



**DEPARTMENT OF ENERGY**  
Environmental Management Los Alamos Field Office (EM-LA)  
Los Alamos, New Mexico 87544

EMLA-2022-BF050-02-001

February 24, 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: Monthly Notification of Groundwater Data Reviewed in February 2022

Dear Mr. Shean:

This letter is the U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA) and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) written submission in accordance with Section XXVI.D of the 2016 Compliance Order on Consent (2016 Consent Order). Members of EM-LA and N3B met on February 10, 2022, to review groundwater data loaded or released in the Environmental Information Management (EIM) system during the previous calendar month. The enclosed report was prepared by comparing the data against groundwater notification criteria as defined in Section IX of the 2016 Consent Order. These criteria consider New Mexico Water Quality Control Commission (NMWQCC) groundwater standards, U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs), New Mexico Environment Department (NMED) screening levels for tap water, EPA regional screening levels for tap water, and NMED-approved background values for hydrogeological zones as set forth in the "Groundwater Background Investigation Report, Revision 5." The EPA tap water standard's carcinogenic risk values were adjusted to  $1 \times 10^{-5}$ , as specified in the 2016 Consent Order.

The enclosed report was prepared using the November 2021 EPA regional screening levels for tap water; the NMWQCC groundwater standards published December 21, 2018; and the June 2019 Table A-1 of "Risk Assessment Guidance for Site Investigations and Remediation" for NMED tap water screening levels.

This report also includes analytical data from samples collected at three locations within the Pueblo de San Ildefonso, which are subject to reporting at this time. These data have been reviewed by the Pueblo, as required under the 2014 memorandum of agreement between the DOE National Nuclear Security Administration Los Alamos Field Office, EM-LA, and the Pueblo de San Ildefonso (as amended in 2015).

### **1-Day Notification**

One-day notification was not required because there were no cases of a contaminant detected in a well screen interval or spring at a concentration that exceeded a water quality standard for the first time. There were no instances of a contaminant detected at a concentration that exceeded the NMWQCC groundwater standard or federal MCL at locations where contaminants have not previously been detected above the respective standard as defined in the 2016 Consent Order (based on samples collected since June 14, 2007).

**15-Day Notification**

The information required for constituents that meet the five reporting criteria requiring written notification within 15 days is provided in the enclosed report and tables.

If you have questions, please contact Steve Veenis at (505) 309-1362 (steve.veenis@em-la.doe.gov) or Hai Shen at (505) 709-7600 (hai.shen@em.doe.gov).

Sincerely,

**ARTURO  
DURAN**

Digitally signed by  
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Date: 2022.02.22  
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Arturo Q. Duran  
Compliance and Permitting Manager  
U.S. Department of Energy  
Environmental Management  
Los Alamos Field Office

Enclosure(s):

1. Summary of Groundwater Data Reviewed in February 2022 that Meet Notification Requirements (EM2022-0119)

cc (letter with CD/DVD enclosure[s]):

Steven Lynne, Los Alamos County, Los Alamos, NM (2 copies)

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  
David Gomez, Los Alamos County, Los Alamos, NM  
Steve Yanicak, NMED-DOE-OB  
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## **SUMMARY OF GROUNDWATER DATA REVIEWED IN FEBRUARY 2022 THAT MEET NOTIFICATION REQUIREMENTS**

### **INTRODUCTION**

This report provides information to the New Mexico Environment Department (NMED) concerning recent groundwater monitoring data obtained by Newport News Nuclear BWXT-Los Alamos, LLC (N3B) under the annual “Interim Facility-Wide Groundwater Monitoring Plan” for the 2022 monitoring year and contains results for contaminants and other chemical constituents that meet the five screening criteria described in Section XXVI of the 2016 Compliance Order on Consent, modified February 2017 (2016 Consent Order). The report covers groundwater samples collected from wells or springs (listed in the accompanying tables) that provide surveillance of the hydrogeological zones at Los Alamos National Laboratory, as indicated in the tables.

The report includes two tables. Table 1, NMED 1-22 Groundwater Report, presents categorical results since June 14, 2007, that met the five reporting criteria as specified in the 2016 Consent Order. Table 2, NMED 1-22 Groundwater Report Addendum, presents results that exceed the 95<sup>th</sup> percentile of those results in the data set defined in the “Groundwater Background Investigation Report, Revision 5.” Only the contaminants and other chemical constituents that lack a calculated groundwater background value (i.e., the frequency of detections was too low to calculate a background value at the 95% upper tolerance level) are listed in this table. Table 2 is a voluntary submission by N3B to NMED that identifies the potential risk resulting from contaminants and other chemical constituents that are without defined background values.

