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Date: DEC 18 2017
Refer To: ADEM-17-0333
LAUR: 17-31245
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 December 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 December 11, 2017, to review groundwater data received in November 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.

1-Day Notification

There were two 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).

In an unfiltered sample collected on October 25, 2017, from regional well R-39, Bis(2-ethylhexyl)phthalate was measured at 7.6 µg/L, above the 6 µg/L EPA MCL. One-day notification of this result by telephone occurred on December 11, 2017. The compound was not detected in the reanalysis of the sample.

In an unfiltered sample collected on October 10, 2017, from regional spring well Spring 3AA, cyanide (total) was measured at 0.228 mg/L, above the 0.2 mg/L EPA MCL. One-day notification of this result by telephone occurred on December 11, 2017.

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 December 2017 That Meet Notification Requirements (EP2017-0161)

Cy: (date-stamped letter and attachment emailed)
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SUMMARY OF GROUNDWATER DATA REVIEWED IN DECEMBER 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 11-17 Groundwater Report, presents results since June 14, 2007, that met the five reporting criteria as specified in the 2016 Consent Order. Table 2, NMED 11-17 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 TABLES

1-Day Notification Requirement

The CA value is used in the Criteria Code column of Table 1. The CA value represents the data that show detection of a contaminant in a well screen interval or spring at a concentration that exceeds either the NMWQCC water quality standard or the federal MCL if that contaminant has not previously exceeded such water quality standard or MCL in the well screen interval or spring. The Laboratory 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. 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 11-17 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
C2	28	33	6/22/2005	117	178	149	33	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-32 S1	867.5	10/24/2017	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	170	1.1	LANL Reg BG LVL	161	1.1	3.4	mg/L	1		NQ	NQ	EPA: 160.1	GELC	
C2	30	32	3/5/2009	58.4	71.3	62.45	32	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	FD	F	INIT	GENINORG	Hardness	Hardness	71.3	1.1	LANL Reg BG LVL	67.1	1.1	0.453	mg/L	1		NQ	NQ	SM: A2340B	GELC	
C2	30	32	3/5/2009	58.4	71.3	62.45	32	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	REG	F	INIT	GENINORG	Hardness	Hardness	69.6	1.1	LANL Reg BG LVL	67.1	1	0.453	mg/L	1		NQ	NQ	SM: A2340B	GELC	
C2	13	13	9/26/2000	51.9	74.5	59.2	13	White Rock Canyon and Rio Grande	Regional Spring	Spring 8A	0	10/12/2017	REG	F	INIT	GENINORG	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	73.9	1.2	LANL Reg BG LVL	72.9	1	1.45	mg/L	1	Q	NQ	NQ	EPA: 310.1	GELC	
C2	13	13	9/26/2000	1.61	2.72	1.77	13	White Rock Canyon and Rio Grande	Regional Spring	Spring 8A	0	10/12/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	2.72	1.5	LANL Reg BG LVL	2.7	1	0.067	mg/L	1	Q	NQ	NQ	EPA: 300.0	GELC	
C2	13	13	9/26/2000	1.62	2.49	1.94	13	White Rock Canyon and Rio Grande	Regional Spring	Spring 8A	0	10/12/2017	REG	F	INIT	GENINORG	Potassium	K	2.49	1.3	LANL Reg BG LVL	2.39	1	0.05	mg/L	1		NQ	NQ	SW-846: 6010C	GELC	
C3	30	36	3/5/2009	6.1	42.5	12.1	35	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	FD	F	INIT	METALS	Chromium	Cr	42.5	3.5	NM GW STD	50	0.9	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	Chromium concentration of screen 2 is a result of cross flow that occurred from screen 1 when the Baski packer was removed for well maintenance. Lower screen has since been purged of cross flow.
C3	30	36	3/5/2009	6.1	42.5	12.1	35	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	REG	F	INIT	METALS	Chromium	Cr	42.3	3.5	NM GW STD	50	0.8	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	
C3	8	8	10/6/2003	0.228	0.228	0.228	1	White Rock Canyon and Rio Grande	Regional Spring	Spring 3AA	0	10/10/2017	REG	UF	INIT	GENINORG	Cyanide (Total)	CN(Total)	0.228	1	EPA MCL	0.2	1.1	0.0033	mg/L	2		NQ	NQ	EPA: 335.4	GELC	First detection out of eight measurements since 2003. Reanalysis was requested.

