



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

EMLA-2022-BF088-02-001

April 27, 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 April 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 April 14, 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 1×10^{-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.

N3B has updated EIM software relevant to the monthly reviews and notifications in regard to two recently constructed wells (R-71 and R-72). Applicable EIM data starting January 1, 2022, were reviewed following this update and are included in this notification. Two relevant reportable nitrate-nitrite results for R-71 were identified and are reported in the accompanying Table 1.

1-Day Notification

One-day notification was provided to NMED by phone on April 15, 2022, for a potential measurement of total dissolved solids (TDS) in one of two duplicate samples from the February 14, 2022, sampling event at R-11. EM-LA communicated that this field duplicate result appeared anomalously high and was inconsistent not only with its concurrent duplicate sample (i.e., the regular sample) but with the historical data set that consistently represented lower values. Other water quality samples did not provide any additional explanation for the potentially elevated TDS result. Subsequent review following the 1-day

notification has identified a laboratory transcription error within the laboratory's process and raw data. This error has prompted the rejection of this result and thereby disqualified the potential 1-day notification result.

Therefore, the 1-day notification was not required because there were no cases of a contaminant detected in a well-screen interval or a 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
ARTURO DURAN
Date: 2022.04.25
15:36:21 -06'00'

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 April 2022 that Meet Notification Requirements (EM2022-0282)

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

Justin Ball, NMED-GWQB
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SUMMARY OF GROUNDWATER DATA REVIEWED IN APRIL 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 3-22 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 3-22 Groundwater Report Addendum, presents results that exceed the 95th 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 1×10^{-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 95th 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 95th percentile in a spring or screened interval of a well if that contaminant has not previously exceeded the 95th 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 95th 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:

CFA—Cape Fear Analytical, LLC

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

F—filtered

FD—field duplicate

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

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

INIT—primary sample

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)

RE—reanalysis

REG—regular sample

RL—reporting limit

RPD—relative percent difference

SIM—selected ion monitoring

SVOC—semivolatile organic compound

SwRI—Southwest Research Institute

TDS—total dissolved solids

TNX—2,4,6-trinitroxylenes

UAL—upper acceptance limit

UF—unfiltered

UOM—unit of measurement

VOC—volatile organic compound

Analytical Laboratory Codes and Qualifiers

* (lab qualifier)— A quality control analyte recovery is outside of specified acceptance criteria.

B (lab qualifier)— Target analyte was detected in the associated blank.

H (lab qualifier)— Analytical holding time was exceeded.

HE1a (validation reason code)— The quantitating internal standard area count is less than the rejection limit of the expected value.

HE12a (validation reason code)— The laboratory control sample percent recovery was less than the lower acceptance limit and greater than or equal to the rejection limit.

HR4g (validation reason code)—The detected sample result is greater than or equal to 5 times and less than 100 times the detected concentration of the same analyte in the associated blank.

HR12a (validation reason code)—The laboratory control sample or ongoing precision and recovery sample percent recovery was less than the lower acceptance limit and greater than or equal to the rejection limit.

HR12e (validation reason code)—The matrix spike percent recovery was less than the lower control limit.

I4a (validation reason code)— The detected sample result is greater than or equal to 5 times and less than 100 times the concentration of the same analyte in the method blank.

I4g (validation reason code)— The detected sample result is greater than or equal to 5 times and less than 100 times the concentration of the same analyte in the associated blank.

I6a (validation reason code)— The associated matrix spike percent recovery is less than the lower acceptance limit.

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

I7h (validation reason code)—The initial or continuing calibration blank result is greater than method detection limit and the detected sample result is greater than or equal to 5 times and less than 100 times the blank result.

I9 (validation reason code)—The extraction or analytical holding time was exceeded but was less than or equal to 2 times the appropriate holding time.

I9c (validation reason code)—The non-aqueous mercury, chromium(VI), or general chemistry sample temperature was greater than 10°C upon receipt at the laboratory.