These tables include the following:

- Comments on results that appear to be exceptional based on consideration of monitoring data acquired from previous analyses (using statistics described below);
- Supplemental information summarizing monitoring results obtained from previous analyses; and
- Sampling date, name of the well or spring, location of the well or spring, depth of the screened interval, groundwater zone sampled, analytical result, detection limit, values for regulatory standards or screening levels, and analytical and secondary validation qualifiers.

Additional information describing the locations and analytical data is also included. All data have been through secondary validation.

This report was prepared by comparing the data against groundwater notification criteria as defined in Section IX of the 2016 Consent Order. These criteria consider New Mexico Water Quality Control Commission (NMWQCC) groundwater standards, U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs), NMED screening levels for tap water, EPA regional screening levels for tap water, and NMED-approved background values for hydrogeological zones as set forth in the “Groundwater Background Investigation Report, Revision 5.” The EPA tap water standard’s carcinogenic risk values were adjusted to  $1 \times 10^{-5}$ , as specified in the 2016 Consent Order. This report was prepared using the November 2021 EPA regional screening levels for tap water; the NMWQCC groundwater standards published December 21, 2018; and the NMED tap water screening levels specified in the June 2019 Table A-1 of “Risk Assessment Guidance for Site Investigations and Remediation.”

Background values applied in Table 1 notification criterion C4 are the background values for hydrogeological zones as set forth in the NMED-approved "Groundwater Background Investigation Report, Revision 5."

Screening values applied in Table 2 criteria XC2scr and XC4scr are the 95<sup>th</sup> percentile of the data set used to establish background as defined in the "Groundwater Background Investigation Report, Revision 5."

## **DESCRIPTION OF TABLES**

### **1-Day Notification Requirement**

The CA value is used in the Criteria Code column of Table 1. The CA value indicates detection of a contaminant in a well screen interval or spring at a concentration that exceeds either the NMWQCC water quality standard or the EPA MCL if that contaminant has not previously exceeded such a water quality standard at that location. N3B, under the U.S. Department of Energy Environmental Management Los Alamos Field Office, notifies NMED orally within 1 business day after review of such analytical data and also includes the data in the 15-day notification table.

### **15-Day Notification Requirement**

Table 1 is divided into separate categories that correspond to the five screening criteria in Section XXVI of the 2016 Consent Order. In several cases, data met more than one of the notification criteria and therefore appear in the table multiple times.

The criteria codes (the "C" stands for criterion) and their definitions are as follows:

- C1. Detection of a contaminant that is an organic compound in a spring or screened interval of a well if that contaminant has not previously been detected in the spring or screened interval
- C2. Detection of a contaminant that is a metal or other inorganic compound at a concentration above the background level in a spring or screened interval of a well if that contaminant has not previously exceeded the background level in the spring or screened interval
- C3. Detection of a contaminant in a spring or screened interval of a well at a concentration that (1) exceeds the lower of either one-half the NMWQCC water quality standard or one-half the federal MCL; or, if there is no such standard for the contaminant, (2) exceeds one-half the tap water screening levels in Table A-1 of NMED's "Risk Assessment Guidance for Site Investigations and Remediation" (June 2019); or, if there is no NMED tap water screening level available for a contaminant, (3) exceeds one-half the EPA regional human health medium-specific screening level for tap water if that contaminant has not previously exceeded one-half such standard or screening level in the spring or screened interval
- C4. Detection of a contaminant that is a metal or other inorganic compound in a spring or screened interval of a well at a concentration that exceeds 2 times the background level for the third consecutive sampling of the spring or screened interval
- C5. Detection of a contaminant in a spring or screened interval of a well at a concentration that exceeds either one-half the NMWQCC water quality standard or one-half the federal MCL and which has increased for the third consecutive sampling of that spring or screened interval

Table 2 is divided into two categories that correspond to two screening criteria. They mirror criteria C2 and C4 in Table 1, respectively.

The two criteria are as follows:

- XC2scr Detection of a contaminant that is a metal or other inorganic compound at a concentration above the 95<sup>th</sup> percentile in a spring or screened interval of a well if that contaminant has not previously exceeded the 95<sup>th</sup> percentile of the data set used to establish background in the spring or screened interval as defined in the “Groundwater Background Investigation Report, Revision 5”
- XC4scr Detection of a contaminant that is a metal or other inorganic compound in a spring or screened interval of a well at a concentration that for the third consecutive sampling exceeds 2 times the 95<sup>th</sup> percentile of the data set used to establish background as defined in the “Groundwater Background Investigation Report, Revision 5”

Columns 2 through 8 in both tables provide summary statistics for metals or organic/inorganic compounds by field preparation code (e.g., filtered aluminum) for samples collected since January 1, 2000, including the currently reported data. The statistics include the date of the first sampling event; the number of sampling events and samples analyzed; the number of detections; and the minimum, maximum, and median concentration for detections. This information indicates whether the new result is consistent with the range of earlier data.

