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Date: **MAY 24 2018**
Refer To: N3B-18-0116

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 May 2018

Dear Mr. Kieling:

This letter is the U.S. Department of Energy (DOE) Office of Environmental Management Los Alamos Field Office (EM-LA) and Newport News Nuclear BWXT – Los Alamos, LLC (N3B) written submission in accordance with Section XXVI.D of the 2016 Compliance Order on Consent (Consent Order). Members of EM-LA and N3B met on May 15, 2018, to review groundwater data received in April 2018 in accordance with Section XXVI.C of the 2016 Consent Order. This report was prepared by comparing the data against groundwater notification criteria as defined in Section IX of the 2016 Consent Order. These criteria consider New Mexico Water Quality Control Commission (NMWQCC) groundwater standards, U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs), New Mexico Environment Department (NMED) screening levels for tap water, EPA regional screening levels for tap water, and NMED-approved background values for hydrogeological zones as set forth in the “Groundwater Background Investigation Report, Revision 5.” For comparison with EPA tap water standards, the standard’s carcinogenic risk value was adjusted to 1×10^{-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 Protocol for Protecting Confidential Pueblo Information included in the Memorandum of Agreement dated June 18, 2015, agreed upon by DOE’s National Nuclear Security Administration Los Alamos Field Office, EM-LA, and the Pueblo de San Ildefonso.

1-Day Notification

There were no instances of a contaminant detected at a concentration that exceeded the NMWQCC groundwater standard or federal MCL at locations where contaminants have not been previously detected above the respective standard (based on samples collected since June 14, 2007).

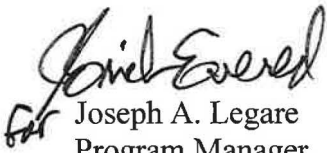
One-day notification was not required because there were no cases of a contaminant detected in a well screen interval or spring at a concentration that exceeded a water quality standard for the first time.

15-Day Notification

The required information for the contaminants and other chemical parameters that meet the five reporting criteria requiring written notification within 15 days is given in the accompanying report and tables.

If you have questions, please contact Steve Veenis at (505) 309-1362 (steve.veenis@em-la.doe.gov) or Hai Shen at (505) 665-5046 (hai.shen@em.doe.gov).

Sincerely,



Joseph A. Legare
Program Manager
Environmental Remediation Program

Sincerely,



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

JL/DR/SV

Enclosure(s): Two hard copies with electronic files – Summary of Groundwater Data Reviewed in May 2018 That Meet Notification Requirements (EM2018-0005)

Cy: (letter and enclosure[s] emailed)
Steve Veenis, ER Program
Laurie King, EPA Region 6, Dallas, TX
Michelle Hunter, NMED-GWQB
Steve Yanicak, NMED-DOE-OB, MS M894
Raymond Martinez, San Ildefonso Pueblo, NM
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N3B Records
Public Reading Room (EPRR)
PRS Database

Cy: (letter emailed without enclosure[s])
Wayne Witten, Los Alamos County Utility Department, Los Alamos, NM
David Rhodes, DOE-EM-LA
David Nickless, DOE-EM-LA
Hai Shen, DOE-EM-LA
Cheryl L. Rodriguez, DOE-EM-LA
Nick Lombardo, N3B
Frazer Lockhart, N3B

Joe Legare, ER Program
Bruce Robinson, ER Program
Danny Katzman, ER Program
Scott Fenby, ER Program
Mei Ding, ER Program

SUMMARY OF GROUNDWATER DATA REVIEWED IN MAY 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 the 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). During the third quarter of fiscal year 2018, environmental remediation work transitioned from the Laboratory, under the U.S. Department of Energy (DOE) National Nuclear Security Administration, to Newport News Nuclear BWXT – Los Alamos, LLC (N3B), under the DOE Office of Environmental Management. 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 04-18 Groundwater Report, presents results since June 14, 2007, that met the five reporting criteria as specified in the 2016 Consent Order. Table 2, NMED 04-18 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 N3B to NMED to identify the potential risk resulting from contaminants and other chemical constituents without defined background values.

These tables include the following:

- Comments on results that appear to be exceptional based on consideration of monitoring data acquired from previous analyses (using statistics described below)
- Supplemental information summarizing monitoring results obtained from previous analyses
- Sampling date, name of the well or spring, location of the well or spring, depth of the screened interval, groundwater zone sampled, analytical result, detection limit, values for regulatory standards or screening levels, and analytical and secondary validation qualifiers. Additional information describing the locations and analytical data is also included. All data have been through secondary validation.

This report was prepared by comparing the data against groundwater notification criteria as defined in Section IX of the 2016 Consent Order. These criteria consider New Mexico Water Quality Control Commission (NMWQCC) groundwater standards, U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs), NMED screening levels for tap water, EPA regional screening levels for tap water, and NMED-approved background values for hydrogeological zones as set forth in the “Groundwater Background Investigation Report, Revision 5.” For comparison with EPA tap water standards, the standard’s carcinogenic risk value was adjusted to 1×10^{-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

