

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

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



SEP 20 2018

Dear Mr. Kieling:

Subject: Monthly Notification of Groundwater Data Reviewed in September 2018

This letter is the U.S. Department of Energy 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 September 13, 2018, to review groundwater data received in August 2018 in accordance with Section XXVI.C of the 2016 Consent Order. 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), 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  $1 \times 10^{-5}$ , as specified in the Consent Order. This report was prepared using the May 2018 EPA regional screening levels for tap water.

**1-Day Notification**

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 been previously detected above the respective standard (based on samples collected since June 14, 2007).

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.

**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  
Designated Agency Manager  
Environmental Management  
Los Alamos Field Office

Enclosures:

1. Summary of Groundwater Data Reviewed in September 2018 That Meet Notification Requirements (EM2018-0053)

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  
W. Witten, Los Alamos County Utility Department, Los Alamos, NM  
M. Hunter, NMED  
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EM-LA-20AD-00316

## **SUMMARY OF GROUNDWATER DATA REVIEWED IN SEPTEMBER 2018 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 Los Alamos National Laboratory's (the Laboratory's) annual "Interim Facility-Wide Groundwater Monitoring Plan" for the 2018 Monitoring Year and contains results for contaminants and other chemical constituents that meet the five screening criteria described in Section XXVI of the 2016 Consent 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 indicated in the tables.

The report includes two tables. Table 1, NMED 08-18 Groundwater Report, presents results since June 14, 2007, that met the five reporting criteria as specified in the 2016 Consent Order. Table 2, NMED 08-18 Groundwater Report Addendum, presents results that are exceeding the 95<sup>th</sup> percentile of those results in the data set defined in the "Groundwater Background Investigation Report, Revision 5." Only contaminants and other chemical constituents lacking 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 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  $1 \times 10^{-5}$ , as specified in the 2016 Consent Order. This report was prepared using the May 2018 EPA regional screening levels for tap water.

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 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

### 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. Some data met more than one of the notification criteria and 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” (March 2017 or updates, as appropriate), 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 two 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 two through eight in both tables provide summary statistics for metals or 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—sample date

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 Qual Code—analytical laboratory qualifiers indicating analytical quality of the sample

Validation Flag—secondary validation qualifier

Validation Reason Code—concatenated secondary validation codes explaining assignment of qualifiers

