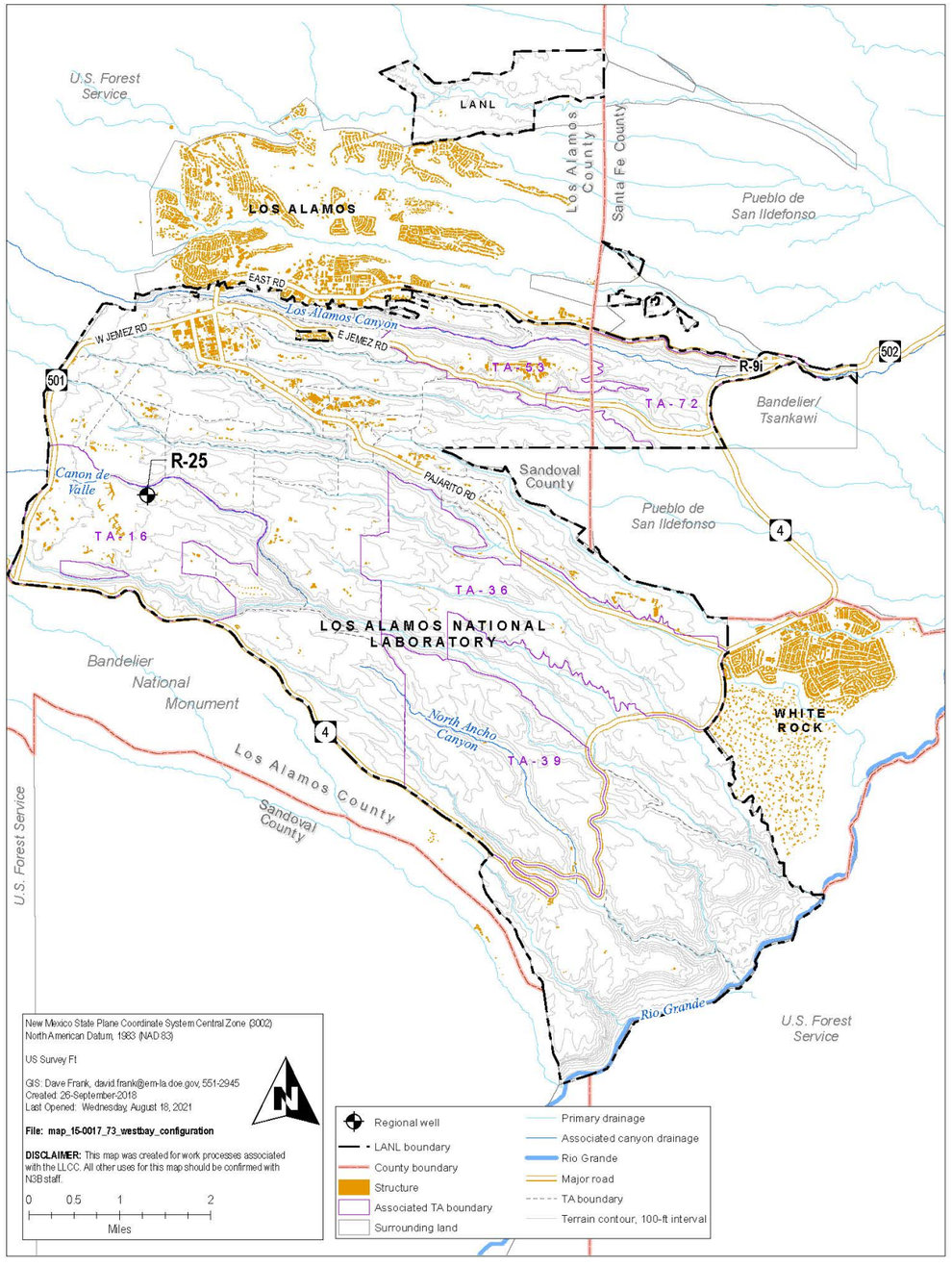

Figure 2.0-1 Location of well R-25

Figure 2.0-2 R-25 project site map

Appendix A

Pressure Responses in Nearby Wells
During Air/Foam Circulation in R-25
(November 2020–March 2021)

A-1.0 PRESSURE DATA RECORDING

Pressure transducers in monitoring wells R-25b, CdV-16-4ip, and CdV-16-1i were programmed at 13:00–14:00 on November 17, 2020, to record pressure data in 5-min intervals during the period in which air/foam circulation was expected to be used during reaming, milling, and fishing operations at R-25.

