EMID-700454

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

MAY 29 2019

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NMED
Hazardous Waste
Bureau

Mr. John E. Kieling
Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Dear Mr. Kieling:

Subject: Monthly Notification of Groundwater Data Reviewed in May 2019

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 (Consent Order). Members of EM-LA and N3B met on May 14, 2019, to review groundwater data received in April 2019 in accordance with Section XXVI.C of the 2016 Consent Order. 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." For comparison with EPA tap water standards, the standard's carcinogenic risk value was adjusted to 1×10^{-5}, as specified in the Consent Order.

The enclosed report was prepared using the November 2018 EPA regional screening levels for tap water, before inclusion of the NMWQCC groundwater standards, published December 21, 2018, and the February 2019 update of Table A-1 of "Risk Assessment Guidance for Site Investigations and Remediation" for NMED tap water screening levels. N3B is updating its data screening software and procedures to incorporate both the updated NMWQCC groundwater standards and the NMED tap water screening levels. Upon completion of the upgrade, N3B will conduct a groundwater data review and resubmit revised reports for those samples collected on or after December 21, 2018, using the updated NMWQCC standards for groundwater and revised NMED screening levels for tap water.

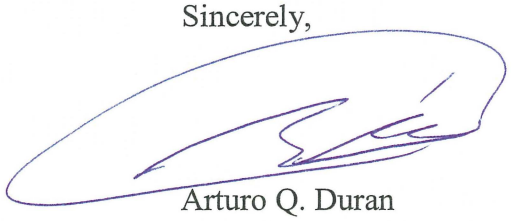
1-Day Notification
There was one instance of a contaminant detected at a concentration that exceeded the NMWQCC groundwater standard or federal MCL at locations where contaminants have not previously been detected above the respective standard as defined in the Consent Order (based on samples collected since June 14, 2007).

A filtered sample collected on March 8, 2019, from alluvial well MSC-16-06293 was measured at 1490 µg/L for iron, above the 1000-µg/L NMWQCC groundwater standard.

15-Day Notification
The required information for the contaminants and other chemical parameters that meet the five reporting criteria requiring written notification within 15 days is given in the accompanying 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) 665-5046 (hai.shen@em.doe.gov).

Sincerely,



Arturo Q. Duran
Compliance and Permitting Manager
Environmental Management
Los Alamos Field Office

Enclosure:
1. Two hard copies with electronic files - Summary of Groundwater Data Reviewed in May 2019 That Meet Notification Requirements (EM2019-0187)

cc (letter with CD/DVD enclosure[s]):
H. Burgess, Los Alamos County, Los Alamos, NM (2 copies)

cc (letter and enclosure[s] emailed):
L. King, EPA Region 6, Dallas, TX
R. Martinez, San Ildefonso Pueblo, NM
D. Chavarria, Santa Clara Pueblo, NM
D. Gomez, Los Alamos County, Los Alamos, NM
M. Hunter, NMED
S. Yanicak, NMED
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N3B Records
Public Reading Room (EPRR)
PRS Website

EM-LA-40AD-00455

SUMMARY OF GROUNDWATER DATA REVIEWED IN MAY 2019
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 2019 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 04-19 Groundwater Report, presents results since June 14, 2007, that met the five reporting criteria as specified in the 2016 Consent Order. Table 2, NMED 04-19 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 which 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 to identify the potential risk resulting from contaminants and other chemical constituents which 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
- 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." For comparison with EPA tap water standards, the standard's carcinogenic risk value was adjusted to 1×10^{-5}, as specified in the 2016 Consent Order. This report was prepared using the November 2018 EPA regional screening levels for tap water and the NMWQCC groundwater standards and NMED screening levels for tap water published before December 21, 2018.