Anyl Meth Code—analytical method number

Lab Code—analytical laboratory name

Comment—comment on the analytical result

Table 1: NMED 08-18 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	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
C3	19	22	5/12/2004	1.71	5.07	3.4	12	Mortandad Canyon	Regional Deep	R-16 S2	863.4	7/27/2018	REG	F	INIT	METALS	Arsenic	As	5.07	1.5	EPA MCL	10	0.5	2	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C3	41	49	8/29/2007	1.74	5.64	2.555	22	Sandia Canyon	Regional Top	R-35b	825.4	7/12/2018	REG	F	INIT	METALS	Arsenic	As	5.64	2.2	EPA MCL	10	0.6	2	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	46	51	6/9/2005	14	35.1	17	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	METALS	Barium	Ba	32	1.9	LANL Int BG LVL	13.5	2.4	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	46	51	6/9/2005	16.7	40.6	20.5	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Calcium	Ca	37.4	1.8	LANL Int BG LVL	10.7	3.5	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	46	51	6/9/2005	4.89	15.7	7.14	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	15.4	2.2	LANL Int BG LVL	3.11	5	0.34	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	46	51	6/9/2005	54.4	131	67.2	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Hardness	HARDNESS	121	1.8	LANL Int BG LVL	37.8	3.2	0.45	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	46	51	6/9/2005	2.99	7.32	3.91	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Magnesium	Mg	6.75	1.7	LANL Int BG LVL	3.14	2.1	0.11	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	46	51	6/9/2005	3.17	16.8	4.93	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	14.6	3	LANL Int BG LVL	0.459	31.8	0.85	mg/L	50		NQ	NQ	EPA:353.2	GELC	
C4	46	51	6/9/2005	68.7	239	97	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Perchlorate	CIO4	239	2.5	LANL Int BG LVL	0.27	885	10	µg/L	200		NQ	NQ	SW-846:6850	GELC	
C4	46	51	6/9/2005	68.6	184	93.8	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	METALS	Strontium	Sr	173	1.8	LANL Int BG LVL	59.6	2.9	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	46	51	6/9/2005	10.1	35.1	14.1	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	32.7	2.3	LANL Int BG LVL	7.1	4.6	0.67	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	52	72	6/15/2005	30.1	48.2	40.3	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	METALS	Barium	Ba	37	0.9	LANL Int BG LVL	13.5	2.7	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	52	72	6/15/2005	42.8	75.5	63.65	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Calcium	Ca	59.8	0.9	LANL Int BG LVL	10.7	5.6	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	52	72	6/15/2005	21.2	64.8	55.4	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	55.3	1	LANL Int BG LVL	3.11	17.8	0.67	mg/L	10		NQ	NQ	EPA:300.0	GELC	
C4	52	72	6/15/2005	0.412	0.635	0.525	69	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.606	1.2	LANL Int BG LVL	0.234	2.6	0.03	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	52	72	6/15/2005	142	253	212	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Hardness	HARDNESS	199	0.9	LANL Int BG LVL	37.8	5.3	0.45	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	52	72	6/15/2005	8.49	15.7	12.95	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Magnesium	Mg	12.1	0.9	LANL Int BG LVL	3.14	3.9	0.11	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	52	72	6/15/2005	2.9	41.8	22.55	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	METALS	Nickel	Ni	21.7	1	LANL Int BG LVL	3.65	5.9	0.6	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	52	72	6/15/2005	7.62	20.4	9.84	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	10.1	1	LANL Int BG LVL	0.459	22	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	52	72	6/15/2005	56.3	246	79.15	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Perchlorate	CIO4	103	1.3	LANL Int BG LVL	0.27	382	5	µg/L	100		NQ	NQ	SW-846:6850	GELC	
C4	52	72	6/15/2005	196	339	281	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	METALS	Strontium	Sr	263	0.9	LANL Int BG LVL	59.6	4.4	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	52	72	6/15/2005	34.7	77.6	59.6	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	54.7	0.9	LANL Int BG LVL	7.1	7.7	1.33	mg/L	10		NQ	NQ	EPA:300.0	GELC	