Circulation occurred November 20–December 7, 2020, during shifts that ran from 14:00 to 02:00 (2 p.m. one day to 2 a.m. the next). The circulation dates and times are listed in the Table A-1.0-1.

After suspension of downhole operations on December 7, 2020, following the partial collapse of screen 3, the transducers were reprogrammed to record in hourly intervals. Before a resumption of operations in February, 2021, the transducers in R-25b, CdV-16-4ip, and CdV-16-1i were again programmed to record pressure data in 5-min intervals.

Following the successful installation of the casing patch liner on March 2, 2021, milling operations resumed with air/foam circulation occurring March 3–March 9, 2021, during 07:00 to 19:00 shifts in which milling and subsequent stuck tool recovery was conducted. The circulation dates and times for this phase of operations are listed in Table A-1.0-1 as well.

Note: No additional circulation has occurred since March 9, 2021.

Table A-1.0-1
Circulation Dates and Times

Shift Date	Circulation Time
2020	
11/20–11/21	19:00–21:00
11/21–11/22	None
11/22–11/23	19:15–00:45
11/23–11/24	None
11/24–11/25	15:45–01:08
11/25–11/26	15:20–01:00
11/26–11/27	20:15–01:15
11/27–11/28	15:15–22:50
11/28–11/29	18:30–23:30
11/29–11/30	00:05–01:20
11/30–12/01	15:00–01:10
12/01–12/02	None
12/02–12/03	15:20–01:20
12/03–12/04	16:14–23:30
12/04–12/05	None
12/05–12/06	15:52–00:00
12/06–12/07	17:06–19:00
12/07–12/08	15:50–18:40

Table A-1.0-1 (continued)

Shift Date	Circulation Time
2021	
03/03	13:50–18:20
03/04	09:20–11:55, 17:57–18:40
03/05	11:22–17:50
03/06	None
03/07	08:48–17:30, 19:05–19:25
03/08	11:35–18:45 Intermittently
03/09	08:30–14:30 Intermittently

Circulation occurred during reaming, milling, and subsequent tool recovery at depths of 1054–1305.4 ft below ground surface (bgs). The regional aquifer was not encountered until the December 6–December 7 shift, at a depth of approximately 1286 ft bgs, according to field records.

Hydrographs of pressure data recorded in the nearby wells during the months of November and December 2020, and March 2021, are presented in Figures A-1.0-1 through A-1.0-6. The data indicate no apparent correlation between R-25 circulation events and pressure responses in the three wells.

It is not surprising that circulation of air/foam during the milling in R-25 did not produce noticeable pressure responses at R-25b, CdV-16-4ip, and CdV-16-1i. The circulation was constrained within 5-in. inside-diameter stainless-steel well casing at depths of 1054–1291.5 ft, with the pressurized air/foam discharged to the surface. Pressurized drilling fluid had access to the upper perched-intermediate zone only through the R-25 screens 1 and 2. Both screens are located in relatively tight strata and produce low groundwater flows when sampled. Any pressurization of groundwater near screens 1 and 2 was therefore minimal.

In addition to the graphic format presented in Figures A-1.0-1 through A-1.0-6, Attachment A-1 (on CD included with this document) presents data in digital form.

