Los Alamos
NATIONAL LABORATORY
EST. 1943

Environmental Programs
P.O. Box 1663, MS M991
Los Alamos, New Mexico 87545
(505) 606-2337FAX (505) 665-1812

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

Date: October 26, 2007
Refer To: EP2007-0662

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 September 2007 Groundwater Data

Dear Mr. Bearzi:

The Los Alamos National Laboratory (LANL) Water Stewardship Project (LWSP) met on October 11, 2007, to review new groundwater data received in September 2007. At that time, several groundwater samples were identified with contaminant concentrations above the New Mexico or federal water quality standards. The LWSP deputy program director notified the Hazardous Waste Bureau by telephone on October 11, 2007, and followed up with an email on the same day. The instances of a contaminant above a standard for the first time were as follows.

- The second measurement of perchlorate at Sandia Canyon alluvial well SCA-1 was 6.2 µg/L, above the Consent Order screening level of 4 µg/L using the ion chromatography (IC) method. The result measured by the liquid chromatography/mass spectrometry/mass spectrometry (LC/MS/MS) method was nondetect. The previous IC result was nondetect, and the previous LC/MS/MS was 0.34 ug/L.

- Dissolved iron at Sandia Canyon alluvial well SCA-1 was measured at 1900 µg/L, above the New Mexico groundwater standard of 1000 µg/L.

- In Los Alamos Canyon on San Ildefonso Pueblo, at alluvial well LLAO-1b, nitrate-nitrite as nitrogen was measured at 13.4 mg/L, above the New Mexico groundwater standard of 10 mg/L. Nitrate may be from the Los Alamos County sanitary treatment plant.

- At J. Martinez House Well on San Ildefonso Pueblo, filtered arsenic was measured at 11.9 µg/L, above the U.S. Environmental Protection Agency primary drinking water standard of 10 µg/L; previous unfiltered sample results have been above the standard.

This letter is our written submission that indicates in the accompanying report and tables the contaminants that meet the six screening criteria laid out in the Settlement Agreement and Stipulated Final Order signed by the New Mexico Environment Department, U.S. Department of Energy, and Los Alamos National Security, LLC, on June 14, 2007. To meet the requirements in criteria 1, 3, and 4, the report calls out data that are the first exceedance of a standard, data that are the first exceedance of one-half a standard, and, generally, new detections of organic compounds.

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,

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

Sincerely,

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

SGS/DRG/PRH/AMS/DBR:sm

Enclosure: Report and accompanying tables: "Summary of New Los Alamos National Laboratory Groundwater Data Loaded in September 2007" (EP2007-0662)

Cy: (w/enc.)
Laurie King, EPA Region 6, Dallas, TX
Tom Skibitski, NMED-OB, Santa Fe, NM
Steve Yanicak, NMED-OB, White Rock, NM
Bonita Eichorst, DOE-LASO, MS A316 (date-stamped copy emailed)
Susan G. Stiger, ADEP, MS M991
Carolyn Mangeng, ADEP, MS M991
Ardyth Simmons, EP-LWSP, MS M992
Armand Groffman, EP-LWSP, MS M992
David Rogers, EP-LWSP, MS M992
Paul Huber, EP-LWSP, MS M992
Tina Behr-Andres, EP-LWSP, MS M992
Alison M. Dorries, EP-ERSS, MS M992
Peggy Reneau, EP-ERSS, MS M992
Mei Ding, EES-6, MS J514
Public Reading Room, MS M992
EP-LWSP File, MS M992
RPF, MS M707
IRM-RMMSO, MS A150

SUMMARY OF NEW LOS ALAMOS NATIONAL LABORATORY GROUNDWATER DATA LOADED IN SEPTEMBER 2007

October 26, 2007

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 highlights new results for constituents that for the first time at a location exceed an applicable regulatory standard, exceed half that standard, or are first-time detections of organic compounds. The report covers groundwater samples taken from wells or springs (listed on the accompanying table) that provide surveillance of the groundwater zones indicated in the tables.

The table is divided into three categories. The first category contains results equal to or greater then a regulatory standard, the second presents data that are above one-half a regulatory standard, and the third describes first-time detections of an organic constituents.

Information in the accompanying table includes sampling date, identification of the well or spring, the location of the well or spring, the depth of the screened interval, 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 tables by a preliminary flag of N. The definitions for abbreviations in the tables may be found at http://wqdbworld.lanl.gov/ under "Lookup Tables" under the menu on the left side of the page.

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 VI tap water screening levels (for compounds having no other regulatory standard). In the tables, the EPA Region VI 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 March 1, 2005, Compliance Order on Consent.