Table 1: NMED 08-18 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	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
C4	39	53	10/21/2008	56.1	76.7	66.7	53	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	METALS	Barium	Ba	72	1.1	LANL Int BG LVL	13.5	5.3	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	39	53	10/21/2008	59.5	76.3	68	53	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Calcium	Ca	69.1	1	LANL Int BG LVL	10.7	6.5	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	39	51	10/21/2008	53.4	93	65.8	51	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	77.4	1.2	LANL Int BG LVL	3.11	24.9	0.67	mg/L	10		NQ	NQ	EPA:300.0	GELC	
C4	39	53	10/21/2008	204	263	235	53	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Hardness	HARDNESS	239	1	LANL Int BG LVL	37.8	6.3	0.45	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	38	51	10/21/2008	13.1	17.5	15.7	51	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Magnesium	Mg	16.1	1	LANL Int BG LVL	3.14	5.1	0.11	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	39	53	10/21/2008	14.5	19.6	16.9	53	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	METALS	Nickel	Ni	16.9	1	LANL Int BG LVL	3.65	4.6	0.6	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	39	51	10/21/2008	2.89	5.1	4.21	51	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	4.26	1	LANL Int BG LVL	0.459	9.3	0.09	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	39	51	10/21/2008	0.83	1.12	0.962	51	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.954	1	LANL Int BG LVL	0.27	3.5	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	39	53	10/21/2008	264	360	326	53	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	METALS	Strontium	Sr	330	1	LANL Int BG LVL	59.6	5.5	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	39	51	10/21/2008	77.9	103	88.7	51	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	91.6	1	LANL Int BG LVL	7.1	12.9	1.33	mg/L	10		NQ	NQ	EPA:300.0	GELC	
C4	38	41	11/10/2008	3.37	6.39	4.24	41	Sandia Canyon	Regional Deep	R-43 S2	969.1	7/18/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	6.39	1.5	LANL Reg BG LVL	2.7	2.4	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	38	46	11/10/2008	1.8	21.8	5.585	36	Sandia Canyon	Regional Deep	R-43 S2	969.1	7/18/2018	REG	F	INIT	METALS	Chromium	Cr	21.8	3.9	LANL Reg BG LVL	7.48	2.9	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	38	40	11/10/2008	0.389	5.4	1.94	40	Sandia Canyon	Regional Deep	R-43 S2	969.1	7/18/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.79	2	LANL Reg BG LVL	0.769	4.9	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	38	41	11/10/2008	0.411	0.899	0.616	41	Sandia Canyon	Regional Deep	R-43 S2	969.1	7/18/2018	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.899	1.5	LANL Reg BG LVL	0.414	2.2	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	38	45	3/5/2009	6.1	47.4	16.4	44	Mortandad Canyon	Regional Deep	R-45 S2	974.9	7/17/2018	REG	F	INIT	METALS	Chromium	Cr	28	1.7	LANL Reg BG LVL	7.48	3.7	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	53	62	5/17/2005	2.27	7.43	5.24	62	Sandia Canyon	Regional Top	R-11	855	7/11/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	6.33	1.2	LANL Reg BG LVL	0.769	8.2	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	53	62	5/17/2005	5.95	15.4	9.655	62	Sandia Canyon	Regional Top	R-11	855	7/11/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	10.4	1.1	LANL Reg BG LVL	4.59	2.3	0.13	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	50	58	2/24/2000	1.35	3.31	2.195	58	Mortandad Canyon	Regional Top	R-15	958.6	7/13/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.27	1	LANL Reg BG LVL	0.769	3	0.09	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	46	53	5/25/2005	5.34	11.6	7.29	53	Mortandad Canyon	Regional Top	R-15	958.6	7/13/2018	REG	F	INIT	GENINORG	Perchlorate	ClO4	11.6	1.6	LANL Reg BG LVL	0.414	28	0.5	µg/L	10		NQ	NQ	SW-846:6850	GELC	
C4	41	42	8/30/2007	68	389	345.5	42	Sandia Canyon	Regional Top	R-35a	1013.1	7/12/2018	REG	F	INIT	METALS	Barium	Ba	335	1	LANL Reg BG LVL	38.1	8.8	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	40	41	8/30/2007	5.97	7.31	6.42	41	Sandia Canyon	Regional Top	R-35a	1013.1	7/12/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	6.62	1	LANL Reg BG LVL	2.7	2.5	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	38	44	3/12/2008	4.05	6.83	5.985	44	Sandia Canyon	Regional Top	R-36	766.9	7/11/2018	FD	F	INIT	GENINORG	Chloride	Cl(-1)	6.38	1.1	LANL Reg BG LVL	2.7	2.4	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	

