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NMED Hazardous Waste Bureau

National Nuclear Security Administration
Los Alamos Site Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
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Date: April 18, 2008
Refer To: EP2008-0184

James P. Bearzi, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Review of March 2008 Groundwater Data

Dear Mr. Bearzi:

The Los Alamos National Laboratory (LANL) Water Stewardship Project (LWSP) met on April 10, 2008, to review new groundwater data received in March 2008. At that time, no groundwater samples were identified with contaminant concentrations above the New Mexico or federal water quality standards. Because of issues with the database, these data are incomplete; the remaining new data will be reviewed and sent to the New Mexico Environment Department (NMED) in a subsequent report.

The LWSP deputy program director notified the Hazardous Waste Bureau by telephone on March 10, 2008, and followed up with an email on the same day. There were no instances within the currently available database set of a contaminant above a standard for the first time (based on samples collected since June 14, 2007).

This letter is our written submission that indicates in the accompanying report and tables the chemical constituents that meet the seven screening criteria laid out in the Settlement Agreement and Stipulated Final Order signed by NMED, the U.S. Department of Energy, and Los Alamos National Security, LLC, on June 14, 2007. The report identifies data collected since June 14, 2007, that meet these criteria.

If you have questions, please contact Ardyth Simmons at (505) 665-3935 (asimmons@lanl.gov) or Mat Johansen at (505) 665-5046 (mjohansen@doeal.gov).

Sincerely,

for Susan G. Stiger, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

David R. Gregory, Project Director
Environmental Operations
Los Alamos Site Office

SG/DR/PR/AS/DB:sm

Enclosure: Report and accompanying tables: "Summary of New Los Alamos National Laboratory Groundwater Data Loaded in March 2008" (EP2008-0184)

Cy: (w/enc.)
Neil Weber, San Ildefonso Pueblo
David Rogers, EP-LWSP, MS M992
RPF, MS M707 (with two CDs)
Public Reading Room, MS M992

Cy: (Letter and CD only)
Laurie King, EPA Region 6, Dallas, TX
Steve Yanicak, NMED-OB, White Rock, NM
Mat Johansen, DOE-LASO, MS A316
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Mei Ding, EES-6, MS J514
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Tom Skibitski, NMED-OB, Santa Fe, NM
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Susan G. Stiger, ADEP, MS M991
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Alison M. Dorries, WES-DO, MS M992
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SUMMARY OF NEW LOS ALAMOS NATIONAL LABORATORY GROUNDWATER DATA LOADED IN MARCH 2008

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. This report contains results for chemical constituents that meet the seven screening criteria laid out in the Settlement Agreement and Stipulated Final Order (the Stipulated Order) signed by NMED, the U.S. Department of Energy, and Los Alamos National Security, LLC, on June 14, 2007. 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. Because of problems with the database, only part of the data is available; the remainder will be included in a subsequent report.

The report includes one table:

Table 1: NMED 3-08 Groundwater Report. This table contains numerous values, often because new data are reported when they are detected for the first time since June 14, 2007 (as specified in the Stipulated Order) or are greater than some previous reference data, which have a reference period that began only recently (June 14, 2007). These data are often very similar to corresponding data gathered before June 14, 2007. Over time, the data that exceed the reference data are expected to be reduced substantially.

The table contains supplemental information summarizing monitoring results obtained before June 14, 2007.

The table includes sampling date, the name of the well or spring, the location of the well or spring, the depth of the screened interval, the groundwater zone sampled, analytical result, detection limit, values for regulatory standards, and analytical and secondary validation qualifiers. Additional information describing the locations and analytical data is also included. Generally, all data have been through secondary validation, as indicated in the table by a preliminary flag of N. The definitions for abbreviations in the table may be found at http://wqdbworld.lanl.gov/ under "Lookup Tables" under the menu on the left side of the page.

In accordance with the Stipulated 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 Region 6 tap water-screening levels (for compounds having no other regulatory standard). In the table, the EPA Region 6 tap water screening levels are identified as being for cancer (10^{-5} excess) or noncancer risk values. The data were screened using 10 times the EPA's 10^{-6} excess cancer risk values, as indicated in Section VIII.A.1 of the Compliance Order on Consent (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.

Criteria 5 and 6 involve conclusions based on three consecutive samples. No results are included for these criteria in the table because no location has been sampled a sufficient number of times since June 14, 2007, to meet the criteria.