SUMMARY OF DATA

The data included in this report fall into several categories:

- Perchlorate at Sandia Canyon alluvial well SCA-1 was for the first time above the Consent Order screening level using ion chromatography (IC) method. The liquid chromatography/mass spectrometry/mass spectrometry (LC/MS/MS) result was nondetect. Perchlorate has been analyzed two times at this location. The previous IC result was nondetect, and the previous LC/MS/MS was 0.34 µg/L.
- The dissolved iron concentration in Sandia Canyon alluvial well SCA-1 was above the New Mexico groundwater standard for the first time. The elevated iron concentration may be from the reducing environment of the wetland, as indicated by fairly low dissolved oxygen concentration of 1.7 mg/L.

- In Los Alamos Canyon at alluvial well LLAO-1b on San Ildefonso Pueblo, nitrate-nitrite as nitrogen was above the New Mexico groundwater standard for the first time. The nitrate may be from the Los Alamos County sanitary treatment plant.
- The filtered arsenic concentration at J. Martinez House Well on San Ildefonso Pueblo was above the EPA primary drinking water standard for the first time; however, results from unfiltered samples have previously been above the standard.
- Eight pesticide compounds were detected for the first time at intermediate well SCI-1. Only one result was above a standard: the dieldrin concentration was above one-half the EPA tap water screening level.
- The second measurement of ammonia as nitrogen at Los Alamos Canyon Water Supply well LA-5 was above one-half the EPA tap water screening level for the first time. One previous result was nondetect.
- The detection of total dissolved solids (TDS) at Pueblo Canyon alluvial well PAO-1 was above one-half the New Mexico groundwater standard for the first time.
- The pesticide Aroclor-1260 was detected for the first time in alluvial well 18-BG-1, located in Pajarito Canyon, at slightly greater than 2 times the method detection limit.
- Two trihalomethane compounds (chlorodibromomethane and bromoform) were detected for the first time at Black Mesa Well on San Ildefonso Pueblo. The field trip blanks were nondetects.
- Pajarito Canyon intermediate well 03-B-9 was sampled for the first time; the well is usually dry; several organic compounds were detected in the sample.
- Numerous organic compounds were found in samples as well as trip, field, or equipment blanks. These low-level organic compound detections occur sporadically and probably result from contamination during sampling or analysis. Such compounds include bis(2-ethylhexyl)phthalate, acetone, toluene, methylene chloride, and carbon disulfide.

Groundwater Data Review for September 2007
Date of review: 10/11/2007

Watershed	Zone	Location	Well Class	Port Depth (feet)	Sampling Date	Analyte Suite	Analyte	Field Preparation	Field QC Code	Standard Result	Standard MDL	Units	Screening Level Type	Standard or Screening Level	Exceedance Ratio	Lab Qual Code	Valid. Flag Code	Reason Code	Comments
First Time Above Standard (24 hour Reporting)																			
Sandia Canyon	Alluvial	SCA-1	SINGLE	1.3	06/19/07	GENINORG	Perchlorate	F		6.2	4	µg/L	CO Screening level	4	1.55	J			This second sampling round result is first > STD using IC method, LC/MS/MS is nondetect. Sampled two times, last IC result was nondetect, last LC/MS/MS was 0.34 µg/L
Sandia Canyon	Alluvial	SCA-1	SINGLE	1.3	06/19/07	METALS	Iron	F		1900	18	µg/L	NMED GW STD	1000	1.90				The Fe concentration may be due to the reducing environment of the wetland.
Lower Los Alamos Canyon (San Ildefonso Pueblo)	Alluvial	LLAO-1b	SINGLE	11.32	04/24/07	GENINORG	Nitrate-Nitrite as N	F		13.4	0.50	mg/L	MCLs	10	1.34				Nitrate may be from the Los Alamos County sanitary treatment plant.
White Rock Canyon and Rio Grande	Water Supply	J. Martinez House Well	SINGLE	-1	06/13/07	METALS	Arsenic	F		11.9	1.50	µg/L	EPA PRIM DW STD	10	1.19				First filtered sample result > STD, but not first unfiltered sample value > STD.
Criteria 3, First Time Above 1/2 Standard (15-day reporting)																			
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	Dieldrin	UF		0.04	0.0057	µg/L	EPA TAP C	0.04202	0.93	J	J+, J	P12d, PWQ2	First detection, sampled three times since 2007.
Lower Los Alamos Canyon (San Ildefonso Pueblo)	Water Supply	LA-5	SINGLE	440	06/12/07	GENINORG	Ammonia as Nitrogen	F		0.2	0.15	mg/L	EPA TAP	0.21	0.96	J			Second measurement result, previous results from June 2006 were nondetect.
Pueblo Canyon (includes Acid Canyon)	Alluvial	PAO-1	SINGLE	5.89	07/25/07	GENINORG	Total Dissolved Solids	F		773	2.4	mg/L	NM GW STD	1000	0.77				Five sampling rounds.
Criteria 1, First Detection of an Organic Constituent (15-day reporting)																			
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	Aldrin	UF		0.01	0.0057	µg/L	EPA TAP C	0.03955	0.31	J	J	PWQ2	Three sampling rounds and total of three samples since 2007, nondetect in equipment blank (EQB).
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	DDD[4,4'-]	UF		0.05	0.0057	µg/L	EPA TAP C	2.801314	0.02		J+, J	P12d, PWQ2	Three sampling rounds and total of three samples since 2007, nondetect in EQB.
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	DDE[4,4'-]	UF		0.05	0.0057	µg/L	EPA TAP C	1.977398	0.03		J+, J	PWQ2, P12d	Three sampling rounds and total of three samples since 2007, nondetect in EQB.
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	DDT[4,4'-]	UF		0.07	0.011	µg/L	EPA TAP C	1.977398	0.03		J	PWQ2	Three sampling rounds and total of three samples since 2007, nondetect in EQB.
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	Endrin	UF		0.03	0.0057	µg/L	EPA PRIM DW STD	2	0.01	J	J, J+	P12d, PWQ2	Three sampling rounds and total of three samples since 2007, nondetect in EQB.
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	Heptachlor	UF		0.02	0.0074	µg/L	EPA PRIM DW STD	0.4	0.06		J, J+	P12d, PWQ2	Three sampling rounds and total of three samples since 2007, nondetect in EQB.