Table 1: NMED 11-17 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	22	24	9/6/2007	8.2	77.6	54.15	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S1	400.3	10/24/2017	REG	F	INIT	METALS	Barium	Ba	53.6	1	LANL Int BG LVL	13.5	4	1	µg/L	1		NQ	NQ	SW-846: 6010C	GELC	
C4	22	24	9/6/2007	21	39.9	27.9	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S1	400.3	10/24/2017	REG	F	INIT	GENINORG	Calcium	Ca	28.2	1	LANL Int BG LVL	10.7	2.6	0.05	mg/L	1		NQ	NQ	SW-846: 6010C	GELC	
C4	22	24	9/6/2007	3.66	36.8	21.1	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S1	400.3	10/24/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	26.6	1.3	LANL Int BG LVL	3.11	8.6	0.335	mg/L	5		NQ	NQ	EPA: 300.0	GELC	
C4	22	24	9/6/2007	76.4	156	109.5	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S1	400.3	10/24/2017	REG	F	INIT	GENINORG	Hardness	Hardness	112	1	LANL Int BG LVL	37.8	3	0.453	mg/L	1		NQ	NQ	SM: A2340B	GELC	
C4	22	24	9/6/2007	5.8	13.7	9.745	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S1	400.3	10/24/2017	REG	F	INIT	GENINORG	Magnesium	Mg	10	1	LANL Int BG LVL	3.14	3.2	0.11	mg/L	1		NQ	NQ	SW-846: 6010C	GELC	
C4	22	24	9/6/2007	95.5	254	164.5	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S1	400.3	10/24/2017	REG	F	INIT	METALS	Strontium	Sr	165	1	LANL Int BG LVL	59.6	2.8	1	µg/L	1		NQ	NQ	SW-846: 6010C	GELC	
C4	22	24	9/6/2007	4.82	27.5	13.25	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S1	400.3	10/24/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	16.5	1.2	LANL Int BG LVL	7.1	2.3	0.133	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	27	30	10/3/2006	6.44	9.16	7.85	30	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S2	470.2	10/24/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	8.47	1.1	LANL Int BG LVL	3.11	2.7	0.067	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	24	28	10/11/2006	3.52	9.13	8.315	28	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S3	524	10/19/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	8.64	1	LANL Int BG LVL	3.11	2.8	0.067	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	24	28	10/11/2006	0.0341	1.08	0.8925	28	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S3	524	10/19/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.08	1.2	LANL Int BG LVL	0.459	2.4	0.085	mg/L	5		NQ	NQ	EPA: 353.2	GELC	
C4	18	21	7/13/2009	21.2	26.2	24.7	21	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	R-37 S1	929.3	10/25/2017	FD	F	INIT	GENINORG	Calcium	Ca	24.5	1	LANL Int BG LVL	10.7	2.3	0.05	mg/L	1		NQ	NQ	SW-846: 6010C	GELC	