Background values applied in Table 1 notification criteria C2 and 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 represents the date that shows 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 water quality standard or MCL in the well screen interval or spring. N3B, under the U.S. Department of Energy Office of Environmental Management, 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” (2017), 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 two through eight 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:

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 or unfiltered

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

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

Analyte Desc—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 qualifiers 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

Anyl Meth Code—analytical method number

Lab Code—analytical laboratory name

Comment—N3B comment regarding the analytical result

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

Acronyms and Abbreviations

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

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

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

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

NMED A1 TAP SCRN LVL—New Mexico Environment Department screen level for tap water

NTU—nephelometric turbidity unit

RDX—Royal Demolition Explosive

SVOC—semivolatile organic compound

TDS—total dissolved solids

TNX—2,4,6-trinitroxylene

UOM—units of measurement

VOC—Volatile organic compound

Analytical Laboratory Codes and Qualifiers

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.

F—filtered

FD—field duplicate

GELC—General Engineering Laboratories, Inc., Charleston, SC.

GENINORG—general inorganic

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 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.

MDL—Method detection limit

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.

PQL—Practical quantitation limit

RE—reanalysis

REG—regular sample

UF—Unfiltered

V9b—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 04-19 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	Anyl Suite Code	Analyte Desc	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	Anyl Meth Code	Lab Code	Comment
C1	12	16	1/25/2012	0.34	0.38	0.36	2	Water Canyon	Alluvial	CDV-16-611923	3.2	3/11/2019	FD	UF	INIT	VOC	Dichlorobenzene[1,3-]	541-73-1	0.34	0.9				0.3	µg/L	1	J	J-	V9b	SW-846:8260B	GELC	
C1	12	16	1/25/2012	0.34	0.38	0.36	2	Water Canyon	Alluvial	CDV-16-611923	3.2	3/11/2019	REG	UF	INIT	VOC	Dichlorobenzene[1,3-]	541-73-1	0.38	1.1				0.3	µg/L	1	J	J-	V9b	SW-846:8260B	GELC	
C1	5	6	3/16/2017	2.22	2.22	2.22	1	Water Canyon	Alluvial	CDV-16-611937	3	3/11/2019	REG	UF	INIT	VOC	Acetone	67-64-1	2.22	1	NMED A1 TAP SCRN LVL*	14,100	0	1.5	µg/L	1	J	J-	V9b	SW-846:8260B	GELC	
C1	5	6	3/16/2017	0.41	0.41	0.41	1	Water Canyon	Alluvial	CDV-16-611937	3	3/11/2019	REG	UF	INIT	VOC	Dichlorobenzene[1,3-]	541-73-1	0.41	1				0.3	µg/L	1	J	J-	V9b	SW-846:8260B	GELC	
C1	11	12	4/1/2010	0.134	0.134	0.134	1	Water Canyon	Alluvial	CDV-16-611937	3	3/11/2019	REG	UF	INIT	LCMS/MS high explosives	DNX	DNX	0.134	1				0.085	µg/L	2	J	J	J_LAB	SW-846:8330B	GELC	
C1	11	12	4/1/2010	0.128	0.128	0.128	1	Water Canyon	Alluvial	CDV-16-611937	3	3/11/2019	REG	UF	INIT	LCMS/MS high explosives	TNX	TNX	0.128	1				0.085	µg/L	2	J	J	J_LAB	SW-846:8330B	GELC	
C1	5	5	2/16/2006	0.51	0.51	0.51	1	Water Canyon	Alluvial	FLC-16-25280	2.6	3/8/2019	REG	UF	INIT	VOC	Chloromethane	74-87-3	0.51	1	NMED A1 TAP SCRN LVL	20.3	0	0.3	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C1	2	2	3/8/2017	0.108	0.108	0.108	1	Water Canyon	Alluvial	FLC-16-25280	2.6	3/8/2019	REG	UF	INIT	LCMS/MS high explosives	DNX	DNX	0.108	1				0.084	µg/L	2	J	J	J_LAB	SW-846:8330B	GELC	
C1	7	7	11/14/2000	0.49	0.49	0.49	1	Water Canyon	Alluvial	MSC-16-06293	2	3/8/2019	REG	UF	INIT	VOC	Dichlorobenzene[1,3-]	541-73-1	0.49	1				0.3	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C1	5	5	2/27/2017	0.35	0.35	0.35	1	Water Canyon	Alluvial Spring	16-61439	0	3/11/2019	REG	UF	INIT	VOC	Toluene	108-88-3	0.35	1	NM GW STD	750	0	0.3	µg/L	1	J	J-	V9b	SW-846:8260B	GELC	
C1	25	25	4/15/2009	0.42	0.42	0.42	1	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	UF	INIT	VOC	Chloroethane	75-00-3	0.42	1	NMED A1 TAP SCRN LVL	20900	0	0.3	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	Sample was collected by hand with a bailer and has exceedingly high turbidity of greater than 1000 NTU.
C1	2	3	2/13/2019	18.2	18.2	18.2	1	Water Canyon	Regional	R-69 S2	1375.5	3/26/2019	FD	UF	INIT	VOC	Butanol[1-]	71-36-3	18.2	1	EPA TAP SCRN LVL	2000	0	15	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C1	24	30	11/30/2005	0.459	2.85	2.555	4	Sandia Canyon	Regional Top	R-10a	690	11/14/2018	REG	UF	INIT	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	0.459	0.2	EPA MCL	6	0.1	0.306	µg/L	1	J	J	J_LAB	SW-846:8270D	GELC	
C1	41	54	8/25/2005	1.09	1.09	1.09	1	Pajarito Canyon	Regional Top	R-18	1358	3/12/2019	REG	UF	INIT	VOC	Methylene Chloride	75-09-2	1.09	1	EPA MCL	5	0.2	1	µg/L	1	J	J-	V9b	SW-846:8260B	GELC	

