



*Associate Director for ESH*  
Environment, Safety, and Health  
P.O. Box 1663, MS K491  
Los Alamos, New Mexico 87545  
505-667-4218/Fax 505-665-3811

**RECEIVED**

FEB 23 2015

**NMED**  
**Hazardous Waste Bureau**



*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: FEB 23 2015  
Refer To: ADESH-15-035  
LAUR: 15-20902

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 February 2015**

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 February 11, 2015, to review new groundwater data received in January 2015.

This report was prepared using the November 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.

Any data that were collected on the Pueblo de San Ildefonso and were subject to reporting at this time have been withheld pending review by Pueblo de San Ildefonso. 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 the Pueblo de San Ildefonso. Such data will be forwarded to the New Mexico Environment Department after review by Pueblo de San Ildefonso.

**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.

**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,



Michael T. Brandt, DrPH, CIH, Associate Director  
Environment, Safety, and Health  
Los Alamos National Laboratory

Sincerely,



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

MB/PM/DM/SP:sm

Enclosure: Two hard copies with electronic files – Summary of Groundwater Data Reviewed in February 2015 That Meet Notification Requirements

Cy: (w/enc.)

Steve Paris, ER Program, MS M992  
Public Reading Room (EPRR)  
ADESH Records

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  
Dino Chavarria, Santa Clara Pueblo, NM  
Jake Meadows, ADESH-ENV-CP, MS K490  
PRS Database

Cy: (w/o enc.)

Pete Padilla, Los Alamos County Utility Department, Los Alamos, NM  
lasomailbox@nnsa.doe.gov  
Annette Russell, DOE-NA-LA (date-stamped letter emailed)  
Hai Shen, DOE-NA-LA (date-stamped letter emailed)  
David Rhodes, DOE-NA-LA (date-stamped letter emailed)  
Kimberly Davis Lebak, DOE-NA-LA (date-stamped letter emailed)  
Mei Ding, EES-6 (date-stamped letter emailed)  
Craig Douglass, ER Program (date-stamped letter emailed)  
Dave McInroy, ER Program (date-stamped letter emailed)

Randy Erickson, ADEP (date-stamped letter emailed)  
Tony Grieggs, ADESH-ENV-CP (date-stamped letter emailed)  
Alison Dorries, ADESH-ENV-DO (date-stamped letter emailed)  
Michael Brandt, ADESH (date-stamped letter emailed)  
Amy De Palma, PADOPS (date-stamped letter emailed)  
Michael Lansing, PADOPS (date-stamped letter emailed)

## **SUMMARY OF GROUNDWATER DATA REVIEWED IN FEBRUARY 2015 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 1-15 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, all seven criteria may not 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 1-15 Groundwater Report**

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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	Concat Flag Code	Concat Reason Code	Anyl Meth Code	Lab Code	Comment
C1	14	18	03/11/09	3.82	3.82	3.82	1	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-46	1340	11/12/14	REG	UF	INIT	SVOC	Diethylphthalate	84-66-2	3.82	1	EPA TAP SCRNLVL	15000	0	3.06	ug/L	1	J	J	J_LAB	SW-846:8270D	GELC	
C2	25	26	02/09/04	0.023	0.0549	0.0341	5	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-14 S1	1200.6	11/12/14	REG	F	INIT	GENINORG	Ammonia as Nitrogen	NH3-N	0.0549	1.6	LANL Reg BG LVL	0.05	1.1	0.017	mg/L	1		NQ	NQ	EPA:350.1	GELC	
C2	27	43	08/25/05	2.5	12.3	3.2	11	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-18	1358	11/20/14	FD	F	INIT	METALS	Zinc	Zn	5.27	1.6	LANL Reg BG LVL	3.89	1.4	3.3	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C2	27	43	08/25/05	2.5	12.3	3.2	11	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-18	1358	11/20/14	REG	F	INIT	METALS	Zinc	Zn	7.38	2.3	LANL Reg BG LVL	3.89	1.9	3.3	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C5	16	18	03/11/09	2.41	5.29	3.74	14	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-46	1340	11/12/14	REG	F	INIT	METALS	Antimony	Sb	2.47	0.7	LANL Reg BG LVL	1	2.5	1	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	
C5	19	21	03/11/09	0.712	7.67	1.56	21	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-46	1340	11/12/14	REG	UF	INIT	GENINORG	Total Organic Carbon	TOC	0.712	0.5	LANL Reg BG LVL	0.33	2.2	0.33	mg/L	1	J	J	J_LAB	SW-846:9060	GELC	
C5	13	16	05/20/11	2.03	23.3	18.3	15	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	11/19/14	REG	F	INIT	METALS	Chromium	Cr	19.8	1.1	LANL Reg BG LVL	5.75	3.4	2	ug/L	1		NQ	NQ	SW-846:6020	GELC	
C5	13	16	05/20/11	0.427	2.31	1.655	16	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	11/19/14	REG	F	INIT	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.12	1.3	LANL Reg BG LVL	0.89	2.4	0.085	mg/L	5		NQ	NQ	EPA:353.2	GELC	
C5	13	16	05/20/11	2.96	8.78	6.99	16	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	11/19/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	8.78	1.3	LANL Reg BG LVL	0.46	19.1	1	ug/L	20		NQ	NQ	SW-846:6850	GELC	highest result
C5	13	16	05/20/11	1.46	27.4	6.885	16	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	11/19/14	REG	F	INIT	GENINORG	Potassium	K	5.86	0.9	LANL Reg BG LVL	2.63	2.2	0.05	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	13	16	05/20/11	0.0531	11.8	2.7	13	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-61 S1	1125	11/19/14	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	1.53	0.6	LANL Reg BG LVL	0.16	9.6	0.017	mg/L	1		J	I4a	EPA:365.4	GELC	
C5	10	15	03/26/12	1.64	11.7	8.07	15	Sandia Canyon	Regional	R-62	1158.4	11/17/14	REG	F	INIT	GENINORG	Chloride	Cl(-1)	7.25	0.9	LANL Reg BG LVL	3.57	2	0.134	mg/L	2		NQ	NQ	EPA:300.0	GELC	
C5	10	15	03/26/12	104	240	135	15	Sandia Canyon	Regional	R-62	1158.4	11/17/14	REG	F	INIT	METALS	Chromium	Cr	104	0.8	LANL Reg BG LVL	5.75	18.1	2	ug/L	1		NQ	NQ	SW-846:6020	GELC	lowest result
C5	27	32	01/28/02	170	3720	1695	32	Water Canyon (includes Canyon del Valle, Potrillo, and Fence Canyons)	Regional	CdV-R-37-2 S2	1188.7	11/18/14	REG	F	INIT	METALS	Manganese	Mn	176	0.1	LANL Reg BG LVL	2.94	59.9	2	ug/L	1		NQ	NQ	SW-846:6010C	GELC	

