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Date: OCT 19 2017
Refer To: ADEM-17-0282
LAUR: 17-29517
Locates Action No.: n/a

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

Subject: Monthly Notification of Groundwater Data Reviewed in October 2017

This letter is Los Alamos National Laboratory's (LANL's) written submission in accordance with Section XXVI of the 2016 Compliance Order on Consent (Consent Order). Members of LANL's Associate Directorate for Environmental Management met on October 12, 2017, to review groundwater data received in September 2017. 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 1×10^{-5}, as specified in the Consent Order. This report was prepared using the June 2017 EPA regional screening levels for tap water.

This report also includes analytical data from samples collected at locations within the Pueblo de San Ildefonso, which are subject to reporting at this time. These data have been reviewed by the Pueblo. This review is required under the Memorandum of Agreement dated May 28, 2014, between the U.S. Department of Energy, National Nuclear Security Administration, Los Alamos Field Office, and San Ildefonso Pueblo.

1-Day Notification

There were no instances of a contaminant detected at a concentration that exceeded the NMWQCC groundwater standard or federal maximum contaminant level 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 Nita Patel at (505) 665-9273 (npatel@lanl.gov) or Hai Shen at (505) 665-5046 (hai.shen@em.doe.gov).

Sincerely,

Bruce Robinson, Program Director
Environmental Remediation Program
Los Alamos National Laboratory

Sincerely,

David S. Rhodes, Director
Office of Quality and Regulatory Compliance
Environmental Management
Los Alamos Field Office

BR/DR/NP:sm

Enclosure: Two hard copies with electronic files – Summary of Groundwater Data Reviewed in October 2017 That Meet Notification Requirements (EP2017-0148)

Cy: (date-stamped letter and attachment emailed)
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SUMMARY OF GROUNDWATER DATA REVIEWED IN OCTOBER 2017
THAT MEET NOTIFICATION REQUIREMENTS

INTRODUCTION

This report provides information to the New Mexico Environment Department (NMED) concerning recent groundwater monitoring data obtained by Los Alamos National Laboratory (the Laboratory) under its annual "Interim Facility-Wide Groundwater Monitoring Plan" for the 2017 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 indicated in the tables.

The report includes two tables. Table 1, NMED 09-17 Groundwater Report, presents results since June 14, 2007, that met the five reporting criteria as specified in the 2016 Consent Order. Table 2, NMED 09-17 Groundwater Report Addendum, presents results that are exceeding the 95th 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 the Laboratory 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 1×10^{-5}, as specified in the Consent Order. This report was prepared using the June 2017 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 95th percentile of the data set used to establish background as defined in the "Groundwater Background Investigation Report, Revision 5."

DESCRIPTION OF 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. Some data met more than one of the notification criteria and appear in the table multiple times.

The criteria 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 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 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:

Hdr 1—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 09-17 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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
C4	20	26	4/20/2010	41.3	119	52.85	26	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate	16-26644	130	8/31/2017	REG	F	INIT	METALS	Barium	Ba	45.4	0.9	LANL Int BG LVL	13.5	3.4	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	17	22	4/20/2010	15.2	38.7	19.85	22	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate	16-26644	130	8/31/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	21.7	1.1	LANL Int BG LVL	3.11	7	0.335	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	48	68	6/15/2005	30.1	48.2	40.4	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	METALS	Barium	Ba	36.4	0.9	LANL Int BG LVL	13.5	2.7	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	48	68	6/15/2005	42.8	75.5	63.85	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Calcium	Ca	61	1	LANL Int BG LVL	10.7	5.7	0.05	mg/L	1		J+	I6b	SW-846:6010C	GELC	
C4	48	68	6/15/2005	21.2	64.8	55.6	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	53.4	1	LANL Int BG LVL	3.11	17.2	0.67	mg/L	10		NQ	NQ	EPA:300.0	GELC	
C4	48	68	6/15/2005	142	253	212.5	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Hardness	HARDNESS	201	0.9	LANL Int BG LVL	37.8	5.3	0.453	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	48	68	6/15/2005	8.49	15.7	13	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Magnesium	Mg	11.9	0.9	LANL Int BG LVL	3.14	3.8	0.11	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	48	68	6/15/2005	2.9	41.8	21.7	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	METALS	Nickel	Ni	20.4	0.9	LANL Int BG LVL	3.65	5.6	0.6	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	48	68	6/15/2005	7.62	20.4	9.72	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	9.71	1	LANL Int BG LVL	0.459	21.2	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	48	68	6/15/2005	56.3	246	77.2	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	82.9	1.1	LANL Int BG LVL	0.27	307	5	µg/L	100		NQ	NQ	SW-846:6850	GELC	

