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Date: APR 24 2018
Refer To: ADEM-18-0042
LAUR: 18-23320

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 April 2018

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 April 12, 2018, to review groundwater data received in March 2018. 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 November 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 two 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).

RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) was measured at 7.69 µg/L and 7.08 µg/L in an unfiltered sample and its field duplicate, respectively, collected on February 21, 2018, from intermediate spring Bulldog Spring. These detections were both above the 7.02 µg/L NMWQCC groundwater standard. One-day notification of these results by telephone occurred on April 12, 2018.

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,

Enrique Torres, 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

ET/DR/NP:sm

Enclosure: Two hard copies with electronic files – Summary of Groundwater Data Reviewed in April 2018 That Meet Notification Requirements (EP2018-0057)

Cy: (date-stamped letter and attachment emailed)
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Leslie Dale, ADESH-EPC-CP
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Craig Leasure, PADOPS

SUMMARY OF GROUNDWATER DATA REVIEWED IN APRIL 2018
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 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 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 03-18 Groundwater Report, presents results since June 14, 2007, that met the five reporting criteria as specified in the 2016 Consent Order. Table 2, NMED 03-18 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 November 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:

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 03-18 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fld QC Type Code	Fld Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
C1	23	26	9/9/2004	2.50	2.50	2.50	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	REG	UF	INIT	VOC	Acetone	67-64-1	2.50	1.0	NMED A1 TAP SCRN LVL	14100.00	0.0	1.50	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C1	6	7	3/20/2017	0.35	0.4	0.4	1	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Regional	R-68	1340	2/6/2018	REG	UF	INIT	VOC	Tetrachloroethene	127-18-4	0.35	1.0	EPA MCL	5.0	0.1	0.30	µg/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C2	25	31	1/25/2007	0.22	0.45	0.252	31	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Regional	CdV-R-15-3 S4	1235	2/22/2018	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.45	1.8	LANL Reg BG LVL	0.414	1.1	0.050	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C3	72	87	1/10/2000	145.00	502.0	183.0	81	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Burning Ground Spring	0	2/10/2018	REG	F	INIT	METALS	Barium	Ba	502.00	2.7	NM GW STD	1000	0.5	1.00	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	21	27	4/20/2010	41.30	119.0	52.60	27	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	16-26644	129	2/22/2018	REG	F	INIT	METALS	Barium	Ba	46.60	0.9	LANL Int BG LVL	13.50	3.5	1.00	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	18	23	4/20/2010	15.20	38.7	19.8	23	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	16-26644	129	2/22/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	18.40	0.9	LANL Int BG LVL	3.11	5.9	0.34	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	25	31	6/1/2005	5.78	8.40	6.770	31	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	CdV-16-1(i)	624	2/16/2018	FD	F	INIT	GENINORG	Chloride	Cl(-1)	8.40	1.2	LANL Int BG LVL	3.110	2.7	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	25	31	6/1/2005	5.78	8.4	6.77	31	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	CdV-16-1(i)	624	2/16/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	8.38	1.2	LANL Int BG LVL	3.110	2.7	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	9	13	5/21/2015	9.11	66.5	12.60	13	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Perched	CDV-9-1(i) S1	937	2/6/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	12.60	1.0	LANL Int BG LVL	3.1	4.1	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	

