General

Los Alamos
NATIONAL LABORATORY
EST. 1943

Environmental Programs
P.O. Box 1663, MS K788
Los Alamos, New Mexico 87545
(505) 606-2337

National Nuclear Security Administration
Los Alamos Field Office, MS A316
Environmental Projects Office
Los Alamos, New Mexico 87544
(505) 667-4255/FAX (505) 606-2132

Date: JUN 20 2014
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JUN 20 2014
NMED
Hazardous Waste Bureau

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 June 2014

Dear Mr. Kieling:

This letter is Los Alamos National Laboratory's (LANL's) written submission that meets notification requirements presented in Section IV.A.3.g, Notification, of the Compliance Order on Consent. Members of LANL's Environmental Programs met on June 11, 2014, to review new groundwater data received in May 2014.

In LANL's previous letter, "Monthly Notification of Groundwater Data Reviewed in May 2014," LANL indicated that because of updated analytical methods, some results would appear as a first-time measurement at a location. LANL has modified the report so that these results are combined with the earlier results and are reported as usual.

This report was prepared using the May 2014 U.S. Environmental Protection Agency (EPA) Regional Screening Levels for Chemical Contaminants at Superfund Sites. EPA screening levels for 10^{-6} excess cancer risk were adjusted to 10^{-5} excess cancer risk as required by the Compliance Order on Consent.

1-Day Notification

There were no instances of a contaminant detected at a concentration that exceeded the New Mexico Water Quality Control Commission or federal water quality standards for the first time (based on samples collected since June 14, 2007).

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.

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15-Day Notification

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

If you have questions, please contact Steve Paris at (505) 606-0915 (smparis@lanl.gov) or Hai Shen at (505) 665-5046 (hai.shen@nnsa.doe.gov).

Sincerely,

Jeff Mousseau, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

Peter Maggiore, Assistant Manager
Environmental Projects Office
Los Alamos Field Office

JM/PM/DM/SP/DR:sm

Enclosure: Two hard copies with electronic files – Summary of Groundwater Data Reviewed in June 2014 That Meet Notification Requirements (LA-UR-14-24274)

Cy: (w/enc.)
Hai Shen, DOE-NA-00-LA, MS A316
Steve Paris, EP-CAP, MS M992
Public Reading Room (hard copy)
RPF (electronic copy)

Cy: (Letter and CD and/or DVD)
Laurie King, EPA Region 6, Dallas, TX
Steve Yanicak, NMED-DOE-OB, MS M894
Raymond Martinez, San Ildefonso Pueblo, NM
Joe Chavarria, Santa Clara Pueblo, NM
Jake Meadows, ENV-RCRA, MS K490
PRS Database with ER ID

Cy: (w/o enc.)
Pete Padilla, Los Alamos County Utility Department, Los Alamos, NM
Tom Skibitski, NMED-DOE-OB, Santa Fe, NM (date-stamped letter emailed)
lasomailbox@nnsa.doe.gov
Annette Russell, DOE-NA-00-LA (date-stamped letter emailed)
David Rhodes, DOE-NA-00-LA (date-stamped letter emailed)
David Rogers, EP-CAP (date-stamped letter emailed)
Mei Ding, EES-6 (date-stamped letter emailed)
Craig Douglass, EP-CAP (date-stamped letter emailed)
Jeff Mousseau, ADEP (date-stamped letter emailed)

SUMMARY OF GROUNDWATER DATA REVIEWED IN JUNE 2014 THAT MEET NOTIFICATION REQUIREMENTS

INTRODUCTION

This report provides preliminary information to the New Mexico Environment Department (NMED) concerning recent groundwater monitoring data obtained by the Los Alamos National Laboratory (the Laboratory) under its interim monitoring plan and contains results for chemical constituents that meet the seven screening criteria laid out in the Compliance Order on Consent (Consent Order). The report covers groundwater samples taken from wells or springs (listed in the accompanying table) that provide surveillance of the groundwater zones indicated in the table.

The report includes one table, *Table 1: NMED 5-14 Groundwater Report*. This table contains some values that are reported when they are detected for the first time since June 14, 2007, or are greater than other data collected since that time (as specified in the Consent Order). These reported data may be similar to data gathered before June 14, 2007.

This table includes the following:

- Additional comments on results that appear to be exceptional or based on consideration of monitoring data acquired before the current result (using statistics described below)
- Supplemental information summarizing monitoring results obtained before the current result
- 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.

In accordance with the Consent Order, the screening levels used include the U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs), the New Mexico groundwater standards, and the EPA Regional Screening Levels for tap water (for compounds having no other regulatory standard). The EPA Regional Screening Levels for tap water are either for cancer (10^{-6} excess risk) or noncancer risk values. The data were screened using 10 times the EPA's 10^{-6} excess cancer risk values, to achieve 10^{-5} excess cancer risk as indicated in Section VIII.A.1 of the Consent Order.