Table 1: NMED 04-19 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	Anyl Suite Code	Analyte Desc	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	Anyl Meth Code	Lab Code	Comment
C1	2	3	1/31/2019	0.41	0.41	0.41	1	Water Canyon	Regional Top	R-69 S1	1310	3/26/2019	REG	UF	INIT	VOC	Naphthalene	91-20-3	0.41	1	NM GW STD	30	0	0.3	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C1	2	3	1/31/2019	0.3	0.3	0.3	1	Water Canyon	Regional Top	R-69 S1	1310	3/26/2019	REG	UF	INIT	VOC	Tetrachloroethene	127-18-4	0.3	1	EPA MCL	5	0.1	0.3	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C2	11	11	4/15/2009	9.37	23.3	10.1	11	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	F	INIT	GENINORG	Sodium	Na	23.3	2.3	LANL Int BG LVL	18.2	1.3	0.1	mg/L	1		NQ	NQ	SW-846:6010C	GELC	Sample was collected by hand with a bailer and has exceedingly high turbidity of greater than 1000 NTU.
C2	19	23	12/21/2009	0.0793	0.246	0.135	23	Water Canyon	Intermediate Perched	R-47i	840	3/25/2019	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.246	1.8	LANL Int BG LVL	0.234	1.1	0.033	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C2	46	48	3/5/2009	0.504	3.09	1.3	45	Mortandad Canyon	Regional Deep	R-45 S2	974.9	3/14/2019	REG	F	INIT	METALS	Nickel	Ni	3.09	2.4	LANL Reg BG LVL	2.9	1.1	0.6	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C2	47	49	8/30/2007	0.55	1.42	0.621	49	Sandia Canyon	Regional Top	R-35a	1013.1	3/20/2019	FD	F	INIT	GENINORG	Uranium	U	1.42	2.3	LANL Reg BG LVL	1.19	1.2	0.067	µg/L	1		J+	l4a	SW-846:6020	GELC	
C2	2	3	1/31/2019	0.65	0.782	0.657	3		Regional Top	R-69 S1	1310	3/26/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	0.782	1.2	LANL Reg BG LVL	0.769	1	0.017	mg/L	1		NQ	NQ	EPA:353.2	GELC	
C3	7	7	12/5/2016	35.5	808	148	7	Water Canyon	Alluvial Spring	16-61439	0	3/11/2019	REG	F	INIT	METALS	Iron	Fe	808	5.5	NM GW STD	1000	0.8	30	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	11	11	4/15/2009	2.49	123	32.1	11	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	F	INIT	METALS	Barium	Ba	123	3.8	LANL Int BG LVL	13.5	9.1	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	Sample was collected by hand with a bailer and has exceedingly high turbidity of greater than 1000 NTU.
C4	11	11	4/15/2009	22.4	50.9	24.8	11	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	F	INIT	GENINORG	Calcium	Ca	50.9	2.1	LANL Int BG LVL	10.7	4.8	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	Sample was collected by hand with a bailer and has exceedingly high turbidity of greater than 1000 NTU.