I10a (validation reason code)—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.

I10k (validation reason code)—Level 3 data validation identified duplicate sample issues affecting data usability.

J (lab qualifier)—Value is estimated.

J (validation qualifier)—The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample.

J- (validation qualifier)—The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample, but likely to have a low bias.

J+ (validation qualifier)—The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample, but likely to have a high 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 (validation reason code)—The sample temperature was greater than 6°C, or the sample preservation criteria was not met, upon receipt at the laboratory.

PE12e (validation reason code)—The matrix spike or matrix spike duplicate percent recovery was less than the lower acceptance limit.

SV7b (validation reason code)—The initial or continuing calibration verification relative response factor is less than the laboratory's lower limit.

SV7c (validation reason code)—The initial and/or continuing calibration verification recoveries are outside the appropriate limits.

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

SV9 (validation reason code)—The holding time was greater than 1 time and less than 2 times the applicable holding time requirement.

V7b (validation reason code)—The initial or continuing calibration verification 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.

Table 1: NMED 3-22 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fid QC Type Code	Fid 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
C3	1	2	01/30/2022	5.46	5.5	5.48	2	Mortandad Canyon	Regional	R-71 S1	1285.0*	01/30/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	5.50	1	EPA MCL	10	0.6	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	Applicable to the February 2022 EIM data loading period
C3	1	2	01/30/2022	5.46	5.5	5.48	2	Mortandad Canyon	Regional	R-71 S1	1285.0*	01/30/2022	FD	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	5.46	1	EPA MCL	10	0.5	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	Applicable to the February 2022 EIM data loading period
C4	92	111	05/17/2005	2.27	7.43	5.51	111	Sandia Canyon	Regional	R-11	855.0	02/14/2022	FD	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	5.78	1	LANL Reg BG LVL	0.769	7.5	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	
C4	92	111	05/17/2005	2.27	7.43	5.51	111	Sandia Canyon	Regional	R-11	855.0	02/14/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	5.78	1	LANL Reg BG LVL	0.769	7.5	0.425	mg/L	25.0		NQ	NQ	EPA:353.2	GELC	
C4	80	91	08/30/2007	68	408	347	91	Sandia Canyon	Regional	R-35a	1013.1	02/10/2022	REG	F	INIT	Metals	Barium	Ba	338	1	LANL Reg BG LVL	38.1	8.9	1.00	µg/L	1.00		NQ	NQ	SW-846:6010D	GELC	
C4	79	91	08/30/2007	5.97	7.31	6.56	91	Sandia Canyon	Regional	R-35a	1013.1	02/10/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	6.91	1.1	LANL Reg BG LVL	2.7	2.6	0.0670	mg/L	1.00		NQ	NQ	EPA:300.0	GELC	
C4	80	91	08/30/2007	1.2	22.2	8.07	90	Sandia Canyon	Regional	R-35a	1013.1	02/10/2022	REG	F	INIT	Metals	Nickel	Ni	9.13	1.1	LANL Reg BG LVL	2.9	3.1	0.600	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	51	58	03/12/2008	4.05	6.83	6.105	58	Sandia Canyon	Regional	R-36	766.9	01/28/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	6.14	1	LANL Reg BG LVL	2.7	2.3	0.0670	mg/L	1.00		J+	I4g	EPA:300.0	GELC	