The subsequent columns contain location and sampling information as follows:

Canyon—canyon where monitoring location is found

Zone—hydrogeological zone from which the groundwater sample was collected (e.g., alluvial spring)

Location—monitoring location name

Screen Depth—depth of top of well screen in feet (0 for springs, –1 if unknown)

Start Date—date the sample was collected

Fld QC Type Code—identifies regular samples (REG) or field duplicates (FD)

Fld Prep Code—identifies whether samples are filtered (F) or unfiltered (UF)

Lab Sample Type Code—indicates whether result is a primary sample (INIT) or reanalysis (RE)

Analy Suite Code—analytical suite (such as volatile organic compounds) for analyzed compound

Analyte Description—name of analyte

Analyte—chemical symbol for analyte or CAS (Chemical Abstracts Service) number for organic compounds

Std Result—analytical result in standard measurement units

Result/Median—ratio of the Std Result to the median of all detections since 2000

LVL Type/Risk Code—type of regulatory standard, screening level, or background value (indicating groundwater zone) used for comparison

Screen Level—value of the LVL Type/Risk Code

Exceedance Ratio—ratio of Std Result to LVL Type/Risk Code. In earlier versions of this report, the ratio was divided by the basis for comparison in the criterion, but that is no longer the case. For example, for a criterion (such as C3) that compares the value with one-half the standard, a value equal to a standard previously had an exceedance ratio of 2. The current report shows this ratio as 1.

Std MDL—method detection limit in standard measurement units

Std UOM—standard units of measurement

Dilution Factor—amount by which the sample was diluted to measure the concentration

Lab Qualifier—analytical laboratory qualifier indicating analytical quality of the sample data

Validation Qualifier—the qualifier that indicates the effects of all processes associated with the sample (i.e., sample collection, additional quality control samples such as field duplicates, etc.) on the quality of the sample data

Validation Reason Code—an explanation of the reason for validation of the qualifiers

Analy Meth Code—analytical method number

Lab Code—analytical laboratory name

Comment—N3B comment regarding the analytical result

### **Acronyms and Abbreviations**

The tables may include the following acronyms, abbreviations, and analytical laboratory codes and qualifiers:

DOECAP—Department of Energy Consolidated Audit Program

DNX—hexahydro-1,3-dinitro-5-nitro-1,3,5-triazine

EPA MCL—U.S. Environmental Protection Agency maximum contaminant level

GENINORG—General inorganic

HEXP—high explosive

HMX—octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

HRGC/HRMS—High-resolution gas chromatography/high-resolution mass spectrometry

ICP-AES—inductively coupled plasma atomic emission spectroscopy

ICP-MS—inductively coupled plasma mass spectrometry

LANL Int BG LV—Los Alamos National Laboratory intermediate background level

LANL Reg BG LV—Los Alamos National Laboratory regional background level

LCMS/MS—liquid chromatography mass spectrometry/mass spectrometry

LCS—laboratory control sample

MDL—method detection limit

MNX—hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine

MS—matrix spike

MSD—matrix spike duplicate

n/a—not applicable

NM GW STD—New Mexico Water Quality Control Commission groundwater standard

NMED A1 TAP SCRNLVL—New Mexico Environment Department screening level for tap water

NTU—nephelometric turbidity unit

PETN—pentaerythritol tetranitrate

PFAS—per- and polyfluoroalkyl substances

PQL—practical quantitation limit

RDX—Royal Demolition Explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine)

SIM—selected ion monitoring

SVOC—semivolatile organic compound

TDS—total dissolved solids

TNX—2,4,6-trinitroxylenes

UAL—upper acceptance limit

UOM—unit of measurement

VOC—volatile organic compound

### **Analytical Laboratory Codes and Qualifiers**

\* (lab qualifier) - (inorganic)—Duplicate analysis (relative percent difference) is not within control limits.

CFA—Cape Fear Analytical, LLC

BJ (lab qualifier)—Analyte is present in the blank, and the associated numerical value is an estimated quantity.

F—filtered

FD—field duplicate

GELC—GEL Laboratories, LLC, Division of the GEL Group, Charleston, SC

GENINORG—general inorganic



H (lab qualifier)—The required extraction or analysis holding time for this result was exceeded.

HE1a (validation reason code)—The quantitating internal standard area count was below the lower acceptance limit.

HE12a (validation reason code)—The LCS %recovery was less than the lower acceptance limit but greater than 10%.

HJ (lab qualifier)—The required extraction or analysis holding time for this result was exceeded. The associated numerical value is an estimated quantity.

HR4g—The detected sample result is  $\geq 5$  times and  $< 100$  times the detected concentration of the same analyte in the associated blank.