Table 1: NMED 04-19 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	Anyl Suite Code	Analyte Desc	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	Anyl Meth Code	Lab Code	Comment
C4	11	11	4/15/2009	79.1	189	87.2	11	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	F	INIT	GENINORG	Hardness	HARDNESS	189	2.2	LANL Int BG LVL	37.8	5	0.453	mg/L	1		NQ	NQ	SM:A2340B	GELC	Sample was collected by hand with a bailer and has exceedingly high turbidity of greater than 1000 NTU.
C4	11	11	4/15/2009	125	351	152	11	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	F	INIT	METALS	Strontium	Sr	351	2.3	LANL Int BG LVL	59.6	5.9	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	Sample was collected by hand with a bailer and has exceedingly high turbidity of greater than 1000 NTU.
C4	20	25	4/20/2010	15.2	57.8	19.9	25	Water Canyon	Intermediate Perched	16-26644	129	3/7/2019	REG	F	INIT	GENINORG	Chloride	Cl(-1)	57.8	2.9	LANL Int BG LVL	3.11	18.6	0.67	mg/L	10		NQ	NQ	EPA:300.0	GELC	
C4	11	15	5/21/2015	9.11	66.5	12.6	15	Water Canyon	Intermediate Perched	CDV-9-1(i) S1	937.4	3/5/2019	REG	F	INIT	GENINORG	Chloride	Cl(-1)	14.5	1.2	LANL Int BG LVL	3.11	4.7	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	11	15	5/21/2015	0.962	2.63	1.07	15	Water Canyon	Intermediate Perched	CDV-9-1(i) S1	937.4	3/5/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.07	1	LANL Int BG LVL	0.459	2.3	0.017	mg/L	1		NQ	NQ	EPA:353.2	GELC	
C4	31	36	9/9/2004	53.9	90	69.35	36	Pajarito Canyon	Intermediate Spring	Bulldog Spring	0	3/6/2019	REG	F	INIT	METALS	Barium	Ba	82.9	1.2	LANL Int BG LVL	13.5	6.1	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	30	35	9/9/2004	12.1	45.9	19.1	35	Pajarito Canyon	Intermediate Spring	Bulldog Spring	0	3/6/2019	REG	F	INIT	GENINORG	Chloride	Cl(-1)	45.9	2.4	LANL Int BG LVL	3.11	14.8	0.67	mg/L	10		NQ	NQ	EPA:300.0	GELC	
C4	28	33	6/22/2005	0.537	1.11	0.721	33	Pajarito Canyon	Intermediate Spring	Bulldog Spring	0	3/6/2019	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.56	0.8	LANL Int BG LVL	0.27	2.1	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	70	79	1/10/2000	115	243	166	72	Water Canyon	Intermediate Spring	Martin Spring	0	3/6/2019	REG	F	INIT	METALS	Barium	Ba	115	0.7	LANL Int BG LVL	13.5	8.5	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	26	33	1/30/2007	18	44.2	22.2	33	Water Canyon	Intermediate Spring	Martin Spring	0	3/6/2019	REG	F	INIT	GENINORG	Chloride	Cl(-1)	35	1.6	LANL Int BG LVL	3.11	11.3	0.335	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	26	33	1/30/2007	0.349	0.688	0.474	33	Water Canyon	Intermediate Spring	Martin Spring	0	3/6/2019	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.523	1.1	LANL Int BG LVL	0.234	2.2	0.033	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	26	33	1/30/2007	0.95	4.88	2.68	33	Water Canyon	Intermediate Spring	Martin Spring	0	3/6/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	0.95	0.4	LANL Int BG LVL	0.459	2.1	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	46	53	3/5/2009	6.1	47.4	18.2	52	Mortandad Canyon	Regional Deep	R-45 S2	974.9	3/14/2019	REG	F	INIT	METALS	Chromium	Cr	30.8	1.7	LANL Reg BG LVL	7.48	4.1	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	59	69	5/17/2005	2.27	7.43	5.25	69	Sandia Canyon	Regional Top	R-11	855	3/21/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	6.26	1.2	LANL Reg BG LVL	0.769	8.1	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	