Background levels applied in Criteria 2 and 5 are the most recent NMED-approved 95% upper tolerance limits for background for each groundwater zone as set forth in the "Groundwater Background Investigation Report," prepared under Section IV.A.3.d of the Consent Order.

DESCRIPTION OF TABLE

The table is divided into separate categories that correspond to the seven screening criteria in the Consent Order. Some data meet more than one of the criteria and appear in the table multiple times. The table also presents only the instances where the results exceed criteria; therefore, not all seven criteria may appear in the table.

The criteria are as follows:

CA. The Respondents shall notify the Department orally within one business day after review of the analytical data if such data 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 maximum contaminant level in such well screen interval or spring.

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 exceeds either one-half the New Mexico water quality standard or one-half the federal maximum contaminant level, or if there is no such standard for the contaminant, one-half the EPA Region 6 human health medium-specific screening level for tap water (now the EPA Regional Screening Levels 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 perchlorate in a spring or screened interval of a well at a concentration of 2 µg/L or greater if perchlorate at such concentration has not previously been detected in the spring or screened interval.

C5. 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 2 times the background level for the third consecutive sampling of the spring or screened interval.

C6. Detection of a contaminant in a spring or screened interval of a well at a concentration that exceeds either one-half the New Mexico water quality standard or one-half the federal MCL, and that has increased for the third consecutive sampling of that spring or screened interval.

The next seven columns of the table give information on monitoring results obtained prior to the current result. The columns provide summary statistics for the samples collected since January 1, 2000, for the same analyte and field preparation (for example, filtered samples). The information includes the date of the first sampling event included in the statistics, the numbers 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—groundwater zone sampled by monitoring location (such as 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 to 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