HR12a—The laboratory control sample or ongoing precision and recovery sample percent recovery was  $<$  the lower acceptance limit and  $\geq$  the rejection limit.

HR12e—The matrix spike percent recovery was  $<$  the lower control limit.

I4a (validation reason code)—The affected analyte is considered estimated and biased high because this analyte was identified in the method blank but was greater than 5 times the concentration of the affected analyte in the sample.

I4g (validation reason code)—Result is less than a multiple of some secondary higher value found in field, trip, or rinsate blank.

I6a (validation reason code)—MS/MSD recovery is below lower limit.

I6b (validation reason code)—The associated matrix spike percent recovery is  $>$  the upper acceptance limit.

I7h—The initial or continuing calibration blank result is  $>$  method detection limit and the detected sample result is  $\geq 5$  times and  $< 100$  times the blank result.

I9b (validation reason code)—The affected analytes are regarded as rejected because the analytical holding time was exceeded.

I9c—The nonaqueous mercury, chromium(VI), or general chemistry sample temperature was greater than 10°C upon receipt at the laboratory.

I10a—The sample and the duplicate sample results are greater than or equal to 5 times the reporting limit, and the duplicate sample relative percent difference is greater than 20% for water samples and greater than 35% for soil samples or outside of the laboratory's limits.

INIT—primary sample

J (lab qualifier)—The associated numerical value is an estimated quantity.

J (validation qualifier)—The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.

J- (validation qualifier)—The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential negative bias.

J+ (validation qualifier)—The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential positive bias.

J\_LAB (validation reason code)—The analytical laboratory qualified the detected result as estimated (J) because the result was less than the PQL but greater than the MDL.

N (lab qualifier)—Spiked sample recovery is not within control limits.

NQ (validation qualifier)—No validation qualifier flag is associated with this result, and the analyte is classified as detected.

NQ (validation reason code)—The analytical laboratory did not qualify the analyte as not detected and/or with any other standard qualifier. The analyte is detected in the sample.

PE9c—The sample temperature was >6°C, or the sample preservation criteria was not met, upon receipt at the laboratory.

PE12e (validation reason code)—The MS/MSD percent recovery was greater than 10% but less than 75%.

RE—reanalysis

RL—reporting limit

RPD—relative percent difference

REG—regular sample

SV7b—The initial or continuing calibration verification relative response factor < the laboratory's lower limit.

SV7c (validation reason code)—The percent drift was above acceptance limits in the initial calibration verification (ICV) or continuing calibration verification (CCV).

SV8 (validation reason code)—The affected analyte is considered not detected because mass spectrum did not meet specifications. The detect status is changed to N.

SV9—The holding time was greater 1 times and less than 2 times the applicable holding-time requirement.

SwRI—Southwest Research Institute

UF—unfiltered

V7b (validation reason code)—The initial or CCV relative response factor was less than the laboratory's lower limit.

V7k (validation reason code)—Level 3 data validation identified calibration issues affecting data usability.

V9b (validation reason code)—The preserved sample was analyzed outside the 14-day holding time or the unpreserved sample was analyzed outside the 7-day holding time.