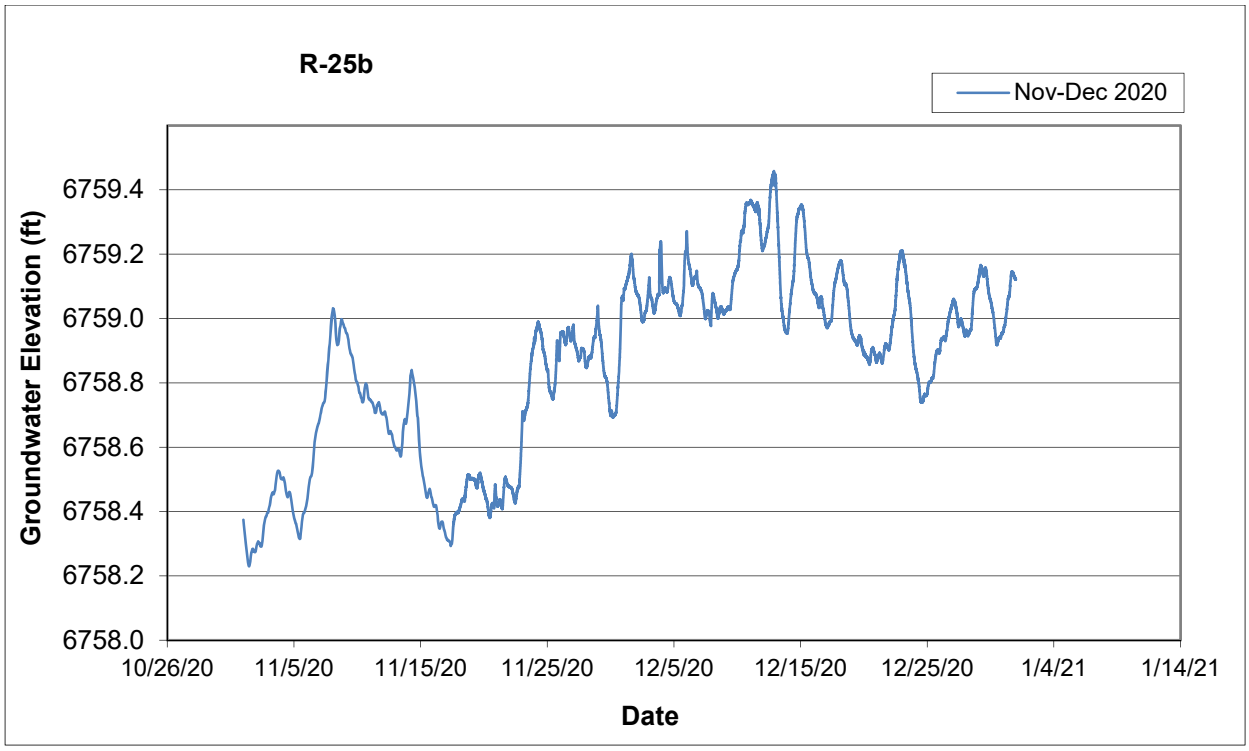

Figure A-1.0-1 R-25b pressure data (November–December 2020)

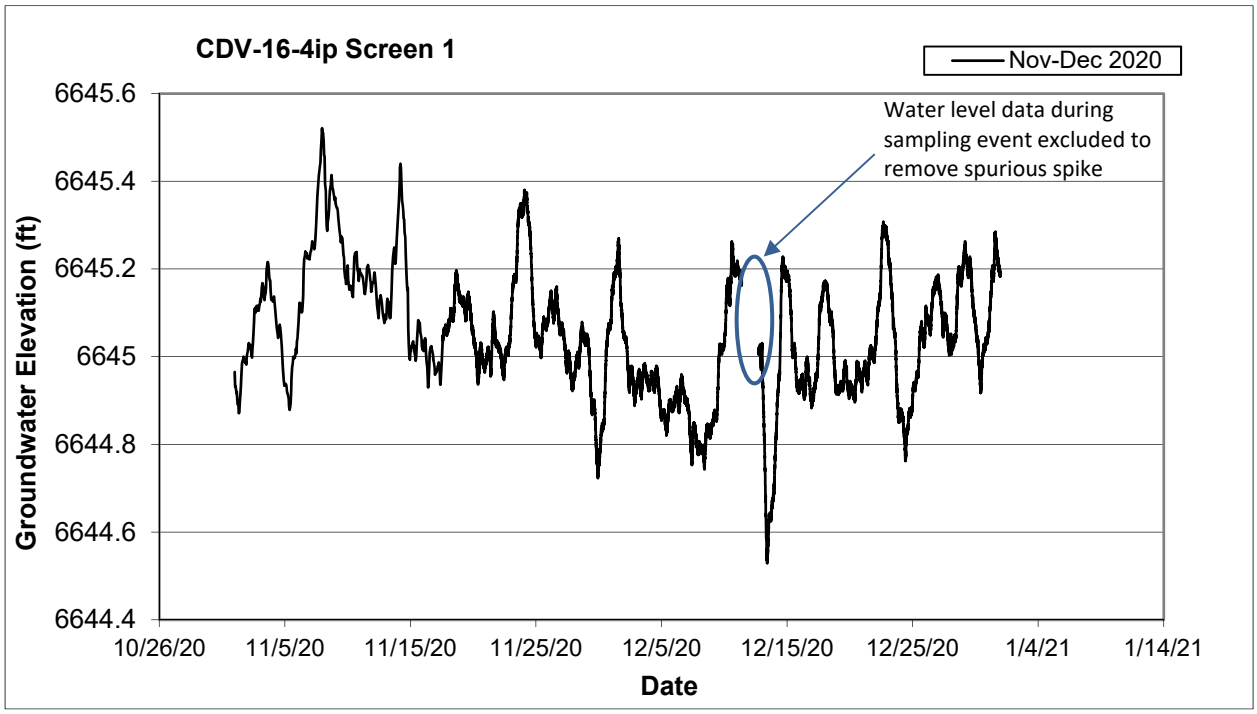

Figure A-1.0-2 CdV-16-4ip pressure data (November–December 2020)