Table 1: NMED 08-18 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	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
C4	38	44	3/12/2008	4.05	6.83	5.985	44	Sandia Canyon	Regional Top	R-36	766.9	7/11/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	6.39	1.1	LANL Reg BG LVL	2.7	2.4	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	38	45	3/12/2008	1.25	6.8	2.4	45	Sandia Canyon	Regional Top	R-36	766.9	7/11/2018	FD	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.77	1.2	LANL Reg BG LVL	0.769	3.6	0.09	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	38	45	3/12/2008	1.25	6.8	2.4	45	Sandia Canyon	Regional Top	R-36	766.9	7/11/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.79	1.2	LANL Reg BG LVL	0.769	3.6	0.09	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	37	43	3/12/2008	0.845	1.74	1.55	43	Sandia Canyon	Regional Top	R-36	766.9	7/11/2018	FD	F	INIT	GENINORG	Perchlorate	CIO4	1.36	0.9	LANL Reg BG LVL	0.414	3.3	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	37	43	3/12/2008	0.845	1.74	1.55	43	Sandia Canyon	Regional Top	R-36	766.9	7/11/2018	REG	F	INIT	GENINORG	Perchlorate	CIO4	1.41	0.9	LANL Reg BG LVL	0.414	3.4	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	39	44	11/5/2008	3.6	9.39	6.97	44	Sandia Canyon	Regional Top	R-43 S1	903.9	7/17/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	8.64	1.2	LANL Reg BG LVL	2.7	3.2	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	39	49	11/5/2008	2.35	199	70.2	46	Sandia Canyon	Regional Top	R-43 S1	903.9	7/17/2018	REG	F	INIT	METALS	Chromium	Cr	199	2.8	LANL Reg BG LVL	7.48	26.6	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	39	43	11/5/2008	4.9	6.15	5.42	42	Sandia Canyon	Regional Top	R-43 S1	903.9	7/17/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	5.44	1	LANL Reg BG LVL	0.769	7.1	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	39	44	11/5/2008	8.77	21	13.55	44	Sandia Canyon	Regional Top	R-43 S1	903.9	7/17/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	18.1	1.3	LANL Reg BG LVL	4.59	3.9	0.13	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	39	41	2/28/2009	3	6.7	4.86	41	Mortandad Canyon	Regional Top	R-45 S1	880	7/17/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	5.73	1.2	LANL Reg BG LVL	2.7	2.1	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	39	45	2/28/2009	8.4	50.7	33.6	45	Mortandad Canyon	Regional Top	R-45 S1	880	7/17/2018	REG	F	INIT	METALS	Chromium	Cr	42.9	1.3	LANL Reg BG LVL	7.48	5.7	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	39	41	2/28/2009	0.256	3.47	2.88	41	Mortandad Canyon	Regional Top	R-45 S1	880	7/17/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.28	1.1	LANL Reg BG LVL	0.769	4.3	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	41	47	3/6/2010	4.68	10.1	8.34	47	Mortandad Canyon	Regional Top	R-50 S1	1077	7/13/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	10.1	1.2	LANL Reg BG LVL	2.7	3.7	0.13	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	41	49	3/6/2010	49.8	150	103	49	Mortandad Canyon	Regional Top	R-50 S1	1077	7/13/2018	REG	F	INIT	METALS	Chromium	Cr	133	1.3	LANL Reg BG LVL	7.48	17.8	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	41	48	3/6/2010	0.398	2.72	1.81	48	Mortandad Canyon	Regional Top	R-50 S1	1077	7/13/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.35	1.3	LANL Reg BG LVL	0.769	3.1	0.09	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	41	47	3/6/2010	7.22	15.3	12	47	Mortandad Canyon	Regional Top	R-50 S1	1077	7/13/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	15.3	1.3	LANL Reg BG LVL	4.59	3.3	0.13	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	25	29	5/20/2011	2.03	23.3	19.4	28	Mortandad Canyon	Regional Top	R-61 S1	1125	7/18/2018	REG	F	INIT	METALS	Chromium	Cr	18.4	0.9	LANL Reg BG LVL	7.48	2.5	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	25	29	5/20/2011	0.427	2.39	1.89	29	Mortandad Canyon	Regional Top	R-61 S1	1125	7/18/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.39	1.3	LANL Reg BG LVL	0.769	3.1	0.09	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	24	28	5/20/2011	2.96	15	8.6	28	Mortandad Canyon	Regional Top	R-61 S1	1125	7/18/2018	REG	F	INIT	GENINORG	Perchlorate	CIO4	14.9	1.7	LANL Reg BG LVL	0.414	36	0.5	µg/L	10		NQ	NQ	SW-846:6850	GELC	
C5	19	22	5/12/2004	1.71	5.07	3.4	12	Mortandad Canyon	Regional Deep	R-16 S2	863.4	7/27/2018	REG	F	INIT	METALS	Arsenic	As	5.07	1.5	EPA MCL	10	0.5	2	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C5	39	49	11/5/2008	2.35	199	70.2	46	Sandia Canyon	Regional Top	R-43 S1	903.9	7/17/2018	REG	F	INIT	METALS	Chromium	Cr	199	2.8	NM GW STD	50	4	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	