Table 1: NMED 1-22 Groundwater Report

| Criteria Code | Visits | Samples | First Event | Min Detect | Max Detect | Median Detect | Num Detect | Canyon           | Zone     | Location | Screen Depth | Start Date | Fld QC Type Code | Fld Prep Code | Lab Sample Type Code | Analy Suite Code | Analyte Description         | Analyte   | Std Result | Result/Median | LVL Type/Risk Code | Screen Level | Exceedance Ratio | Std MDL | Std UOM | Dilution Factor | Lab Qualifier | Validation Qualifier | Validation Reason Code | Analy Meth Code | Lab Code | Comment |
|---------------|--------|---------|-------------|------------|------------|---------------|------------|------------------|----------|----------|--------------|------------|------------------|---------------|----------------------|------------------|-----------------------------|-----------|------------|---------------|--------------------|--------------|------------------|---------|---------|-----------------|---------------|----------------------|------------------------|-----------------|----------|---------|
| C4            | 17     | 18      | 08/04/2020  | 14         | 19.3       | 16.55         | 18         | Mortandad Canyon | Regional | R-70 S2  | 1048.0       | 12/08/2021 | REG              | F             | INIT                 | Geninorg         | Chloride                    | Cl(-1)    | 14.8       | 1             | LANL Reg BG LVL    | 2.7          | 5.5              | 0.134   | mg/L    | 2.00            |               | J+                   | I6b                    | EPA:300.0       | GELC     |         |
| C4            | 17     | 18      | 08/04/2020  | 178        | 272        | 214.5         | 18         | Mortandad Canyon | Regional | R-70 S2  | 1048.0       | 12/08/2021 | REG              | F             | INIT                 | Metals           | Chromium                    | Cr        | 183        | 1             | LANL Reg BG LVL    | 7.48         | 25               | 3.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |
| C4            | 17     | 18      | 08/04/2020  | 2.39       | 2.92       | 2.545         | 18         | Mortandad Canyon | Regional | R-70 S1  | 963.0        | 12/08/2021 | REG              | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 2.43       | 1             | LANL Reg BG LVL    | 0.769        | 3.2              | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 17     | 18      | 08/04/2020  | 3.4        | 4.06       | 3.75          | 18         | Mortandad Canyon | Regional | R-70 S2  | 1048.0       | 12/08/2021 | REG              | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 3.40       | 1             | LANL Reg BG LVL    | 0.769        | 4.4              | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 17     | 18      | 08/04/2020  | 22.8       | 32.6       | 29.15         | 18         | Mortandad Canyon | Regional | R-70 S2  | 1048.0       | 12/08/2021 | REG              | F             | INIT                 | Geninorg         | Sulfate                     | SO4(-2)   | 22.8       | 1             | LANL Reg BG LVL    | 4.59         | 5                | 0.266   | mg/L    | 2.00            |               | J+                   | I6b                    | EPA:300.0       | GELC     |         |
| C4            | 90     | 108     | 05/17/2005  | 2.27       | 7.43       | 5.47          | 108        | Sandia Canyon    | Regional | R-11     | 855.0        | 12/16/2021 | REG              | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 5.92       | 1             | LANL Reg BG LVL    | 0.769        | 7.7              | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 78     | 89      | 08/30/2007  | 68         | 408        | 347           | 89         | Sandia Canyon    | Regional | R-35a    | 1013         | 12/20/2021 | REG              | F             | INIT                 | Metals           | Barium                      | Ba        | 354        | 1             | LANL Reg BG LVL    | 38.1         | 9.3              | 1.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |
| C4            | 77     | 89      | 08/30/2007  | 5.97       | 7.31       | 6.56          | 89         | Sandia Canyon    | Regional | R-35a    | 1013         | 12/20/2021 | REG              | F             | INIT                 | Geninorg         | Chloride                    | Cl(-1)    | 6.94       | 1             | LANL Reg BG LVL    | 2.7          | 2.6              | 0.0670  | mg/L    | 1.00            |               | J+                   | I4g,I6b                | EPA:300.0       | GELC     |         |
| C4            | 78     | 89      | 08/30/2007  | 1.2        | 22.2       | 8.045         | 88         | Sandia Canyon    | Regional | R-35a    | 1013         | 12/20/2021 | REG              | F             | INIT                 | Metals           | Nickel                      | Ni        | 8.34       | 1             | LANL Reg BG LVL    | 2.9          | 2.9              | 0.600   | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |
| C4            | 78     | 84      | 02/28/2009  | 3          | 19.6       | 5.305         | 84         | Mortandad Canyon | Regional | R-45 S1  | 880.0        | 12/07/2021 | REG              | F             | INIT                 | Geninorg         | Chloride                    | Cl(-1)    | 19.2       | 4             | LANL Reg BG LVL    | 2.7          | 7.1              | 0.335   | mg/L    | 5.00            |               | NQ                   | NQ                     | EPA:300.0       | GELC     |         |