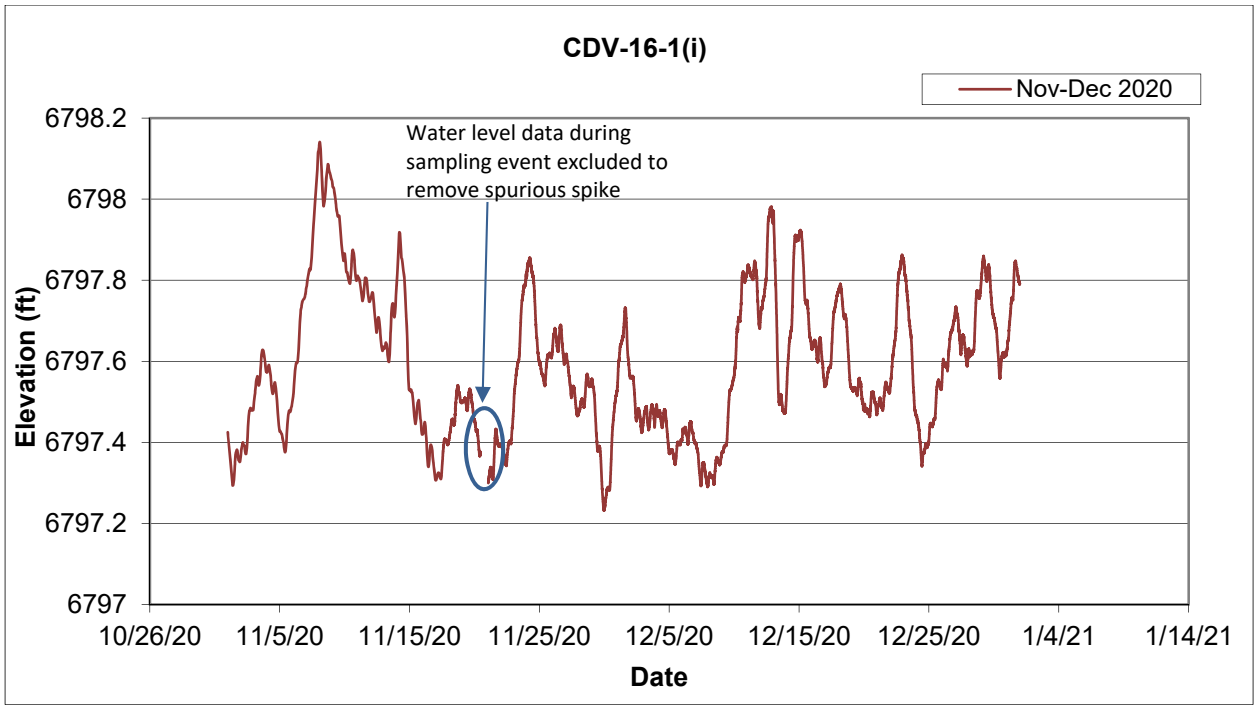

Figure A-1.0-3 CdV-16-1i pressure data (November–December 2020)