Table 1: NMED 04-19 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	Anyl Suite Code	Analyte Desc	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	Anyl Meth Code	Lab Code	Comment
C4	59	69	5/17/2005	5.95	15.4	10.2	69	Sandia Canyon	Regional Top	R-11	855	3/21/2019	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	10.2	1	LANL Reg BG LVL	4.59	2.2	0.133	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	47	49	8/30/2007	68	389	347	49	Sandia Canyon	Regional Top	R-35a	1013.1	3/20/2019	FD	F	INIT	METALS	Barium	Ba	359	1	LANL Reg BG LVL	38.1	9.4	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	47	49	8/30/2007	68	389	347	49	Sandia Canyon	Regional Top	R-35a	1013.1	3/20/2019	REG	F	INIT	METALS	Barium	Ba	352	1	LANL Reg BG LVL	38.1	9.2	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	46	48	8/30/2007	5.97	7.31	6.42	48	Sandia Canyon	Regional Top	R-35a	1013.1	3/20/2019	FD	F	INIT	GENINORG	Chloride	Cl(-1)	6.8	1.1	LANL Reg BG LVL	2.7	2.5	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	46	48	8/30/2007	5.97	7.31	6.42	48	Sandia Canyon	Regional Top	R-35a	1013.1	3/20/2019	REG	F	INIT	GENINORG	Chloride	Cl(-1)	6.67	1	LANL Reg BG LVL	2.7	2.5	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	49	50	2/17/2009	1.99	17.7	2.36	50	Mortandad Canyon	Regional Top	R-44 S1	895	3/20/2019	REG	F	INIT	GENINORG	Chloride	Cl(-1)	17.7	7.5	LANL Reg BG LVL	2.7	6.6	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	49	50	2/17/2009	0.123	2.53	1.14	49	Mortandad Canyon	Regional Top	R-44 S1	895	3/20/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.53	2.2	LANL Reg BG LVL	0.769	3.3	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	49	50	2/17/2009	2.76	14.8	3.415	50	Mortandad Canyon	Regional Top	R-44 S1	895	3/20/2019	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	14.8	4.3	LANL Reg BG LVL	4.59	3.2	0.133	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	47	53	2/28/2009	8.4	50.7	35.7	53	Mortandad Canyon	Regional Top	R-45 S1	880	3/14/2019	REG	F	INIT	METALS	Chromium	Cr	35	1	LANL Reg BG LVL	7.48	4.7	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	47	49	2/28/2009	0.26	3.47	2.87	49	Mortandad Canyon	Regional Top	R-45 S1	880	3/14/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.81	1	LANL Reg BG LVL	0.769	3.7	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	49	55	3/6/2010	4.68	17.9	8.64	55	Mortandad Canyon	Regional Top	R-50 S1	1077	3/14/2019	REG	F	INIT	GENINORG	Chloride	Cl(-1)	17.90	2.1	LANL Reg BG LVL	2.7	6.6	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	49	57	3/6/2010	49.80	150	99.8	57	Mortandad Canyon	Regional Top	R-50 S1	1077	3/14/2019	REG	F	INIT	METALS	Chromium	Cr	61.90	0.6	LANL Reg BG LVL	7.48	8.3	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	49	56	3/6/2010	0.40	2.77	1.87	56	Mortandad Canyon	Regional Top	R-50 S1	1077	3/14/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.77	1.5	LANL Reg BG LVL	0.769	3.6	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	49	55	3/6/2010	7.22	18.4	13.1	55	Mortandad Canyon	Regional Top	R-50 S1	1077	3/14/2019	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	18.40	1.4	LANL Reg BG LVL	4.59	4	0.266	mg/L	2		NQ	NQ	EPA:300.0	GELC	