Table 1: NMED 09-17 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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
C4	48	68	6/15/2005	196	339	282.5	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	METALS	Strontium	Sr	262	0.9	LANL Int BG LVL	59.6	4.4	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	48	68	6/15/2005	34.7	77.6	59.65	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	54.2	0.9	LANL Int BG LVL	7.1	7.6	1.33	mg/L	10		NQ	NQ	EPA:300.0	GELC	
C4	5	5	4/15/2009	6.13	9.82	7.53	5	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate	R-26 PZ-2	230	8/30/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	9.82	1.3	LANL Int BG LVL	3.11	3.2	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	8	12	5/21/2015	9.11	66.5	12.5	12	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Perched	CDV-9-1(i) S1	937.4	8/30/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	12.3	1	LANL Int BG LVL	3.11	4	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	8	12	5/21/2015	1.03	2.63	1.075	12	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Perched	CDV-9-1(i) S1	937.4	8/30/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.13	1.1	LANL Int BG LVL	0.459	2.5	0.017	mg/L	1		NQ	NQ	EPA:353.2	GELC	
C4	28	32	9/9/2004	53.9	82	68.5	32	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	8/29/2017	REG	F	INIT	METALS	Barium	Ba	68	1	LANL Int BG LVL	13.5	5	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	27	31	9/9/2004	12.1	34.6	18.1	31	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	8/29/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	19.2	1.1	LANL Int BG LVL	3.11	6.2	0.335	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	25	29	6/22/2005	0.537	0.947	0.704	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	8/29/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.75	1.1	LANL Int BG LVL	0.27	2.8	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	67	75	1/10/2000	122	243	167.5	68	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	METALS	Barium	Ba	141	0.8	LANL Int BG LVL	13.5	10.4	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	67	75	1/10/2000	15.5	42.8	29.8	75	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	GENINORG	Calcium	Ca	27.1	0.9	LANL Int BG LVL	10.7	2.5	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	

Table 1: NMED 09-17 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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
C4	23	29	1/30/2007	18	44.2	22.2	29	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	20.5	0.9	LANL Int BG LVL	3.11	6.6	0.335	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	31	38	8/25/2005	65.7	112	94.3	38	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	GENINORG	Hardness	HARDNESS	92.6	1	LANL Int BG LVL	37.8	2.4	0.453	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	23	29	1/30/2007	1.69	4.88	2.69	29	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.53	0.9	LANL Int BG LVL	0.459	5.5	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	31	38	8/25/2005	93.8	155	133.5	38	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	METALS	Strontium	Sr	126	0.9	LANL Int BG LVL	59.6	2.1	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	23	29	1/30/2007	13.1	20	16.8	29	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	14.4	0.9	LANL Int BG LVL	7.1	2	0.133	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	13	14	8/8/2011	42	54.1	44.1	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	METALS	Barium	Ba	43.5	1	LANL Int BG LVL	13.5	3.2	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	42	54.1	44.1	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	METALS	Barium	Ba	43.8	1	LANL Int BG LVL	13.5	3.2	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	27.6	30.4	28.6	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Calcium	Ca	28.6	1	LANL Int BG LVL	10.7	2.7	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	27.6	30.4	28.6	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Calcium	Ca	28.6	1	LANL Int BG LVL	10.7	2.7	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	15.5	19.1	16.4	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Chloride	Cl(-1)	16.8	1	LANL Int BG LVL	3.11	5.4	0.335	mg/L	5		NQ	NQ	EPA:300.0	GELC	

