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*Date*: JUN 22 2015
*Refer To*: ADESH-15-090
*LAUR*: 15-24346
*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 June 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 (Consent Order). Members of LANL's Environmental Programs met on June 11, 2015, to review new groundwater data received in May 2015. This report was prepared by comparing the data against groundwater cleanup levels, as defined in Section VIII.A.1 of the Consent Order. For comparison with U.S. Environmental Protection Agency tap water standards, the carcinogenic risk was adjusted to $1 \times 10^{-5}$, as specified in the Consent Order.

**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 six 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@em.doe.gov).

Sincerely,

Dave McInroy, Program Director
Environmental Remediation Program
Los Alamos National Laboratory

Sincerely,

Christine Gelles, Acting Manager
Environmental Management
Los Alamos Field Office

DM/CG/SP:sm

Enclosure: Two hard copies with electronic files – Summary of Groundwater Data Reviewed in June 2015 That Meet Notification Requirements (EP2015-0095)

Cy: (w/enc.)
Steve Paris, ADEP 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./date-stamped letter emailed)
Pete Padilla, Los Alamos County Utility Department, Los Alamos, NM
lasomailbox@nnsa.doe.gov
Kimberly Davis Lebak, DOE-NA-LA
Peter Maggiore, DOE-NA-LA
Annette Russell, DOE-EM-LA
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David Rhodes, DOE-EM-LA
Mei Ding, EES-6
Tim Goering, ADEP ER Program
Stanislaw Marczak, ADEP ER Program
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Mike Saladen, ADESH-ENV-CP
Tony Grieggs, ADESH-ENV-CP
Alison Dorries, ADESH-ENV-DO
Michael Brandt, ADESH
Amy De Palma, PADOPS
Michael Lansing, PADOPS

# SUMMARY OF GROUNDWATER DATA REVIEWED IN JUNE 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 six 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 5-15 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 six 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 six criteria may not appear in the table.

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 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

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 5-15 Groundwater Report

| Criteria Code | Visits | Samples | First Event | Min Detect | Max Detect | Median Detect | Num Detect | Hdr 1 | Zone | Location | Screen Depth | Start Date | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C5 | 18 | 23 | 08/28/06 | 103 | 531 | 256 | 23 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | METALS | Barium | Ba | 462 | 1.8 | LANL Avl BG LVL | 68.57 | 6.7 | 1 | ug/L | 1 | | NQ | NQ | SW-846:6010C | GELC | |
| C5 | 18 | 23 | 08/28/06 | 18.5 | 80.5 | 41 | 23 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | GENINORG | Calcium | Ca | 66.1 | 1.6 | LANL Avl BG LVL | 26.36 | 2.5 | 0.05 | mg/L | 1 | | NQ | NQ | SW-846:6010C | GELC | |
| C5 | 17 | 22 | 08/28/06 | 51.3 | 354 | 145.5 | 22 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | GENINORG | Chloride | Cl(-1) | 317 | 2.2 | LANL Avl BG LVL | 69.76 | 4.5 | 6.7 | mg/L | 100 | | NQ | NQ | EPA:300.0 | GELC | due to road salt |
| C5 | 18 | 23 | 08/28/06 | 5.8 | 24.4 | 12.7 | 23 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | GENINORG | Magnesium | Mg | 19.9 | 1.6 | LANL Avl BG LVL | 7.78 | 2.6 | 0.11 | mg/L | 1 | | NQ | NQ | SW-846:6010C | GELC | |
| C5 | 17 | 22 | 08/28/06 | 0.575 | 3.99 | 1.1 | 22 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | GENINORG | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | 2.28 | 2.1 | LANL Avl BG LVL | 0.57 | 4 | 0.17 | mg/L | 10 | | NQ | NQ | EPA:353.2 | GELC | |
| C5 | 17 | 22 | 08/28/06 | 0.0972 | 0.321 | 0.162 | 22 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | GENINORG | Perchlorate | ClO4 | 0.224 | 1.4 | LANL Avl BG LVL | 0.05 | 4.5 | 0.05 | ug/L | 1 | | NQ | NQ | SW-846:6850 | GELC | |
| C5 | 18 | 23 | 08/28/06 | 45.1 | 143 | 74.6 | 23 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | GENINORG | Sodium | Na | 137 | 1.8 | LANL Avl BG LVL | 15.54 | 8.8 | 0.1 | mg/L | 1 | | NQ | NQ | SW-846:6010C | GELC | due to road salt |
| C5 | 18 | 23 | 08/28/06 | 128 | 576 | 285 | 23 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | METALS | Strontium | Sr | 511 | 1.8 | LANL Avl BG LVL | 120 | 4.3 | 1 | ug/L | 1 | | NQ | NQ | SW-846:6010C | GELC | |
| C5 | 17 | 22 | 08/28/06 | 240 | 834 | 403.5 | 22 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Alluvial | 18-MW-18 | 12.5 | 04/21/15 | REG | F | INIT | GENINORG | Total Dissolved Solids | TDS | 784 | 1.9 | LANL Avl BG LVL | 139 | 5.6 | 3.4 | mg/L | 1 | | NQ | NQ | EPA:160.1 | GELC | due to road salt |
| C5 | 25 | 25 | 04/06/01 | 0.178 | 1.79 | 0.525 | 15 | Pajarito Canyon (includes Twomile and Threemile Canyons) | Regional | R-19 S4 | 1410.2 | 04/15/15 | REG | UF | RE | GENINORG | Total Organic Carbon | TOC | 0.91 | 1.7 | LANL Reg BG LVL | 0.33 | 2.8 | 0.063 | mg/L | 1 | BJ | J | I4a | SW-846:9060 | GELC | |