DESCRIPTION OF TABLE

The table is divided into separate categories that correspond to the seven screening criteria in the Stipulated Order: these are labeled (in the first column) C1 through C6 for the numbered criteria and CA for cases where the concentration of a constituent in a well screen or spring has not previously exceeded either the New Mexico Water Quality Control Commission (NMWQCC) standard or the federal MCLs. Some data meet more than one criterion and appear in the table multiple times. 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, 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 over a longer time frame than samples collected after June 14, 2007. The columns provide summary statistics on 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 first sampling event included in the statistics, the number of sampling events and the 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

Port Depth—depth of top of well screen in feet (0 for springs, –1 if unknown)

Start Date—sample date

Fld QC Type Code—identifies samples that are field duplicates (definitions for these and other abbreviations may be found at http://wqdbworld.lanl.gov/)

Fld Prep—identifies whether samples are filtered or unfiltered

Lab Sample Type Code—indicates whether result is a primary (customer) sample or reanalysis

Anyl Suite—gives 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—the analytical result in standard measurement units

Result/Median—the ratio of the Std Result to the median of all detections since 2000

LVL Type/Risk Code—the type of regulatory standard, screening level, or background value (indicating groundwater zone) used for comparison

Screen Level—the value of the LVL Type/Risk Code

Exceedance Ratio—the ratio of Std Result to LVL Type/Risk Code

Std Mdl—the method detection limit in standard measurement units

Std UOM— the standard units of measurement

Dilution Factor—amount by which the sample was diluted to measure the concentration

Lab Qual Code—the analytical laboratory qualifiers indicating analytical quality of the sample

Concat Flag Code—concatenated secondary validation qualifiers produced by an independent contractor who reviews data packages, verifying, for example, that holding times were met, that all documentation is present, and that analytical laboratory quality control measures were applied, documented, and kept within contract requirements

Concat Reason Code—concatenated secondary validation codes explaining assignment of qualifiers

Anyl Meth Code—analytical method number

Lab Code—analytical laboratory name

Comment—a comment on the analytical result

Table 1: NMED 3-08 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Zone	Location	Port 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	Comments
C1	4	4	07/07/06	0.00000278	0.00000278	0.00000278	1	Intermediate Spring	Pine Rock Spring	0	06/21/07		UF	CS	DIOX/FUR	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	3268-87-9	0.00000278	1.00				0.00000278	ug/L	1	J	J	SWQ5	first detection of this compound in four measurements
C1	4	4	10/11/01	2.4	2.4	2.4	1	Regional	CdV-R-15-3	1350.1	01/30/07		UF	CS	HEXP	DNX	DNX	2.4	1.00				0.069	ug/L	1	P	NJ, J+, J	H6, HWQ5, H14b	note value is over a year old, just being validated; three prior and one subsequent ND
C1	4	4	10/11/01	0.71	0.71	0.71	1	Regional	CdV-R-15-3	1350.1	01/30/07		UF	CS	HEXP	MNX	MNX	0.71	1.00				0.091	ug/L	1		J	H14b	note value is over a year old, just being validated; three prior and one subsequent ND
C1	1	1	09/25/07	0.00000144	0.00000144	0.00000144	1	Regional Spring	Spring 5B	0	09/25/07		UF	CS	DIOX/FUR	Tetrachlorodibenzofurans (Totals)	55722-27-5	0.00000144	1.00				0.00000144	ug/L	1		J	SWQ5	first measurement and detection of this compound
C2	8	9	01/19/06	2.7	5.8	3.6	7	Water Supply	PM-1	945	11/15/07		F	CS	METALS	Chromium	Cr	5.8	1.61	LANL Reg BG LVL	5.75	1.0	1	ug/L	1				F value was 3.6, one prior UF value of 5.4 ug/L
C3	17	18	01/28/04	1.22	2.97	2.29	18	Water Supply	O-1	1017	11/15/07		UF	CS	GENINORG	Perchlorate	ClO4	2.27	0.99	NMED GW CONS	4	1.1	0.25	ug/L	5				many prior results in this range
C4	17	18	01/28/04	1.22	2.97	2.29	18	Water Supply	O-1	1017	11/15/07		UF	CS	GENINORG	Perchlorate	ClO4	2.27	0.99	NMED GW CONS	4	1.1	0.25	ug/L	5				many prior results in this range