Watershed	Zone	Location	Well Class	Port Depth (feet)	Sampling Date	Analyte Suite	Analyte	Field Preparation	Field QC Code	Standard Result	Standard MDL	Units	Screening Level Type	Standard or Screening Level	Exceedance Ratio	Lab Qual Code	Valid. Flag Code	Reason Code	Comments
Sandia Canyon	Intermediate	SCI-1	SINGLE	358.4	06/15/07	PEST/PCB	Heptachlor Epoxide	UF		0.03	0.0057	µg/L	EPA PRIM DW STD	0.2	0.13				Three sampling rounds and total of three samples since 2007, nondetect in EQB.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	18-BG-1	SINGLE	10	06/28/07	PEST/PCB	Aroclor-1260	UF		0.098	0.037	µg/L	EPA PRIM DW STD	0.5	0.20	J			Four sampling rounds and total of five samples.
White Rock Canyon and Rio Grande	Water Supply	Black Mesa Well	SINGLE	-1	06/12/07	VOA	Chlorodibromomethane	UF		0.43	0.25	µg/L	EPA PRIM DW STD C	80	0.01	J			Not detected in the field trip blank. Five analyses since 2003. Trihalomethane compounds commonly form from chlorination of drinking water.
White Rock Canyon and Rio Grande	Water Supply	Black Mesa Well	SINGLE	-1	06/12/07	VOA	Bromoform	UF		0.69	0.25	µg/L	EPA PRIM DW STD	80	0.01	J	J+	VWQ9	Not detected in the field trip blank. Five analyses since 2003. Trihalomethane compounds commonly form from chlorination of drinking water.
Upper Los Alamos Canyon (includes DP Canyon)	Water Supply	O-4	SINGLE	1115	05/16/07	VOA	Acetone	UF		1.9	1.3	µg/L	EPA TAP SCRN LVL N	5475	0.00	J	J-	VWQ9	Four analyses.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-9	SINGLE	21.3	07/11/07	VOA	Chloroform	UF		1.03	0.63	µg/L	NM GW STD	80	0.01	J	J	VWQ5	First sample at this location.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-9	SINGLE	21.3	07/11/07	DRO	Diesel Range Organics	UF		542	340	µg/L	None	NA	NA	J	J	SWQ5	First sample at this location.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-9	SINGLE	21.3	07/11/07	GRO	Total Petroleum Hydrocarbons Gasoline Range Org.	UF		101	18	µg/L	None	NA	NA				First sample at this location.
Pueblo Canyon (includes Acid Canyon)	Alluvial	PAO-1	SINGLE	5.89	07/25/07	VOA	Acetone	UF		5.59	1.3	µg/L	EPA TAP SCRN LVL N	5475	0.00				Seven sample rounds, field trip blank was nondetect.
Pueblo Canyon (includes Acid Canyon)	Alluvial	PAO-1	SINGLE	5.89	07/25/07	VOA	Butanone[2-]	UF		3.45	1.3	µg/L	EPA TAP SCRN LVL N	7065	0.00	J			Seven sample rounds, field trip blank was nondetect.