C4	51	59	03/12/2008	1.25	6.8	2.42	59	Sandia Canyon	Regional	R-36	766.9	01/28/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.61	1.1	LANL Reg BG LVL	0.769	3.4	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	
C4	50	57	03/12/2008	0.845	1.74	1.51	57	Sandia Canyon	Regional	R-36	766.9	01/28/2022	REG	F	INIT	LCMS/MS	Perchlorate	ClO4	1.25	0.8	LANL Reg BG LVL	0.414	3	0.0500	µg/L	1.00		NQ	NQ	SW-846:6850	GELC	
C4	52	61	11/05/2008	3.6	9.39	7.97	61	Sandia Canyon	Regional	R-43 S1	903.9	01/27/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	7.69	1	LANL Reg BG LVL	2.7	2.8	0.0670	mg/L	1.00		J+	I4g	EPA:300.0	GELC	
C4	52	66	11/05/2008	2.35	223	134	63	Sandia Canyon	Regional	R-43 S1	903.9	01/27/2022	REG	F	INIT	Metals	Chromium	Cr	201	1.5	LANL Reg BG LVL	7.48	26.9	3.00	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	52	60	11/05/2008	4.67	6.15	5.35	59	Sandia Canyon	Regional	R-43 S1	903.9	01/27/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	4.99	0.9	LANL Reg BG LVL	0.769	6.5	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	
C4	52	61	11/05/2008	8.77	21	16.4	61	Sandia Canyon	Regional	R-43 S1	903.9	01/27/2022	REG	F	INIT	Geninorg	Sulfate	SO4(-2)	16.7	1	LANL Reg BG LVL	4.59	3.6	0.133	mg/L	1.00		NQ	NQ	EPA:300.0	GELC	
C4	82	86	02/17/2009	1.99	21.3	3.585	86	Mortandad Canyon	Regional	R-44 S1	895.0	02/18/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	19.6	5.5	LANL Reg BG LVL	2.7	7.3	0.335	mg/L	5.00		NQ	NQ	EPA:300.0	GELC	
C4	82	86	02/17/2009	0.536	109	31.7	59	Mortandad Canyon	Regional	R-44 S1	895.0	02/18/2022	REG	F	INIT	Metals	Nickel	Ni	48.0	1.5	LANL Reg BG LVL	2.9	16.6	0.600	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	82	86	02/17/2009	0.123	3.86	1.35	85	Mortandad Canyon	Regional	R-44 S1	895.0	02/18/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.72	2	LANL Reg BG LVL	0.769	3.5	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	
C4	82	86	02/17/2009	2.76	21.3	6.215	86	Mortandad Canyon	Regional	R-44 S1	895.0	02/18/2022	REG	F	INIT	Geninorg	Sulfate	SO4(-2)	19.2	3.1	LANL Reg BG LVL	4.59	4.2	0.665	mg/L	5.00		NQ	NQ	EPA:300.0	GELC	
C4	80	86	02/28/2009	3	20.4	5.325	86	Mortandad Canyon	Regional	R-45 S1	880.0	02/23/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	20.4	3.8	LANL Reg BG LVL	2.7	7.6	0.335	mg/L	5.00		NQ	NQ	EPA:300.0	GELC	
C4	80	86	02/28/2009	0.535	9.89	1.2	71	Mortandad Canyon	Regional	R-45 S1	880.0	02/23/2022	REG	F	INIT	Metals	Nickel	Ni	9.22	7.7	LANL Reg BG LVL	2.9	3.2	0.600	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	80	86	02/28/2009	0.256	3.47	2.82	86	Mortandad Canyon	Regional	R-45 S1	880.0	02/23/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.18	1.1	LANL Reg BG LVL	0.769	4.1	0.0850	mg/L	5.00		NQ	NQ	EPA:353.2	GELC	
C4	80	86	02/28/2009	4.1	20.4	8.22	86	Mortandad Canyon	Regional	R-45 S1	880.0	02/23/2022	REG	F	INIT	Geninorg	Sulfate	SO4(-2)	20.4	2.5	LANL Reg BG LVL	4.59	4.4	0.665	mg/L	5.00		NQ	NQ	EPA:300.0	GELC	
C4	79	84	03/05/2009	2.74	7.35	4.705	84	Mortandad Canyon	Regional	R-45 S2	974.9	02/23/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	6.91	1.5	LANL Reg BG LVL	2.7	2.6	0.0670	mg/L	1.00		NQ	NQ	EPA:300.0	GELC	
C4	79	89	03/05/2009	6.1	63	28	88	Mortandad Canyon	Regional	R-45 S2	974.9	02/23/2022	REG	F	INIT	Metals	Chromium	Cr	54.3	1.9	LANL Reg BG LVL	7.48	7.3	3.00	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	81	90	03/06/2010	4.68	21.9	9.815	90	Mortandad Canyon	Regional	R-50 S1	1077.0	02/22/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	21.0	2.1	LANL Reg BG LVL	2.7	7.8	0.335	mg/L	5.00		NQ	NQ	EPA:300.0	GELC	