Table 1: NMED 04-19 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	Anyl Suite Code	Analyte Desc	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	Anyl Meth Code	Lab Code	Comment
C4	33	39	5/20/2011	2.03	23.3	19.55	38	Mortandad Canyon	Regional Top	R-61 S1	1125	3/22/2019	REG	F	INIT	METALS	Chromium	Cr	21.60	1.1	LANL Reg BG LVL	7.48	2.9	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	33	39	5/20/2011	0.43	2.64	1.94	39	Mortandad Canyon	Regional Top	R-61 S1	1125	3/22/2019	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.54	1.3	LANL Reg BG LVL	0.769	3.3	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	32	38	5/20/2011	2.96	16.2	10.75	38	Mortandad Canyon	Regional Top	R-61 S1	1125	3/22/2019	REG	F	INIT	GENINORG	Perchlorate	ClO4	12.40	1.2	LANL Reg BG LVL	0.414	30	0.5	µg/L	10		NQ	NQ	SW-846:6850	GELC	
C5	5	5	2/16/2006	6.09	189	28.5	5	Water Canyon	Alluvial	FLC-16-25280	3	3/8/2019	REG	UF	DL	VOC	Tetrachloroethene	127-18-4	189.00	6.6	EPA MCL	5	37.8	1.2	µg/L	4		NQ	NQ	SW-846:8260B	GELC	
C5	7	7	12/5/2016	6.89	13.1	11.5	7	Water Canyon	Alluvial Spring	16-61439	0	3/11/2019	REG	UF	INIT	HEXP	RDX	121-82-4	12.80	1.1	NMED A1 TAP SCRN LVL	7.02	1.8	0.086	µg/L	2		NQ	NQ	SW-846:8330B	GELC	
C5	26	30	4/20/2010	0.88	92.1	3.02	30	Water Canyon	Intermediate Perched	16-26644	129	3/7/2019	REG	UF	INIT	HEXP	RDX	121-82-4	65.70	21.8	NMED A1 TAP SCRN LVL	7.02	9.4	1.1	µg/L	25		NQ	NQ	SW-846:8330B	GELC	
CA	11	11	11/14/2000	113.00	2320	508	11	Water Canyon	Alluvial	MSC-16-06293	2	3/8/2019	REG	F	INIT	METALS	Iron	Fe	1490.00	2.9	NM GW STD	1000	1.5	30	µg/L	1		NQ	NQ	SW-846:6010C	GELC	

* NMED A1 TAP SCRN LVL = 2017 NMED Soil Screening Levels Summary (SSLs) Table A-1 values for tap water screening level.