| C4            | 78     | 84      | 02/28/2009  | 0.535      | 9.62       | 1.18          | 69         | Mortandad Canyon | Regional | R-45 S1  | 880.0        | 12/07/2021 | REG              | F             | INIT                 | Metals           | Nickel                      | Ni        | 9.62       | 8             | LANL Reg BG LVL    | 2.9          | 3.3              | 0.600   | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |
| C4            | 78     | 84      | 02/28/2009  | 0.256      | 3.47       | 2.815         | 84         | Mortandad Canyon | Regional | R-45 S1  | 880.0        | 12/07/2021 | REG              | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 3.09       | 1             | LANL Reg BG LVL    | 0.769        | 4                | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 78     | 84      | 02/28/2009  | 4.1        | 20         | 8.16          | 84         | Mortandad Canyon | Regional | R-45 S1  | 880.0        | 12/07/2021 | REG              | F             | INIT                 | Geninorg         | Sulfate                     | SO4(-2)   | 19.6       | 2             | LANL Reg BG LVL    | 4.59         | 4.3              | 0.665   | mg/L    | 5.00            |               | NQ                   | NQ                     | EPA:300.0       | GELC     |         |
| C4            | 77     | 82      | 03/05/2009  | 2.74       | 7.11       | 4.68          | 82         | Mortandad Canyon | Regional | R-45 S2  | 974.9        | 12/07/2021 | REG              | F             | INIT                 | Geninorg         | Chloride                    | Cl(-1)    | 7.08       | 2             | LANL Reg BG LVL    | 2.7          | 2.6              | 0.0670  | mg/L    | 1.00            |               | NQ                   | NQ                     | EPA:300.0       | GELC     |         |
| C4            | 77     | 87      | 03/05/2009  | 6.1        | 62         | 27.9          | 86         | Mortandad Canyon | Regional | R-45 S2  | 974.9        | 12/07/2021 | REG              | F             | INIT                 | Metals           | Chromium                    | Cr        | 59.0       | 2             | LANL Reg BG LVL    | 7.48         | 7.9              | 3.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |
| C4            | 64     | 73      | 05/20/2011  | 2.03       | 43.9       | 21.9          | 72         | Mortandad Canyon | Regional | R-61 S1  | 1125.0       | 12/10/2021 | REG              | F             | INIT                 | Metals           | Chromium                    | Cr        | 38.6       | 2             | LANL Reg BG LVL    | 7.48         | 5.2              | 3.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |
| C4            | 64     | 73      | 05/20/2011  | 0.427      | 2.95       | 2.23          | 73         | Mortandad Canyon | Regional | R-61 S1  | 1125.0       | 12/10/2021 | REG              | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 2.48       | 1             | LANL Reg BG LVL    | 0.769        | 3.2              | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 63     | 72      | 05/20/2011  | 2.96       | 16.2       | 12.05         | 72         | Mortandad Canyon | Regional | R-61 S1  | 1125.0       | 12/10/2021 | REG              | F             | INIT                 | LCMS/MS          | Perchlorate                 | ClO4      | 12.3       | 1             | LANL Reg BG LVL    | 0.414        | 30               | 0.250   | µg/L    | 5.00            |               | NQ                   | NQ                     | SW-846:6850     | GELC     |         |
| C4            | 79     | 88      | 03/06/2010  | 4.68       | 21.9       | 9.805         | 88         | Mortandad Canyon | Regional | R-50 S1  | 1077.0       | 12/21/2021 | FD               | F             | INIT                 | Geninorg         | Chloride                    | Cl(-1)    | 20.5       | 2             | LANL Reg BG LVL    | 2.7          | 7.6              | 0.335   | mg/L    | 5.00            |               | NQ                   | NQ                     | EPA:300.0       | GELC     |         |
| C4            | 79     | 88      | 03/06/2010  | 4.68       | 21.9       | 9.805         | 88         | Mortandad Canyon | Regional | R-50 S1  | 1077.0       | 12/21/2021 | REG              | F             | INIT                 | Geninorg         | Chloride                    | Cl(-1)    | 21.0       | 2             | LANL Reg BG LVL    | 2.7          | 7.8              | 0.335   | mg/L    | 5.00            |               | NQ                   | NQ                     | EPA:300.0       | GELC     |         |
| C4            | 80     | 89      | 03/06/2010  | 1.51       | 14.6       | 5.83          | 89         | Mortandad Canyon | Regional | R-50 S1  | 1077.0       | 12/21/2021 | FD               | F             | INIT                 | Metals           | Nickel                      | Ni        | 9.04       | 2             | LANL Reg BG LVL    | 2.9          | 3.1              | 0.600   | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |
| C4            | 80     | 89      | 03/06/2010  | 1.51       | 14.6       | 5.83          | 89         | Mortandad Canyon | Regional | R-50 S1  | 1077.0       | 12/21/2021 | REG              | F             | INIT                 | Metals           | Nickel                      | Ni        | 8.66       | 2             | LANL Reg BG LVL    | 2.9          | 3                | 0.600   | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |

Table 1: NMED 1-22 Groundwater Report

| Criteria Code | Visits | Samples | First Event | Min Detect | Max Detect | Median Detect | Num Detect | Canyon                           | Zone     | Location      | Screen Depth | Start Date | Fld QC Type Code | Fld Prep Code | Lab Sample Type Code | Analy Suite Code | Analyte Description         | Analyte   | Std Result | Result/Median | LVL Type/Risk Code  | Screen Level | Exceedance Ratio | Std MDL | Std UOM | Dilution Factor | Lab Qualifier | Validation Qualifier | Validation Reason Code | Analy Meth Code | Lab Code | Comment |
|---------------|--------|---------|-------------|------------|------------|---------------|------------|----------------------------------|----------|---------------|--------------|------------|------------------|---------------|----------------------|------------------|-----------------------------|-----------|------------|---------------|---------------------|--------------|------------------|---------|---------|-----------------|---------------|----------------------|------------------------|-----------------|----------|---------|
| C4            | 80     | 90      | 03/06/2010  | 0.398      | 3.01       | 2.15          | 90         | Mortandad Canyon                 | Regional | R-50 S1       | 1077.0       | 12/21/2021 | FD               | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 2.98       | 1             | LANL Reg BG LVL     | 0.769        | 3.9              | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 80     | 90      | 03/06/2010  | 0.398      | 3.01       | 2.15          | 90         | Mortandad Canyon                 | Regional | R-50 S1       | 1077.0       | 12/21/2021 | REG              | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 2.92       | 1             | LANL Reg BG LVL     | 0.769        | 3.8              | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 79     | 88      | 03/06/2010  | 7.22       | 21.1       | 14.55         | 88         | Mortandad Canyon                 | Regional | R-50 S1       | 1077.0       | 12/21/2021 | FD               | F             | INIT                 | Geninorg         | Sulfate                     | SO4(-2)   | 19.4       | 1             | LANL Reg BG LVL     | 4.59         | 4.2              | 0.665   | mg/L    | 5.00            |               | NQ                   | NQ                     | EPA:300.0       | GELC     |         |
| C4            | 79     | 88      | 03/06/2010  | 7.22       | 21.1       | 14.55         | 88         | Mortandad Canyon                 | Regional | R-50 S1       | 1077.0       | 12/21/2021 | REG              | F             | INIT                 | Geninorg         | Sulfate                     | SO4(-2)   | 19.9       | 1             | LANL Reg BG LVL     | 4.59         | 4.3              | 0.665   | mg/L    | 5.00            |               | NQ                   | NQ                     | EPA:300.0       | GELC     |         |
| C4            | 80     | 84      | 02/17/2009  | 1.99       | 21         | 2.785         | 84         | Mortandad Canyon                 | Regional | R-44 S1       | 895.0        | 12/13/2021 | REG              | F             | INIT                 | Geninorg         | Chloride                    | Cl(-1)    | 20.3       | 7             | LANL Reg BG LVL     | 2.7          | 7.5              | 0.335   | mg/L    | 5.00            |               | J+                   | I6b                    | EPA:300.0       | GELC     |         |
| C4            | 80     | 84      | 02/17/2009  | 0.536      | 109        | 29.2          | 57         | Mortandad Canyon                 | Regional | R-44 S1       | 895.0        | 12/13/2021 | REG              | F             | INIT                 | Metals           | Nickel                      | Ni        | 59.2       | 2             | LANL Reg BG LVL     | 2.9          | 20               | 0.600   | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6020B    | GELC     |         |
| C4            | 80     | 84      | 02/17/2009  | 0.123      | 3.86       | 1.29          | 83         | Mortandad Canyon                 | Regional | R-44 S1       | 895.0        | 12/13/2021 | REG              | F             | INIT                 | Geninorg         | Nitrate-nitrite as nitrogen | NO3+NO2-N | 2.78       | 2             | LANL Reg BG LVL     | 0.769        | 3.6              | 0.170   | mg/L    | 10.0            |               | NQ                   | NQ                     | EPA:353.2       | GELC     |         |
| C4            | 80     | 84      | 02/17/2009  | 2.76       | 21.1       | 4.63          | 84         | Mortandad Canyon                 | Regional | R-44 S1       | 895.0        | 12/13/2021 | REG              | F             | INIT                 | Geninorg         | Sulfate                     | SO4(-2)   | 19.8       | 4             | LANL Reg BG LVL     | 4.59         | 4.3              | 0.665   | mg/L    | 5.00            |               | J+                   | I6b                    | EPA:300.0       | GELC     |         |
| C4            | 19     | 26      | 10/23/2001  | 81.1       | 239        | 96.9          | 26         | White Rock Canyon and Rio Grande | Regional | Sacred Spring | 0            | 10/12/2021 | REG              | F             | INIT                 | Metals           | Barium                      | Ba        | 120        | 1             | LANL Reg BG LVL     | 38.1         | 3.1              | 1.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |
| C4            | 22     | 31      | 10/19/2000  | 30         | 68.8       | 35.9          | 31         | White Rock Canyon and Rio Grande | Regional | Sacred Spring | 0            | 10/12/2021 | REG              | F             | INIT                 | Metals           | Calcium                     | Ca        | 42.9       | 1             | LANL Reg BG LVL     | 17.03        | 2.5              | 0.05    | mg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |
| C4            | 19     | 26      | 10/23/2001  | 392        | 665        | 443.5         | 26         | White Rock Canyon and Rio Grande | Regional | Sacred Spring | 0            | 10/12/2021 | REG              | F             | INIT                 | Metals           | Strontium                   | Sr        | 435        | 1             | LANL Reg BG LVL     | 157          | 2.8              | 1.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |
| C5            | 19     | 24      | 03/20/2017  | 8.08       | 24         | 16.45         | 24         | Water Canyon                     | Regional | R-68          | 1340.0       | 12/16/2021 | REG              | UF            | DL                   | HEXP             | RDX                         | 121-82-4  | 17.7       | 1             | NMED A1 TAP SCRNLVL | 9.66         | 1.8              | 0.400   | µg/L    | 10.0            |               | NQ                   | NQ                     | SW-846:8330B    | GELC     |         |