Table 1: NMED 03-18 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fld QC Type Code	Fld Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
C4	9	13	5/21/2015	0.96	3	1.1	13	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Perched	CDV-9-1(i) S1	937	2/6/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	0.96	0.9	LANL Int BG LVL	0.46	2.1	0.02	mg/L	1		NQ	NQ	EPA:353.2	GELC	
C4	29	34	9/9/2004	53.90	82.00	69.050	34	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	FD	F	INIT	METALS	Barium	Ba	75.60	1.1	LANL Int BG LVL	13.500	5.6	1.000	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	29	34	9/9/2004	53.90	82.0	69.1	34	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	REG	F	INIT	METALS	Barium	Ba	75.40	1.1	LANL Int BG LVL	13.50	5.6	1.000	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	28	33	9/9/2004	12.10	34.6	19	33	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	FD	F	INIT	GENINORG	Chloride	Cl(-1)	27.10	1.4	LANL Int BG LVL	3.1	8.7	0.34	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	28	33	9/9/2004	12.10	34.6	19.10	33	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	27.50	1.4	LANL Int BG LVL	3.1	8.8	0.34	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	26	31	6/22/2005	0.54	1	0.7	31	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	FD	F	INIT	GENINORG	Perchlorate	ClO4	0.97	1.3	LANL Int BG LVL	0.27	3.6	0.05	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	26	31	6/22/2005	0.54	1	0.7	31	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.99	1.4	LANL Int BG LVL	0.3	3.7	0.050	µg/L	1		NQ	NQ	SW-846:6850	GELC	
C4	72	87	1/10/2000	145.00	502.0	183.0	81	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Burning Ground Spring	0	2/10/2018	REG	F	INIT	METALS	Barium	Ba	502.00	2.7	LANL Int BG LVL	13.50	37.2	1.00	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	24	29	1/29/2007	13.80	42.0	19.3	29	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Burning Ground Spring	0	2/10/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	16.30	0.8	LANL Int BG LVL	3.11	5.2	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	68	76	1/10/2000	122.00	243.0	167.00	69	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	METALS	Barium	Ba	158.00	0.9	LANL Int BG LVL	13.500	11.7	1.000	µg/L	1		NQ	NQ	SW-846:6010C	GELC	

Table 1: NMED 03-18 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fld QC Type Code	Fld Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
C4	68	76	1/10/2000	15.50	42.80	29.250	76	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	GENINORG	Calcium	Ca	27.40	0.9	LANL Int BG LVL	10.70	2.6	0.050	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	24	30	1/30/2007	18.00	44	22.6	30	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	24.00	1.1	LANL Int BG LVL	3.1	7.7	0.34	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	32	39	8/25/2005	65.70	112	94.30	39	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	GENINORG	Hardness	HARDNESS	93.80	1.0	LANL Int BG LVL	37.8	2.5	0.45	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	24	30	1/30/2007	1.69	4.9	2.72	30	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.92	1.1	LANL Int BG LVL	0.5	6.4	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	32	39	8/25/2005	93.80	155	133	39	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	METALS	Strontium	Sr	133.00	1.0	LANL Int BG LVL	59.60	2.2	1.00	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	24	30	1/30/2007	13.10	20.0	16.9	30	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	19.80	1.2	LANL Int BG LVL	7.10	2.8	0.665	mg/L	5		NQ	NQ	EPA:300.0	GELC	
C4	14	15	8/8/2011	42.00	54.10	44.00	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	METALS	Barium	Ba	43.20	1.0	LANL Int BG LVL	13.5	3.2	1.000	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	14	15	8/8/2011	27.60	31.00	28.60	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Calcium	Ca	31.00	1.1	LANL Int BG LVL	10.7	2.9	0.050	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	14	15	8/8/2011	15.50	19	16.8	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Chloride	Cl(-1)	17.90	1.1	LANL Int BG LVL	3.11	5.8	0.07	mg/L	1		NQ	NQ	EPA:300.0	GELC	

Table 1: NMED 03-18 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fld QC Type Code	Fld Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
C4	14	15	8/8/2011	101.00	113	104.0	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Hardness	HARDNESS	113.00	1.1	LANL Int BG LVL	37.80	3.0	0.45	mg/L	1		NQ	NQ	SM:A2340B	GELC	
C4	14	15	8/8/2011	7.75	8.59	7.95	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Magnesium	Mg	8.59	1.1	LANL Int BG LVL	3.140	2.7	0.110	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	13	14	8/8/2011	3.38	4.35	3.59	14	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.57	1.0	LANL Int BG LVL	0.459	7.8	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	14	15	8/8/2011	4.86	7	5.7	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Perchlorate	ClO4	5.99	1.1	LANL Int BG LVL	0.27	22.2	0.250	µg/L	5		NQ	NQ	SW-846:6850	GELC	
C4	14	15	8/8/2011	127.00	151	141.0	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	METALS	Strontium	Sr	145.00	1.0	LANL Int BG LVL	59.60	2.4	1.000	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
C4	14	15	8/8/2011	19.90	21.7	21.20	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	21.60	1.0	LANL Int BG LVL	7.1	3.0	0.266	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C4	34	36	2/28/2009	3.00	6.7	4.73	36	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-45 S1	880	2/14/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	6.03	1.3	LANL Reg BG LVL	2.700	2.2	0.067	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	34	40	2/28/2009	8.40	50.700	27.50	40	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-45 S1	880	2/14/2018	REG	F	INIT	METALS	Chromium	Cr	44.90	1.6	LANL Reg BG LVL	7.480	6.0	3.000	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	34	36	2/28/2009	0.26	3.47	2.830	36	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-45 S1	880	2/14/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.29	1.2	LANL Reg BG LVL	0.769	4.3	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	33	40	3/5/2009	6.10	47.4	13.200	39	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-45 S2	975	2/14/2018	REG	F	INIT	METALS	Chromium	Cr	21.80	1.7	LANL Reg BG LVL	7.48	2.9	3.000	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	36	42	3/6/2010	4.68	10	8	42	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-50 S1	1077	2/15/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	9.22	1.2	LANL Reg BG LVL	2.7	3.4	0.13	mg/L	2		NQ	NQ	EPA:300.0	GELC	