Table 2: NMED 04-19 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	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
XC2scr	31	36	9/9/2004	2	17.7	3.02	15	Pajarito Canyon	Intermediate Spring	Bulldog Spring	0	3/6/2019	REG	F	INIT	METALS	Manganese	Mn	8.5	2.8	Int-Scr_95	8.39	1	2	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	2	3	2/13/2019	16	19.8	17.9	2	Water Canyon	Regional	R-69 S2	1375.5	3/26/2019	REG	F	INIT	METALS	Boron	B	19.8	1.1	Reg-Scr_95	18.7	1.1	15	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	2	3	2/13/2019	0.107	0.179	0.143	2	Water Canyon	Regional	R-69 S2	1375.5	3/26/2019	FD	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.179	1.3	Reg-Scr_95	0.0822	2.2	0.02	mg/L	1		NQ	NQ	EPA:365.4	GELC	
XC2scr	2	3	2/13/2019	0.107	0.179	0.143	2	Water Canyon	Regional	R-69 S2	1375.5	3/26/2019	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.107	0.7	Reg-Scr_95	0.0822	1.3	0.02	mg/L	1		NQ	NQ	EPA:365.4	GELC	
XC2scr	10	11	6/29/2006	0.104	0.104	0.104	1	Sandia Canyon	Regional Deep	R-10 S2	1042	11/14/2018	REG	UF	INIT	INORGANIC	Cyanide (Total)	CN (Total)	0.104	1	Reg-Scr_95	0.0017	61	0.002	mg/L	1		NQ	NQ	EPA:335.4	GELC	FD was nondetect.
XC2scr	49	54	39866	1.51	1.51	1.51	1	Mortandad Canyon	Regional Deep	R-44 S2	985.3	3/20/2019	REG	F	INIT	METALS	Cobalt	Co	1.51	1	Reg-Scr_95	1	1.5	1	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	40	43	40008	0.0019	0.0019	0.0019	1	Mortandad Canyon	Regional Deep	R-44 S2	985.3	3/20/2019	REG	UF	INIT	INORGANIC	Cyanide (Total)	CN (Total)	0.0019	1	Reg-Scr_95	0.0017	1.1	0.002	mg/L	1	J	J	J_LAB	EPA:335.4	GELC	
XC2scr	47	49	39324	1.55	2.16	1.855	2	Sandia Canyon	Regional Top	R-35a	1013.1	3/20/2019	FD	F	INIT	METALS	Cobalt	Co	1.55	0.8	Reg-Scr_95	1	1.6	1	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	47	49	39324	1.55	2.16	1.855	2	Sandia Canyon	Regional Top	R-35a	1013.1	3/20/2019	REG	F	INIT	METALS	Cobalt	Co	2.16	1.2	Reg-Scr_95	1	2.2	1	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	47	57	39323	2.06	2.06	2.06	1	Sandia Canyon	Regional Top	R-35b	825.4	3/20/2019	REG	F	INIT	METALS	Cobalt	Co	2.06	1	Reg-Scr_95	1	2.1	1	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	49	50	39861	1.09	1.09	1.09	1	Mortandad Canyon	Regional Top	R-44 S1	895	3/20/2019	REG	F	INIT	METALS	Cobalt	Co	1.09	1	Reg-Scr_95	1	1.1	1	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC4scr	11	11	39918	2.15	95	7.3	11	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	F	INIT	METALS	Cobalt	Co	8.13	1.1	Int-Scr_95	1	8.1	1	µg/L	1		J+	I4a	SW-846:6010C	GELC	
XC4scr	11	11	39918	12	1380	41.25	10	Water Canyon	Intermediate	R-26 PZ-2	150	3/5/2019	REG	F	INIT	METALS	Manganese	Mn	22.3	0.5	Int-Scr_95	8.39	2.7	2	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	70	79	36535	51	5130	320	51	Water Canyon	Intermediate Spring	Martin Spring	0	3/6/2019	REG	F	INIT	METALS	Aluminum	Al	3800	11.9	Int-Scr_95	68	56	68	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	66	75	36535	508	2840	1310	75	Water Canyon	Intermediate Spring	Martin Spring	0	3/6/2019	REG	F	INIT	METALS	Boron	B	508	0.4	Int-Scr_95	16.2	31	15	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	33	39	5/20/2011	0.05	11.8	0.72	36	Mortandad Canyon	Regional Top	R-61 S1	1125.0	3/22/2019	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.4	0.5	Reg-Scr_95	0.082	4.6	0.020	mg/L	1.0		J+	I4a	EPA:365.4	GELC	