Table 1: NMED 09-17 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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
C4	13	14	8/8/2011	15.5	19.1	16.4	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	17.3	1.1	LANL Int BG LVL	3.11	5.6	0.335	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	13	14	8/8/2011	0.438	0.693	0.4765	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Fluoride	F(-1)	0.548	1.2	LANL Int BG LVL	0.234	2.3	0.033	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	13	14	8/8/2011	0.438	0.693	0.4765	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.546	1.1	LANL Int BG LVL	0.234	2.3	0.033	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	13	14	8/8/2011	101	111	104	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Hardness	HARDNESS	104	1	LANL Int BG LVL	37.8	2.8	0.453	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	13	14	8/8/2011	101	111	104	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Hardness	HARDNESS	104	1	LANL Int BG LVL	37.8	2.8	0.453	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	13	14	8/8/2011	7.75	8.47	7.93	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Magnesium	Mg	7.88	1	LANL Int BG LVL	3.14	2.5	0.11	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	7.75	8.47	7.93	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Magnesium	Mg	7.91	1	LANL Int BG LVL	3.14	2.5	0.11	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	12	13	8/8/2011	3.38	4.35	3.6	13	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.48	1	LANL Int BG LVL	0.459	7.6	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	12	13	8/8/2011	3.38	4.35	3.6	13	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.42	1	LANL Int BG LVL	0.459	7.5	0.17	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	13	14	8/8/2011	4.86	6.54	5.625	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Perchlorate	ClO4	5.38	1	LANL Int BG LVL	0.27	19.9	0.25	µg/L	5		NQ	NQ	SW-846:6850	GELC	
C4	13	14	8/8/2011	4.86	6.54	5.625	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	5.69	1	LANL Int BG LVL	0.27	21.1	0.25	µg/L	5		NQ	NQ	SW-846:6850	GELC	

Table 1: NMED 09-17 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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
C4	13	14	8/8/2011	127	151	140	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	METALS	Strontium	Sr	135	1	LANL Int BG LVL	59.6	2.3	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	127	151	140	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	METALS	Strontium	Sr	135	1	LANL Int BG LVL	59.6	2.3	1	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	19.9	21.7	21.15	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Sulfate	SO4(-2)	19.9	0.9	LANL Int BG LVL	7.1	2.8	0.665	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	13	14	8/8/2011	19.9	21.7	21.15	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	20.3	1	LANL Int BG LVL	7.1	2.9	0.665	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	46	53	2/24/2000	1.35	3.31	2.2	53	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-15	958.6	8/3/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.89	0.9	LANL Reg BG LVL	0.769	2.5	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	42	48	5/25/2005	5.34	10.8	7.13	48	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-15	958.6	8/3/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	9.52	1.3	LANL Reg BG LVL	0.414	23	0.5	µg/L	10		NQ	NQ	SW-846:6850	GELC	
C4	35	39	11/5/2008	3.6	9.39	6.84	39	Sandia Canyon	Regional	R-43 S1	903.9	8/9/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	8.37	1.2	LANL Reg BG LVL	2.7	3.1	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	35	44	11/5/2008	2.35	176	50.5	41	Sandia Canyon	Regional	R-43 S1	903.9	8/9/2017	REG	F	INIT	METALS	Chromium	Cr	176	3.5	LANL Reg BG LVL	7.48	23.5	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	Highest so far, increasing trend.
C4	35	40	11/5/2008	0.651	9.97	2.18	39	Sandia Canyon	Regional	R-43 S1	903.9	8/9/2017	REG	F	INIT	METALS	Nickel	Ni	7.25	3.3	LANL Reg BG LVL	2.9	2.5	0.6	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	35	38	11/5/2008	4.9	6.15	5.42	37	Sandia Canyon	Regional	R-43 S1	903.9	8/9/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	4.9	0.9	LANL Reg BG LVL	0.769	6.4	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	35	39	11/5/2008	0.678	1.03	0.939	39	Sandia Canyon	Regional	R-43 S1	903.9	8/9/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.897	1	LANL Reg BG LVL	0.414	2.2	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	35	39	11/5/2008	8.77	21	13	39	Sandia Canyon	Regional	R-43 S1	903.9	8/9/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	17.1	1.3	LANL Reg BG LVL	4.59	3.7	0.133	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	34	37	11/10/2008	3.37	6.3	4	37	Sandia Canyon	Regional	R-43 S2	969.1	8/4/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	5.79	1.4	LANL Reg BG LVL	2.7	2.1	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	34	36	11/10/2008	0.389	5.4	1.725	36	Sandia Canyon	Regional	R-43 S2	969.1	8/4/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.54	2.1	LANL Reg BG LVL	0.769	4.6	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	