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Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fld QC Type Code	Fld Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
C4	36	44	3/6/2010	49.80	150.00	99.05	44	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-50 S1	1077	2/15/2018	REG	F	INIT	METALS	Chromium	Cr	123.00	1.2	LANL Reg BG LVL	7.5	16.4	3.000	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	36	43	3/6/2010	0.40	2.72	1.79	43	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-50 S1	1077	2/15/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.52	1.4	LANL Reg BG LVL	0.8	3.3	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	36	42	3/6/2010	7.22	14.9	11.70	42	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-50 S1	1077	2/15/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	13.90	1.2	LANL Reg BG LVL	4.590	3.0	0.133	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C4	20	24	5/20/2011	2.03	23.30	19.70	23	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	FD	F	INIT	METALS	Chromium	Cr	21.60	1.1	LANL Reg BG LVL	7.480	2.9	3.000	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	20	24	5/20/2011	2.03	23.30	19.70	23	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	REG	F	INIT	METALS	Chromium	Cr	22.60	1.1	LANL Reg BG LVL	7.5	3.0	3.000	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	20	24	5/20/2011	0.43	2.3	1.9	24	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	FD	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.85	1.0	LANL Reg BG LVL	0.8	2.4	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	20	24	5/20/2011	0.43	2.3	1.9	24	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.85	1.0	LANL Reg BG LVL	0.77	2.4	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C4	20	24	5/20/2011	2.96	12.1	8.0	24	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	FD	F	INIT	GENINORG	Perchlorate	ClO4	11.60	1.4	LANL Reg BG LVL	0.4	28.0	0.50	µg/L	10		NQ	NQ	SW-846:6850	GELC	
C4	20	24	5/20/2011	2.96	12.1	8.05	24	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	REG	F	INIT	GENINORG	Perchlorate	ClO4	10.80	1.3	LANL Reg BG LVL	0.41	26.1	0.500	µg/L	10		NQ	NQ	SW-846:6850	GELC	
C5	11	12	4/1/2010	609.00	3880	2740	12	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Alluvial	CDV-16-611937	3	2/16/2018	REG	F	INIT	METALS	Manganese	Mn	1880.00	0.7	NM GW STD	200	9.4	2	µg/L	1		NQ	NQ	SW-846:6010C	GELC	