Table 1: NMED 3-22 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fid QC Type Code	Fid 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	82	91	03/06/2010	1.51	14.6	5.96	91	Mortandad Canyon	Regional	R-50 S1	1077.0	02/22/2022	REG	F	INIT	Metals	Nickel	Ni	14.6	2.4	LANL Reg BG LVL	2.9	5	0.600	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	82	92	03/06/2010	0.398	3.01	2.205	92	Mortandad Canyon	Regional	R-50 S1	1077.0	02/22/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.98	1.4	LANL Reg BG LVL	0.769	3.9	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	
C4	81	90	03/06/2010	7.22	21.1	14.65	90	Mortandad Canyon	Regional	R-50 S1	1077.0	02/22/2022	REG	F	INIT	Geninorg	Sulfate	SO4(-2)	20.1	1.4	LANL Reg BG LVL	4.59	4.4	0.665	mg/L	5.00		NQ	NQ	EPA:300.0	GELC	
C4	66	75	05/20/2011	2.03	43.9	22.3	74	Mortandad Canyon	Regional	R-61 S1	1125.0	02/08/2022	REG	F	INIT	Metals	Chromium	Cr	43.4	1.9	LANL Reg BG LVL	7.48	5.8	3.00	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	66	75	05/20/2011	0.427	2.95	2.27	75	Mortandad Canyon	Regional	R-61 S1	1125.0	02/08/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.47	1.1	LANL Reg BG LVL	0.769	3.2	0.0850	mg/L	5.00		NQ	NQ	EPA:353.2	GELC	
C4	65	74	05/20/2011	2.96	17	12.1	74	Mortandad Canyon	Regional	R-61 S1	1125.0	02/08/2022	REG	F	DL	LCMS/MS	Perchlorate	ClO4	12.4	1	LANL Reg BG LVL	0.414	30	0.500	µg/L	10.0		NQ	NQ	SW-846:6850	GELC	
C4	19	20	08/04/2020	2.37	2.92	2.535	20	Mortandad Canyon	Regional	R-70 S1	963.0 ^a	02/16/2022	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	19	20	08/04/2020	13.1	19.3	16.25	20	Mortandad Canyon	Regional	R-70 S2	1048.0*	02/16/2022	REG	F	INIT	Geninorg	Chloride	Cl(-1)	14.1	0.9	LANL Reg BG LVL	2.7	5.2	0.134	mg/L	2.00		NQ	NQ	EPA:300.0	GELC	
C4	19	20	08/04/2020	167	272	209	20	Mortandad Canyon	Regional	R-70 S2	1048.0*	02/16/2022	REG	F	INIT	Metals	Chromium	Cr	167	0.8	LANL Reg BG LVL	7.48	22.3	3.00	µg/L	1.00		NQ	NQ	SW-846:6020B	GELC	
C4	19	20	08/04/2020	3.21	4.06	3.715	20	Mortandad Canyon	Regional	R-70 S2	1048.0*	02/16/2022	REG	F	INIT	Geninorg	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.23	0.9	LANL Reg BG LVL	0.769	4.2	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	
C4	19	20	08/04/2020	20.5	32.6	27.25	20	Mortandad Canyon	Regional	R-70 S2	1048.0*	02/16/2022	REG	F	INIT	Geninorg	Sulfate	SO4(-2)	22.4	0.8	LANL Reg BG LVL	4.59	4.9	0.266	mg/L	2.00		NQ	NQ	EPA:300.0	GELC	

* Data pertaining to a well drilled at a target angle from the vertical. Depth value represents linear feet along (down) the borehole.