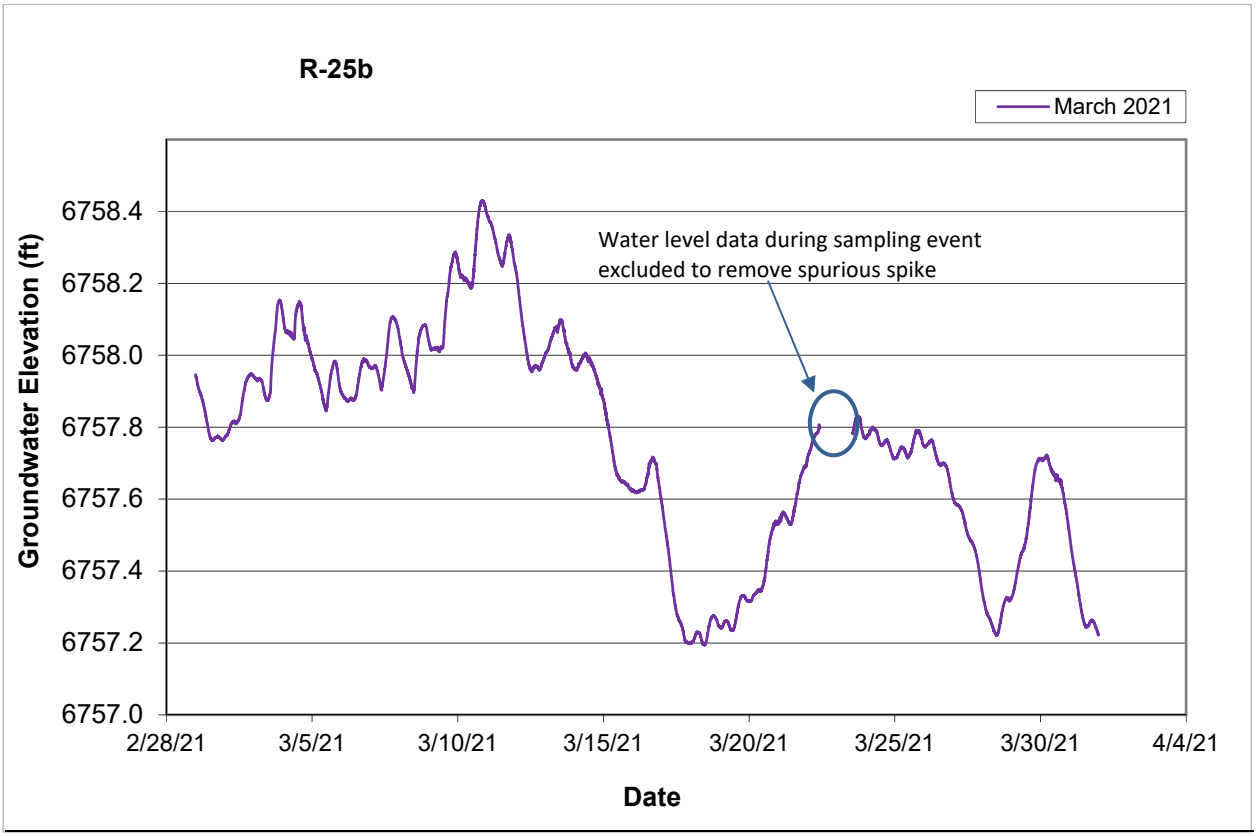

Figure A-1.0-4 R-25b pressure data (March 2021)