Concat Flag Code—secondary validation qualifier

Concat 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 5-14 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	Concat Flag Code	Concat Reason Code	Anyl Meth Code	Lab Code	Comments
C1	21	28	02/19/09	0.32	0.32	0.32	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-39	859	04/14/14	REG	UF	INIT	VOC	Diethyl Ether	60-29-7	0.32	1	EPA TAP SCRN LVL	3900	0	0.3	ug/L	1	HJ	J	J_LAB	SW-846:8260B	GELC	no previous detects
C2	19	19	09/22/00	0.51	12	0.717	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-19 S2	893.3	04/09/14	REG	F	INIT	METALS	Nickel	Ni	1.03	1.4	LANL Int BG LVL	1	1	0.5	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	
C2	21	24	10/19/06	0.45	1.16	0.805	2	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-17 S1	1057	04/02/14	REG	F	INIT	METALS	Thallium	Tl	1.16	1.4	LANL Reg BG LVL	1	1.2	0.45	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	also found in performance evaluation blank
C2	13	13	07/21/05	0.02	0.0593	0.029	3	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19 S3	1171.4	04/10/14	REG	F	INIT	GENINORG	Ammonia as Nitrogen	NH3-N	0.0593	2	LANL Reg BG LVL	0.05	1.2	0.017	mg/L	1		NQ	NQ	EPA:350.1	GELC	
C2	22	22	09/26/00	62	1100	581	2	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19 S3	1171.4	04/10/14	REG	F	INIT	METALS	Iron	Fe	62	0.1	LANL Reg BG LVL	21	3	30	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C2	15	15	09/18/01	0.042	1.38	0.06	5	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19 S3	1171.4	04/10/14	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	1.38	23	LANL Reg BG LVL	0.16	8.6	0.017	mg/L	1		J+	I6b	EPA:365.4	GELC	matrix spike recovery above acceptance limit
C2	21	21	07/28/05	0.029	1.24	0.069	4	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19 S4	1410.2	04/11/14	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	1.24	18	LANL Reg BG LVL	0.16	7.8	0.017	mg/L	1		J+	I6b	EPA:365.4	GELC	matrix spike recovery above acceptance limit
C3	21	24	10/19/06	0.45	1.16	0.805	2	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-17 S1	1057	04/02/14	REG	F	INIT	METALS	Thallium	Tl	1.16	1.4	EPA MCL	2	0.6	0.45	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	also found in performance evaluation blank
C5	10	12	08/31/10	63.5	115	70.65	12	Water Canyon (includes Canyon del Valle, Potrillo, and Fence Canyons)	Intermediate	CDV-16-4ip S1	815.6	03/17/14	FD	F	INIT	METALS	Boron	B	63.5	0.9	LANL Int BG LVL	15.12	4.2	15	ug/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	10	12	08/31/10	63.5	115	70.65	12	Water Canyon (includes Canyon del Valle, Potrillo, and Fence Canyons)	Intermediate	CDV-16-4ip S1	815.6	03/17/14	REG	F	INIT	METALS	Boron	B	63.7	0.9	LANL Int BG LVL	15.12	4.2	15	ug/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	10	12	08/31/10	0.348	0.397	0.3625	12	Water Canyon (includes Canyon del Valle, Potrillo, and Fence Canyons)	Intermediate	CDV-16-4ip S1	815.6	03/17/14	FD	F	INIT	GENINORG	Perchlorate	ClO4	0.348	1	LANL Int BG LVL	0.05	7	0.05	ug/L	1		NQ	NQ	SW-846:6850	GELC	
C5	10	12	08/31/10	0.348	0.397	0.3625	12	Water Canyon (includes Canyon del Valle, Potrillo, and Fence Canyons)	Intermediate	CDV-16-4ip S1	815.6	03/17/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.35	1	LANL Int BG LVL	0.05	7	0.05	ug/L	1		NQ	NQ	SW-846:6850	GELC	
C5	28	39	06/23/06	81.1	35600	2730	39	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	FD	F	INIT	METALS	Aluminum	Al	2190	0.8	LANL Int BG LVL	1066	2.1	68	ug/L	1	N	NQ	NQ	SW-846:6010C	GELC	
C5	28	39	06/23/06	81.1	35600	2730	39	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	REG	F	INIT	METALS	Aluminum	Al	1900	0.7	LANL Int BG LVL	1066	1.8	68	ug/L	1	N	NQ	NQ	SW-846:6010C	GELC	
C5	28	39	06/23/06	12.4	77.6	40.85	34	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	FD	F	INIT	METALS	Boron	B	42.2	1	LANL Int BG LVL	15.12	2.8	15	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C5	28	39	06/23/06	12.4	77.6	40.85	34	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	REG	F	INIT	METALS	Boron	B	41.4	1	LANL Int BG LVL	15.12	2.7	15	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C5	28	39	06/23/06	0.51	20	2.8	33	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	FD	F	INIT	METALS	Lead	Pb	2.75	1	LANL Int BG LVL	0.5	5.5	0.5	ug/L	1		NQ	NQ	SW-846:6020	GELC	
C5	28	39	06/23/06	0.51	20	2.8	33	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	REG	F	INIT	METALS	Lead	Pb	2.74	1	LANL Int BG LVL	0.5	5.5	0.5	ug/L	1		NQ	NQ	SW-846:6020	GELC	
C5	28	39	06/23/06	3.1	681	19.5	39	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	FD	F	INIT	METALS	Manganese	Mn	8.83	0.5	LANL Int BG LVL	2	4.4	2	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C5	28	39	06/23/06	3.1	681	19.5	39	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	REG	F	INIT	METALS	Manganese	Mn	8.22	0.4	LANL Int BG LVL	2	4.1	2	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C5	28	39	06/23/06	3.3	83.5	26.45	38	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	FD	F	INIT	METALS	Zinc	Zn	13.3	0.5	LANL Int BG LVL	2	6.7	3.3	ug/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	28	39	06/23/06	3.3	83.5	26.45	38	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	04/14/14	REG	F	INIT	METALS	Zinc	Zn	13.1	0.5	LANL Int BG LVL	2	6.5	3.3	ug/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	11	13	06/11/09	0.16	0.192	0.173	13	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	PCI-2	512	04/08/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.171	1	LANL Int BG LVL	0.05	3.4	0.05	ug/L	1	J	J	J_LAB	SW-846:6850	GELC	
C5	18	18	09/22/00	0.409	0.849	0.552	18	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-19 S2	893.3	04/09/14	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.538	1	LANL Int BG LVL	0.23	2.3	0.033	mg/L	1		NQ	NQ	EPA:300.0	GELC	
C5	13	13	07/21/05	0.317	0.381	0.344	13	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-19 S2	893.3	04/09/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.33	1	LANL Int BG LVL	0.05	6.6	0.05	ug/L	1		NQ	NQ	SW-846:6850	GELC	
C5	21	24	10/19/06	22.8	1510	82.3	12	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-17 S1	1057	04/02/14	REG	F	INIT	METALS	Iron	Fe	123	1.5	LANL Reg BG LVL	21	5.9	30	ug/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	27	27	04/09/01	2.08	23	5.37	12	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19 S4	1410.2	04/11/14	REG	F	INIT	METALS	Manganese	Mn	10.5	2	LANL Reg BG LVL	2.94	3.6	2	ug/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	27	27	04/09/01	2.5	33.9	6.58	19	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19 S4	1410.2	04/11/14	REG	F	INIT	METALS	Zinc	Zn	33.9	5.2	LANL Reg BG LVL	3.89	8.7	3.3	ug/L	1		NQ	NQ	SW-846:6010C	GELC	