Table 2: NMED 08-18 Groundwater Report Addendum

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	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	30	41	12/19/2005	3.2	5.8	4	3	Mortandad Canyon	Regional Top	R-16r	600	7/20/2018	REG	F	INIT	METALS	Copper	Cu	4	1	Reg-Scr_95	3	1.3	3	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	34	41	8/27/2007	0.0211	0.206	0.0445	7	Mortandad Canyon	Regional Top	R-33 S1	995.5	7/10/2018	REG	F	INIT	GENINORG	Ammonia as Nitrogen	NH3-N	0.206	4.6	Reg-Scr_95	0.1	2.1	0.02	mg/L	1		J+	I4a	EPA:350.1	GELC	
XC4scr	46	51	6/9/2005	0.083	0.242	0.139	45	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.232	1.7	Int-Scr_95	0.0716	3.2	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
XC4scr	37	41	1/27/2006	0.0019	0.0078	0.0037	10	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	UF	INIT	INORGANIC	Cyanide (Total)	CN(TOTAL)	0.00353	1	Int-Scr_95	0.0017	2.1	0	mg/L	1	J	J	J_LAB	EPA:335.4	GELC	
XC4scr	46	51	6/9/2005	106	377	170	51	Mortandad Canyon	Intermediate Perched	MCOI-5	689.04	7/12/2018	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	283	1.7	Int-Scr_95	135	2.1	3.4	mg/L	1		NQ	NQ	EPA:160.1	GELC	
XC4scr	52	72	6/15/2005	25.4	56	46.3	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	METALS	Boron	B	51.2	1.1	Int-Scr_95	16.2	3.2	15	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	52	72	6/15/2005	0.212	0.703	0.574	69	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.526	0.9	Int-Scr_95	0.0716	7.3	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
XC4scr	52	75	6/15/2005	29.4	86.6	58.4	75	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	METALS	Chromium	Cr	67	1.1	Int-Scr_95	2.72	25	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
XC4scr	52	72	6/15/2005	298	497	404	72	Mortandad Canyon	Intermediate Perched	MCOI-6	686	7/11/2018	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	361	0.9	Int-Scr_95	135	2.7	3.4	mg/L	1		NQ	NQ	EPA:160.1	GELC	
XC4scr	39	51	10/21/2008	0.194	0.751	0.5925	50	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.724	1.2	Int-Scr_95	0.0716	10	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	
XC4scr	39	58	10/21/2008	294	658	447	58	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	METALS	Chromium	Cr	307	0.7	Int-Scr_95	2.72	113	15	µg/L	5		NQ	NQ	SW-846:6020	GELC	
XC4scr	29	37	10/21/2008	0.0045	0.304	0.0069	37	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	UF	INIT	INORGANIC	Cyanide (Total)	CN(TOTAL)	0.00517	0.8	Int-Scr_95	0.0017	3	0	mg/L	1		NQ	NQ	EPA:335.4	GELC	
XC4scr	39	52	10/21/2008	354	796	424.5	52	Sandia Canyon	Intermediate Perched	SCI-2	548	7/10/2018	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	431	1	Int-Scr_95	135	3.2	3.4	mg/L	1		NQ	NQ	EPA:160.1	GELC	
XC4scr	18	22	3/19/2004	3.74	68	46.75	22	Mortandad Canyon	Regional Deep	R-16 S4	1237	7/20/2018	FD	F	INIT	METALS	Manganese	Mn	53.1	1.1	Reg-Scr_95	12.1	4.4	2	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	18	22	3/19/2004	3.74	68	46.75	22	Mortandad Canyon	Regional Deep	R-16 S4	1237	7/20/2018	REG	F	INIT	METALS	Manganese	Mn	53.1	1.1	Reg-Scr_95	12.1	4.4	2	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	25	29	5/20/2011	0.0531	11.8	1.115	26	Mortandad Canyon	Regional Top	R-61 S1	1125	7/18/2018	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.737	0.7	Reg-Scr_95	0.0822	9	0.02	mg/L	1		J+	I4a	EPA:365.4	GELC	