Table 1: NMED 11-17 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	18	21	7/13/2009	21.2	26.2	24.7	21	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	R-37 S1	929.3	10/25/2017	REG	F	INIT	GENINORG	Calcium	Ca	24.7	1	LANL Int BG LVL	10.7	2.3	0.05	mg/L	1		NQ	NQ	SW-846: 6010C	GELC	
C4	18	21	7/13/2009	0.232	0.735	0.517	21	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	R-37 S1	929.3	10/25/2017	FD	F	INIT	GENINORG	Fluoride	F(-1)	0.481	0.9	LANL Int BG LVL	0.234	2.1	0.033	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	18	21	7/13/2009	0.232	0.735	0.517	21	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	R-37 S1	929.3	10/25/2017	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.513	1	LANL Int BG LVL	0.234	2.2	0.033	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	18	21	7/13/2009	73.1	89.4	84.8	21	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	R-37 S1	929.3	10/25/2017	FD	F	INIT	GENINORG	Hardness	Hardness	84.1	1	LANL Int BG LVL	37.8	2.2	0.453	mg/L	1		NQ	NQ	SM: A2340B	GELC	
C4	18	21	7/13/2009	73.1	89.4	84.8	21	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	R-37 S1	929.3	10/25/2017	REG	F	INIT	GENINORG	Hardness	Hardness	84.8	1	LANL Int BG LVL	37.8	2.2	0.453	mg/L	1		NQ	NQ	SM: A2340B	GELC	
C4	24	24	3/11/2004	23.3	125	79.35	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20 S1	904.6	10/23/2017	REG	F	INIT	METALS	Barium	Ba	112	1.4	LANL Reg BG LVL	38.1	2.9	1	µg/L	1		NQ	NQ	SW-846: 6010C	GELC	
C4	26	29	3/10/2004	113	253	182	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20 S2	1147.1	10/19/2017	REG	F	INIT	METALS	Barium	Ba	214	1.2	LANL Reg BG LVL	38.1	5.6	1	µg/L	1	E	NQ	NQ	SW-846: 6010C	GELC	
C4	30	32	2/28/2009	3	6.1	4.52	32	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S1	880	10/31/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	6.1	1.3	LANL Reg BG LVL	2.7	2.3	0.067	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	30	36	2/28/2009	8.4	43.4	23.55	36	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S1	880	10/31/2017	REG	F	INIT	METALS	Chromium	Cr	42.4	1.8	LANL Reg BG LVL	7.48	5.7	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	
C4	30	32	2/28/2009	0.256	3.47	2.7	32	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S1	880	10/31/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.15	1.2	LANL Reg BG LVL	0.769	4.1	0.085	mg/L	5		NQ	NQ	EPA: 353.2	GELC	

Table 1: NMED 11-17 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	30	36	3/5/2009	6.1	42.5	12.1	35	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	FD	F	INIT	METALS	Chromium	Cr	42.5	3.5	LANL Reg BG LVL	7.48	5.7	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	Chromium concentration of screen 2 is a result of cross flow that occurred from screen 1 when the Baski packer was removed for well maintenance. Lower screen has since been purged of cross flow.
C4	30	36	3/5/2009	6.1	42.5	12.1	35	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	REG	F	INIT	METALS	Chromium	Cr	42.3	3.5	LANL Reg BG LVL	7.48	5.7	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	
C4	32	37	3/6/2010	4.68	10.1	7.62	37	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-50 S1	1077	10/26/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	9.46	1.2	LANL Reg BG LVL	2.7	3.5	0.067	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	32	39	3/6/2010	49.8	150	96.3	39	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-50 S1	1077	10/26/2017	REG	F	INIT	METALS	Chromium	Cr	150	1.6	LANL Reg BG LVL	7.48	20.1	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	Highest to date.
C4	32	38	3/6/2010	0.398	2.72	1.62	38	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-50 S1	1077	10/26/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.09	1.3	LANL Reg BG LVL	0.769	2.7	0.085	mg/L	5		NQ	NQ	EPA: 353.2	GELC	
C4	32	37	3/6/2010	7.22	14.9	11.5	37	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-50 S1	1077	10/26/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	13.2	1.1	LANL Reg BG LVL	4.59	2.9	0.133	mg/L	1		NQ	NQ	EPA: 300.0	GELC	
C4	16	19	5/20/2011	2.03	23.3	19.1	18	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-61 S1	1125	10/31/2017	REG	F	INIT	METALS	Chromium	Cr	20.7	1.1	LANL Reg BG LVL	7.48	2.8	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	
C4	16	19	5/20/2011	0.427	2.31	1.88	19	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-61 S1	1125	10/31/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.9	1	LANL Reg BG LVL	0.769	2.5	0.085	mg/L	5		NQ	NQ	EPA: 353.2	GELC	
C4	16	19	5/20/2011	2.96	10.7	7.37	19	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-61 S1	1125	10/31/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	10.7	1.5	LANL Reg BG LVL	0.414	25.8	0.5	µg/L	10		NQ	NQ	SW-846: 6850	GELC	