Table 1: NMED 09-17 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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
C4	34	37	11/10/2008	0.411	0.892	0.554	37	Sandia Canyon	Regional	R-43 S2	969.1	8/4/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.873	1.6	LANL Reg BG LVL	0.414	2.1	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	21	27	3/26/2012	1.64	12.2	8.52	27	Sandia Canyon	Regional	R-62	1158.4	8/4/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	12.2	1.4	LANL Reg BG LVL	2.7	4.5	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	21	27	3/26/2012	104	240	139	27	Sandia Canyon	Regional	R-62	1158.4	8/4/2017	REG	F	INIT	METALS	Chromium	Cr	232	1.7	LANL Reg BG LVL	7.48	31	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	Chromium concentration has increased for the third consecutive time.
C4	21	27	3/26/2012	2.56	22.1	14.8	27	Sandia Canyon	Regional	R-62	1158.4	8/4/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	22.1	1.5	LANL Reg BG LVL	4.59	4.8	0.266	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C5	21	27	3/26/2012	104	240	139	27	Sandia Canyon	Regional	R-62	1158.4	8/4/2017	REG	F	INIT	METALS	Chromium	Cr	232	1.7	NM GW STD	50	4.6	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	Chromium concentration has increased for the third consecutive time.

Table 2: NMED 09-17 Groundwater Report Addendum

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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
XC4scr	21	26	8/31/2010	56.9	115	64.6	26	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate	CDV-16-4ip S1	815.6	8/29/2017	FD	F	INIT	METALS	Boron	B	56.9	0.9	Int-Scr_95	16.2	3.5	15	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	21	26	8/31/2010	56.9	115	64.6	26	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate	CDV-16-4ip S1	815.6	8/29/2017	REG	F	INIT	METALS	Boron	B	58.6	0.9	Int-Scr_95	16.2	3.6	15	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	48	68	6/15/2005	25.4	56	45.05	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	METALS	Boron	B	47	1	Int-Scr_95	16.2	2.9	15	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC4scr	48	68	6/15/2005	0.212	0.703	0.575	65	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.528	0.9	Int-Scr_95	0.0716	7.4	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
XC4scr	48	71	6/15/2005	29.4	86.6	57.2	71	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	METALS	Chromium	Cr	66.8	1.2	Int-Scr_95	2.72	24.6	3	µg/L	1		NQ	NQ	SW-846:6020	GELC	
XC4scr	48	68	6/15/2005	298	497	406.5	68	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	MCOI-6	686	8/7/2017	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	401	1	Int-Scr_95	135	3	3.4	mg/L	1		NQ	NQ	EPA:160.1	GELC	
XC4scr	8	12	5/21/2015	0.0745	2.75	0.341	12	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Perched	CDV-9-1(i) S1	937.4	8/30/2017	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.164	0.5	Int-Scr_95	0.0716	2.3	0.067	mg/L	1	J	J	J_LAB	EPA:300.0	GELC	
XC4scr	28	32	9/9/2004	95	4500	664	31	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	8/29/2017	REG	F	INIT	METALS	Aluminum	Al	312	0.5	Int-Scr_95	68	4.6	68	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	28	32	9/9/2004	77.2	2200	337	31	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	8/29/2017	REG	F	INIT	METALS	Iron	Fe	173	0.5	Int-Scr_95	54.1	3.2	30	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	67	75	1/10/2000	51	5130	346	47	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	METALS	Aluminum	Al	780	2.3	Int-Scr_95	68	11.5	68	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	63	71	1/10/2000	570	2840	1320	71	Water Canyon (includes Cañon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	8/29/2017	REG	F	INIT	METALS	Boron	B	934	0.7	Int-Scr_95	16.2	57.7	15	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	13	14	8/8/2011	0.136	0.19	0.1615	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	FD	F	INIT	GENINORG	Bromide	Br(-1)	0.186	1.2	Int-Scr_95	0.0716	2.6	0.067	mg/L	1	J	J	J_LAB	EPA:300.0	GELC	
XC4scr	13	14	8/8/2011	0.136	0.19	0.1615	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	6/13/2017	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.187	1.2	Int-Scr_95	0.0716	2.6	0.067	mg/L	1	J	J	J_LAB	EPA:300.0	GELC	