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C5	31	36	6/22/2005	1.06	7.69	3.675	36	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	REG	UF	INIT	HEXP	RDX	121-82-4	7.69	2.1	NMED A1 TAP SCRN LVL	7.02	1.1	0.092	µg/L	2		NQ	NQ	SW-846:8330B	GELC	Highest to date, concentration has increased for the third consecutive sampling. Prior RDX concentrations fluctuate between 1.06 µg/L and 6.88 µg/L. Current elevated RDX is likely due to relatively high turbidity (NTU:2.9) of the sample.
C5	64	72	1/10/2000	570.00	2840	1315	72	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	METALS	Boron	B	984.00	0.7	NM GW STD	750	1.3	15	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
CA	31	36	6/22/2005	1.06	7.69	3.675	36	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	FD	UF	INIT	HEXP	RDX	121-82-4	7.08	1.9	NMED A1 TAP SCRN LVL	7.02	1	0.091	µg/L	2		NQ	NQ	SW-846:8330B	GELC	Primary sample concentration was 7.69 µg/L.
CA	31	36	6/22/2005	1.06	7.69	3.675	36	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	2/21/2018	REG	UF	INIT	HEXP	RDX	121-82-4	7.69	2.1	NMED A1 TAP SCRN LVL	7.02	1.1	0.092	µg/L	2		NQ	NQ	SW-846:8330B	GELC	Highest to date, concentration has increased for the third consecutive sampling. Prior RDX concentrations fluctuate between 1.06 µg/L and 6.88 µg/L. Current elevated RDX is likely due to relatively high turbidity

Table 1: NMED 03-18 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fld QC Type Code	Fld Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
																																(NTU:2.9) of the sample.

Table 2: NMED 03-18 Groundwater Report Addendum

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	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	27	35	12/15/2005	18.8	54.5	21.85	6	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	CdV-16-2(i)r	850	2/16/2018	REG	F	INIT	METALS	Iron	Fe	54.5	2.5	Int-Scr_95	54.1	1	30	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC2scr	24	29	8/25/2005	0.003	0.0127	0.00437	5	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	UF	INIT	INORGANIC	Cyanide (Total)	CN (Total)	0.0127	2.9	Int-Scr_95	0.0017	7.5	0.002	mg/L	1		NQ	NQ	EPA:335.4	GELC	
XC4scr	28	34	6/1/2005	36.5	78.9	60.5	34	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	CdV-16-1(i)	624	2/16/2018	FD	F	INIT	METALS	Boron	B	36.5	0.6	Int-Scr_95	16.2	2.3	15	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC4scr	28	34	6/1/2005	36.5	78.9	60.5	34	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	CdV-16-1(i)	624	2/16/2018	REG	F	INIT	METALS	Boron	B	36.6	0.6	Int-Scr_95	16.2	2.3	15	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC4scr	28	34	6/1/2005	3.4	24.8	9.5	32	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	CdV-16-1(i)	624	2/16/2018	FD	F	INIT	METALS	Copper	Cu	14.5	1.5	Int-Scr_95	3	4.8	3	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	28	34	6/1/2005	3.4	24.8	9.5	32	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate	CdV-16-1(i)	624	2/16/2018	REG	F	INIT	METALS	Copper	Cu	14.4	1.5	Int-Scr_95	3	4.8	3	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	72	87	1/10/2000	16.2	2590	335	62	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Burning Ground Spring	0	2/10/2018	REG	F	INIT	METALS	Aluminum	Al	338	1	Int-Scr_95	68	5	68	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	68	76	1/10/2000	51	5130	316.5	48	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	METALS	Aluminum	Al	152	0.5	Int-Scr_95	68	2.2	68	µg/L	1	J	J	J_LAB	SW-846:6010C	GELC	
XC4scr	64	72	1/10/2000	570	2840	1315	72	Water Canyon (includes Canon de Valle, Potrillo, and Fence Canyons)	Intermediate Spring	Martin Spring	0	2/23/2018	REG	F	INIT	METALS	Boron	B	984	0.7	Int-Scr_95	16.2	61	15	µg/L	1		NQ	NQ	SW-846:6010C	GELC	
XC4scr	14	15	8/8/2011	0.136	0.19	0.161	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Intermediate Spring	Vine Tree Spring	0	12/12/2017	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.161	1	Int-Scr_95	0.0716	2.2	0.067	mg/L	1	J	J	J_LAB	EPA:300.0	GELC	

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Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fld QC Type Code	Fld Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
XC4scr	20	24	5/20/2011	0.053	11.8	1.53	21	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	FD	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.574	0.4	Reg-Scr_95	0.0822	7	0.02	mg/L	1		NQ	NQ	EPA:365.4	GELC	
XC4scr	20	24	5/20/2011	0.053	11.8	1.53	21	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	2/20/2018	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.55	0.4	Reg-Scr_95	0.0822	6.7	0.02	mg/L	1		NQ	NQ	EPA:365.4	GELC	