Table 1: NMED 11-17 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	18	20	9/25/2000	6.17	7.74	6.53	20	White Rock Canyon and Rio Grande	Regional Spring	Spring 4	0	10/10/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	7.12	1.1	LANL Reg BG LVL	2.7	2.6	0.067	mg/L	1	Q	NQ	NQ	EPA: 300.0	GELC	
C4	18	20	9/25/2000	9.24	10.6	9.56	20	White Rock Canyon and Rio Grande	Regional Spring	Spring 4	0	10/10/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	10.2	1.1	LANL Reg BG LVL	4.59	2.2	0.133	mg/L	1	Q	NQ	NQ	EPA: 300.0	GELC	
C4	22	23	9/25/2000	4.37	6	5.12	23	White Rock Canyon and Rio Grande	Regional Spring	Spring 4A	0	10/11/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	5.78	1.1	LANL Reg BG LVL	2.7	2.1	0.067	mg/L	1	Q	NQ	NQ	EPA: 300.0	GELC	
C4	16	17	9/27/2005	5.52	6.85	5.94	17	White Rock Canyon and Rio Grande	Regional Spring	Spring 4AA	0	10/11/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	6.85	1.2	LANL Reg BG LVL	2.7	2.5	0.067	mg/L	1	Q	NQ	NQ	EPA: 300.0	GELC	
C4	14	14	9/26/2005	7.19	9.11	7.835	14	White Rock Canyon and Rio Grande	Regional Spring	Spring 4B	0	10/11/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	8.88	1.1	LANL Reg BG LVL	2.7	3.3	0.067	mg/L	1	Q	NQ	NQ	EPA: 300.0	GELC	
C4	14	14	9/26/2005	8.65	10.7	9.155	14	White Rock Canyon and Rio Grande	Regional Spring	Spring 4B	0	10/11/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	10.7	1.2	LANL Reg BG LVL	4.59	2.3	0.133	mg/L	1	Q	NQ	NQ	EPA: 300.0	GELC	
C5	30	36	3/5/2009	6.1	42.5	12.1	35	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	FD	F	INIT	METALS	Chromium	Cr	42.5	3.5	NM GW STD	50	0.9	3	µg/L	1		NQ	NQ	SW-846: 6020	GELC	Chromium concentration of screen 2 is a result of cross flow that occurred from screen 1 when the Baski packer was removed for well maintenance. Lower screen has since been purged of cross flow.
CA	19	25	2/19/2009	3.53	7.6	5.565	2	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-39	859	10/25/2017	REG	UF	INIT	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	7.6	1.4	EPA MCL	6	1.3	3.23	µg/L	1	J	J	J_LAB	SW-846: 8270D	GELC	Highest to date; the compound was not detected in the reanalysis of the sample.
CA	8	8	10/6/2003	0.228	0.228	0.228	1	White Rock Canyon and Rio Grande	Regional Spring	Spring 3AA	0	10/10/2017	REG	UF	INIT	GENINORG	Cyanide (Total)	CN(Total)	0.228	1	EPA MCL	0.2	1.1	0.0033	mg/L	2		NQ	NQ	EPA: 335.4	GELC	First detection out of eight measurements since 2003. Reanalysis was requested.