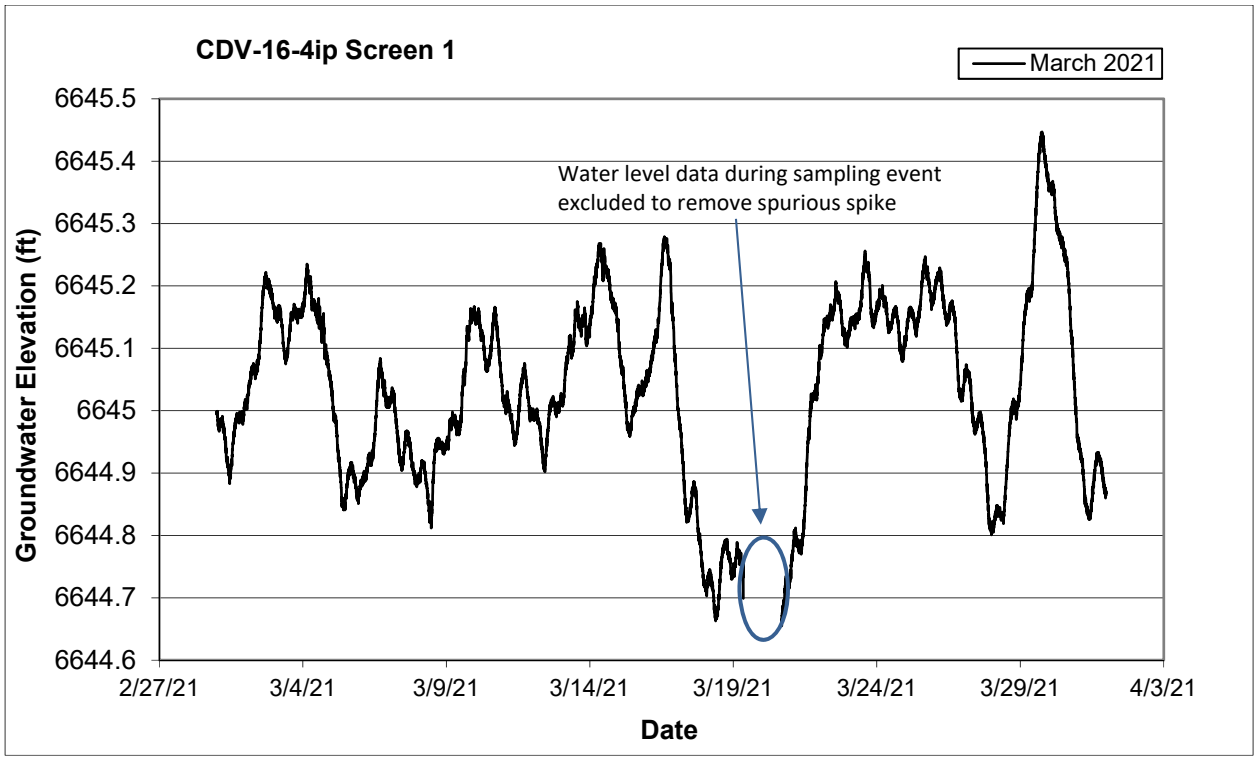

Figure A-1.0-5 CdV-16-4ip pressure data (March 2021)

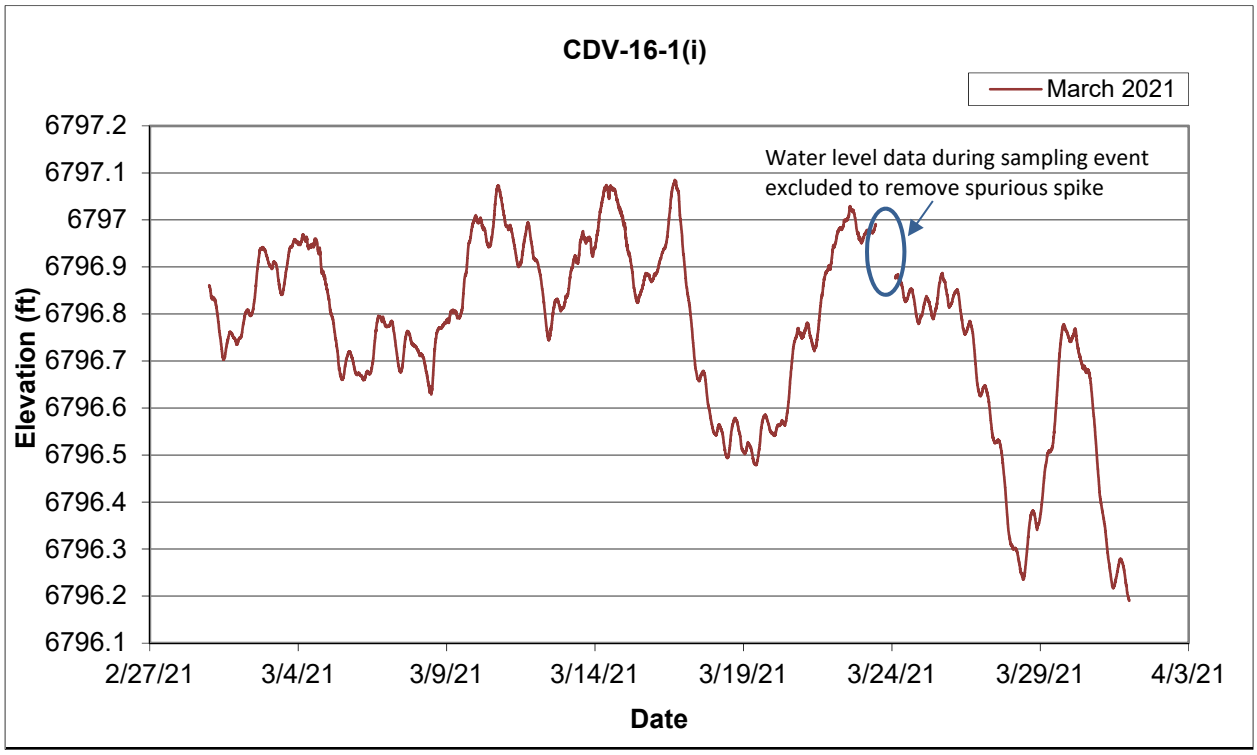

Figure A-1.0-6 CdV-16-1i pressure data (March 2021)