Table 2: NMED 1-22 Groundwater Report Addendum

| Criteria Code | Visits | Samples | First Event | Min Detect | Max Detect | Median Detect | Num Detect | Canyon                           | Zone     | Location      | Screen Depth | Start Date | Fld QC Type Code | Fld Prep Code | Lab Sample Type Code | Analy Suite Code | Analyte Description           | Analyte      | Std Result | Result/Median | LVL Type/Risk Code | Screen Level | Exceedance Ratio | Std MDL | Std UOM | Dilution Factor | Lab Qualifier | Validation Qualifier | Validation Reason Code | Analy Meth Code | Lab Code | Comment |
|---------------|--------|---------|-------------|------------|------------|---------------|------------|----------------------------------|----------|---------------|--------------|------------|------------------|---------------|----------------------|------------------|-------------------------------|--------------|------------|---------------|--------------------|--------------|------------------|---------|---------|-----------------|---------------|----------------------|------------------------|-----------------|----------|---------|
| XC2scr        | 54     | 59      | 10/23/2015  | 57.8       | 71         | 60.2          | 59         | Mortandad Canyon                 | Regional | SIMR-2        | 885.0        | 09/23/2021 | REG              | F             | INIT                 | Geninorg         | Alkalinity-CO3+HCO3           | ALK-CO3+HCO3 | 71.0       | 1.2           | Reg-Scr_95         | 69.92        | 1                | 1.45    | mg/L    | 1.00            |               | NQ                   | NQ                     | EPA:310.1       | GELC     |         |
| XC4scr        | 78     | 89      | 08/30/2007  | 20.6       | 54.5       | 39.7          | 83         | Sandia Canyon                    | Regional | R-35a         | 1013.1       | 12/20/2021 | REG              | F             | INIT                 | Metals           | Boron                         | B            | 37.7       | 0.9           | Reg-Scr_95         | 18.7         | 2                | 15.0    | µg/L    | 1.00            | J             | J                    | J_LAB                  | SW-846:6010D    | GELC     |         |
| XC4scr        | 78     | 89      | 08/30/2007  | 137        | 199        | 168           | 89         | Sandia Canyon                    | Regional | R-35a         | 1013.1       | 12/20/2021 | REG              | F             | INIT                 | Metals           | Strontium                     | Sr           | 171        | 1             | Reg-Scr_95         | 74.4         | 2.3              | 1.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |
| XC4scr        | 64     | 73      | 05/20/2011  | 0.0531     | 11.8       | 0.419         | 69         | Mortandad Canyon                 | Regional | R-61 S1       | 1125         | 12/10/2021 | REG              | F             | INIT                 | Geninorg         | Total phosphate as phosphorus | PO4-P        | 0.205      | 0.5           | Reg-Scr_95         | 0.0822       | 2.5              | 0.0200  | mg/L    | 1.00            |               | NQ                   | NQ                     | EPA:365.4       | GELC     |         |
| XC4scr        | 19     | 26      | 10/23/2001  | 36.3       | 946        | 156.5         | 24         | White Rock Canyon and Rio Grande | Regional | Sacred Spring | 0            | 10/12/2021 | REG              | F             | INIT                 | Metals           | Iron                          | Fe           | 472        | 3             | Reg-Scr_95         | 53.8         | 8.8              | 30.0    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |
| XC4scr        | 19     | 26      | 10/23/2001  | 32.8       | 994        | 213           | 24         | White Rock Canyon and Rio Grande | Regional | Sacred Spring | 0            | 10/12/2021 | REG              | F             | INIT                 | Metals           | Manganese                     | Mn           | 215        | 1             | Reg-Scr_95         | 12.1         | 17.8             | 2.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |
| XC4scr        | 19     | 21      | 09/24/2001  | 20.2       | 51.6       | 38.8          | 21         | White Rock Canyon and Rio Grande | Regional | Spring 1      | 0            | 10/07/2021 | REG              | F             | INIT                 | Metals           | Boron                         | B            | 38.8       | 1             | Reg-Scr_95         | 18.7         | 2.1              | 15.0    | µg/L    | 1.00            | J             | J                    | J_LAB                  | SW-846:6010D    | GELC     |         |
| XC4scr        | 18     | 20      | 09/13/2004  | 185        | 207        | 199           | 20         | White Rock Canyon and Rio Grande | Regional | Spring 1      | 0            | 10/07/2021 | REG              | F             | INIT                 | Metals           | Strontium                     | Sr           | 191        | 1             | Reg-Scr_95         | 74.4         | 2.6              | 1.00    | µg/L    | 1.00            |               | NQ                   | NQ                     | SW-846:6010D    | GELC     |         |