Table 2: NMED 11-17 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
XC2scr	18	22	2/26/2007	0.00204	0.0193	0.01067	2	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i S3	524	10/19/2017	REG	UF	INIT	GENINORG	Cyanide (Total)	CN(Total)	0.0193	1.8	Int-Scr_95	0.0017	11.4	0.0017	mg/L	1		NQ	NQ	EPA:335.4	GELC	
XC2scr	18	21	7/13/2009	0.018	0.09	0.042	5	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Intermediate	R-37 S1	929.3	10/25/2017	REG	F	INIT	GENINORG	Ammonia as Nitrogen	NH3-N	0.09	2.1	Int-Scr_95	0.0606	1.5	0.017	mg/L	1		NQ	NQ	EPA:350.1	GELC	
XC2scr	30	32	3/5/2009	1.1	1.3	1.2	2	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	FD	F	INIT	Metals	Cobalt	Co	1.1	0.9	Reg-Scr_95	1	1.1	1	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	30	32	3/5/2009	1.1	1.3	1.2	2	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-45 S2	974.9	10/31/2017	REG	F	INIT	Metals	Cobalt	Co	1.3	1.1	Reg-Scr_95	1	1.3	1	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	10	11	9/24/2001	0.0493	0.0493	0.0493	1	White Rock Canyon and Rio Grande	Regional Spring	Spring 3	0	10/10/2017	REG	UF	INIT	GENINORG	Cyanide (Total)	CN(Total)	0.0493	1	Reg-Scr_95	0.0017	29	0.0017	mg/L	1		NQ	NQ	EPA:335.4	GELC	
XC2scr	8	8	10/6/2003	0.228	0.228	0.228	1	White Rock Canyon and Rio Grande	Regional Spring	Spring 3AA	0	10/10/2017	REG	UF	INIT	GENINORG	Cyanide (Total)	CN(Total)	0.228	1	Reg-Scr_95	0.0017	134.1	0.0033	mg/L	2		NQ	NQ	EPA:335.4	GELC	
XC2scr	11	11	9/26/2005	0.127	0.127	0.127	1	White Rock Canyon and Rio Grande	Regional Spring	Spring 3AA	0	10/10/2017	REG	F	INIT	Metals	Mercury	Hg	0.127	1	Reg-Scr_95	0.067	1.9	0.067	µg/L	1	J	J	J_LAB	EPA:245.2	GELC	
XC2scr	11	12	9/14/2004	0.00171	0.00317	0.00244	2	White Rock Canyon and Rio Grande	Regional Spring	Spring 4B	0	10/11/2017	REG	UF	INIT	GENINORG	Cyanide (Total)	CN(Total)	0.00317	1.3	Reg-Scr_95	0.0017	1.9	0.0017	mg/L	1	JQ	J	J_LAB	EPA:335.4	GELC	
XC2scr	10	10	10/7/2003	0.00231	0.00231	0.00231	1	White Rock Canyon and Rio Grande	Regional Spring	Spring 8A	0	10/12/2017	REG	UF	INIT	GENINORG	Cyanide (Total)	CN(Total)	0.00231	1	Reg-Scr_95	0.0017	1.4	0.0017	mg/L	1	JQ	J	J_LAB	EPA:335.4	GELC	
XC2scr	13	13	9/26/2000	30.5	80.6	43.2	5	White Rock Canyon and Rio Grande	Regional Spring	Spring 8A	0	10/12/2017	REG	F	INIT	Metals	Iron	Fe	80.6	1.9	Reg-Scr_95	53.8	1.5	30	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	Highest to date. Dissolved iron was detected a few times in this location. Prior iron concentration ranges from 30.5 to 46.9 µg/L.
XC2scr	13	13	9/27/2000	0.082	0.082	0.082	1	White Rock Canyon and Rio Grande	Regional Spring	Spring 9A	0	10/12/2017	REG	F	INIT	Metals	Mercury	Hg	0.082	1	Reg-Scr_95	0.067	1.2	0.067	µg/L	1	J	J	J_LAB	EPA:245.2	GELC	J-flagged value; first detection out of 13 measurements since 2000.

Table 2: NMED 11-17 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	26	29	3/10/2004	38.5	382	72.7	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20 S2	1147.1	10/19/2017	REG	F	INIT	Metals	Manganese	Mn	73.7	1	Reg-Scr_95	12.1	6.1	2	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	19	21	2/19/2009	3.5	88.2	12.85	12	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-39	859	10/25/2017	REG	F	INIT	Metals	Zinc	Zn	42	3.3	Reg-Scr_95	14.4	2.9	3.3	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	16	19	5/20/2011	0.0531	11.8	1.745	16	Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	Regional	R-61 S1	1125	10/31/2017	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.581	0.3	Reg-Scr_95	0.0822	7.1	0.02	mg/L	1		J+	I4a	EPA:365.4	GELC	