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 04-18 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fid QC Type Code	Fid Prep Code	Lab Sample Type Code	AnyI 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	AnyI Meth Code	Lab Code	Comment
C1	15	21	07/01/2006	16.40	16.40	16.40	1	Water Canyon	Regional	R-27	852	03/09/2018	REG	UF	INIT	SVOC	Benzoic Acid	65-85-0	16.40	1.0	EPA TAP SCRN LVL	75000.00	0.0	6.25	µg/L	1.00	J	J	J_LAB	SW-846:8270D	GELC	
C2	19	28	07/01/2006	82.90	177.0	124.0	28	Water Canyon	Regional	R-27	852.0	03/09/2018	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	177.0	1.4	LANL Reg BG LVL	161.0	1.1	3.40	mg/L	1.00		NQ	NQ	EPA:160.1	GELC	
C2	13	16	10/23/2015	0.14	0.38	0.190	16	Mortandad Canyon	Regional	SIMR-2	885.000	01/18/2018	FD	F	INIT	GENINORG	Fluoride	F(-1)	0.38	2.0	LANL Reg BG LVL	0.377	1.0	0.033	mg/L	1.00		NQ	NQ	EPA:300.0	GELC	
C4	34	41	03/05/2009	6.10	47.4	14.45	40	Mortandad Canyon	Regional Deep	R-45 S2	974.900	03/15/2018	REG	F	INIT	Metals	Chromium	Cr	21.00	1.5	LANL Reg BG LVL	7.480	2.8	3.000	µg/L	1		NQ	NQ	SW-846:6020	GELC	
C4	35	37	02/28/2009	3.0	6.7	4.8	37	Mortandad Canyon	Regional Top	R-45 S1	880.000	03/14/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	5.9	1.2	LANL Reg BG LVL	2.70	2.2	0.07	mg/L	1.00		NQ	NQ	EPA:300.0	GELC	
C4	35	41	02/28/2009	8.400	50.70	27.7	41	Mortandad Canyon	Regional Top	R-45 S1	880.000	03/14/2018	REG	F	INIT	Metals	Chromium	Cr	44.60	1.6	LANL Reg BG LVL	7.480	6.0	3.000	µg/L	1.0		NQ	NQ	SW-846:6020	GELC	
C4	35	37	02/28/2009	0.3	3.5	2.86	37	Mortandad Canyon	Regional Top	R-45 S1	880.000	03/14/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	3.3	1.2	LANL Reg BG LVL	0.77	4.3	0.09	mg/L	5.00		NQ	NQ	EPA:353.2	GELC	
C4	37	43	03/06/2010	4.68	10.1	8.0	43	Mortandad Canyon	Regional Top	R-50 S1	1077.000	03/19/2018	REG	F	INIT	GENINORG	Chloride	Cl(-1)	9.4	1.2	LANL Reg BG LVL	2.70	3.5	0.13	mg/L	2.00		NQ	NQ	EPA:300.0	GELC	
C4	37	45	03/06/2010	49.800	150.00	99.800	45	Mortandad Canyon	Regional Top	R-50 S1	1077.000	03/19/2018	REG	F	INIT	Metals	Chromium	Cr	132.00	1.3	LANL Reg BG LVL	7.480	17.6	3.000	µg/L	1.00		NQ	NQ	SW-846:6020	GELC	
C4	37	44	03/06/2010	0.40	2.7	1.80	44	Mortandad Canyon	Regional Top	R-50 S1	1077.000	03/19/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.1	1.2	LANL Reg BG LVL	0.769	2.7	0.170	mg/L	10		NQ	NQ	EPA:353.2	GELC	
C4	37	43	03/06/2010	7.22	14.9	11.90	43	Mortandad Canyon	Regional Top	R-50 S1	1077.000	03/19/2018	REG	F	INIT	GENINORG	Sulfate	SO4(-2)	14.20	1.2	LANL Reg BG LVL	4.6	3.1	0.133	mg/L	1.00		NQ	NQ	EPA:300.0	GELC	
C4	21	25	05/20/2011	2.0	23	19.8	24	Mortandad Canyon	Regional Top	R-61 S1	1125.000	03/21/2018	REG	F	INIT	Metals	Chromium	Cr	22	1.1	LANL Reg BG LVL	7.48	2.9	3.00	µg/L	1.00		NQ	NQ	SW-846:6020	GELC	
C4	21	25	05/20/2011	0.427	2.31	1.880	25	Mortandad Canyon	Regional Top	R-61 S1	1125.000	03/21/2018	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	1.85	1.0	LANL Reg BG LVL	0.769	2.4	0.170	mg/L	10.0		NQ	NQ	EPA:353.2	GELC	
C4	21	25	05/20/2011	2.96	12.1	8.5	25	Mortandad Canyon	Regional Top	R-61 S1	1125.000	03/21/2018	REG	F	INIT	GENINORG	Perchlorate	ClO4	10.9	1.3	LANL Reg BG LVL	0.41	26.3	0.500	µg/L	10.00		NQ	NQ	SW-846:6850	GELC	

Table 2: NMED 04-18 Groundwater Report Addendum

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Canyon	Zone	Location	Screen Depth	Start Date	Fid QC Type Code	Fid Prep Code	Lab Sample Type Code	Anyl Suite Code	Analyte Desc	Analyte	Std Result	Result/Median	LVL Type/Risk Code	Screen Level	Exceedance Ratio	Std MDL	Std UOM	Dilution Factor	Lab Qual Code	Validation Flag	Validation Reason Code	Anyl Meth Code	Lab Code	Comment
XC2scr	31	33	40010	0.0039	0.0039	0.0039	1	Mortandad Canyon	Regional Top	R-45 S1	880	43173	REG	UF	INIT	Inorganic	Cyanide (Total)	CN (Total)	0.00387	1	Reg-Scr_95	0.0017	2.3	0	mg/L	1	J	J	J_LAB	EPA:335.4	GELC	
XC4scr	21	25	40683	0.0531	11.8	1.405	22	Mortandad Canyon	Regional Top	R-61 S1	1125	43180	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.652	0.5	Reg-Scr_95	0.0822	7.9	0.02	mg/L	1		NQ	NQ	EPA:365.4	GELC	Was 11.84 mg/L in 11/15/2012 sample. The concentration has decreased.