Table 2: NMED 3-22 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	19	20	08/04/2020	0.106	0.106	0.106	1	Mortandad Canyon	Regional	R-70 S1	963.0*	02/16/2022	REG	F	INIT	Metals	Mercury	Hg	0.106	1	Reg-Scr_95	0.067	1.6	0.0670	µg/L	1.00	J	J	J_LAB	SW-846:7470A	GELC	
XC2scr	19	20	08/04/2020	0.11	0.11	0.11	1	Mortandad Canyon	Regional	R-70 S2	1048.0*	02/16/2022	REG	F	INIT	Metals	Mercury	Hg	0.110	1	Reg-Scr_95	0.067	1.6	0.0670	µg/L	1.00	J	J	J_LAB	SW-846:7470A	GELC	
XC4scr	9	11	12/16/2000	250	4170	761	11	Ancho Canyon	Regional	R-31 S3	666.3	02/08/2022	REG	F	INIT	Metals	Iron	Fe	761	1	Reg-Scr_95	53.8	14.1	30.0	µg/L	1.00		NQ	NQ	SW-846:6010D	GELC	
XC4scr	9	11	12/16/2000	87.5	3500	102	11	Ancho Canyon	Regional	R-31 S3	666.3	02/08/2022	REG	F	INIT	Metals	Manganese	Mn	94.4	0.9	Reg-Scr_95	12.1	7.8	2.00	µg/L	1.00		NQ	NQ	SW-846:6010D	GELC	
XC4scr	9	11	12/16/2000	3.2	46.2	32.9	9	Ancho Canyon	Regional	R-31 S3	666.3	02/08/2022	REG	F	INIT	Metals	Zinc	Zn	31.2	0.9	Reg-Scr_95	14.4	2.2	3.30	µg/L	1.00		NQ	NQ	SW-846:6010D	GELC	
XC4scr	80	91	08/30/2007	20.6	54.5	39.8	85	Sandia Canyon	Regional	R-35a	1013.1	02/10/2022	REG	F	INIT	Metals	Boron	B	44.7	1.1	Reg-Scr_95	18.7	2.4	15.0	µg/L	1.00	J	J	J_LAB	SW-846:6010D	GELC	
XC4scr	80	91	08/30/2007	137	199	168	91	Sandia Canyon	Regional	R-35a	1013.1	02/10/2022	REG	F	INIT	Metals	Strontium	Sr	167	1	Reg-Scr_95	74.4	2.2	1.00	µg/L	1.00		NQ	NQ	SW-846:6010D	GELC	
XC4scr	82	86	02/17/2009	0.0757	0.165	0.146	41	Mortandad Canyon	Regional	R-44 S1	895.0	02/18/2022	REG	F	INIT	Geninorg	Bromide	Br(-1)	0.152	1	Reg-Scr_95	0.067	2.3	0.0670	mg/L	1.00	J	J	J_LAB	EPA:300.0	GELC	
XC4scr	81	90	03/06/2010	0.0691	0.271	0.121	69	Mortandad Canyon	Regional	R-50 S1	1077.0	02/22/2022	REG	F	INIT	Geninorg	Bromide	Br(-1)	0.158	1.3	Reg-Scr_95	0.067	2.4	0.0670	mg/L	1.00	J	J	J_LAB	EPA:300.0	GELC	
XC4scr	66	75	05/20/2011	0.0531	11.8	0.416	71	Mortandad Canyon	Regional	R-61 S1	1125.0	02/08/2022	REG	F	INIT	Geninorg	Total Phosphate as Phosphorus	PO4-P	0.192	0.5	Reg-Scr_95	0.0822	2.3	0.0200	mg/L	1.00		NQ	NQ	EPA:365.4	GELC	

* Data pertaining to a well drilled at a target angle from the vertical. Depth value represents linear feet along (down) the borehole.