

General



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*Date: September 26, 2007*  
*Refer To: EP2007-0574*

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 August 2007 Groundwater Data**

Dear Mr. Bearzi:

The Los Alamos National Laboratory (LANL) Water Stewardship Project (LWSP) met on September 11, 2007, to review new groundwater data received in August 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 September 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.

Pajarito Canyon intermediate well 03-B-9 was sampled for the first time; the well is usually dry. All of the constituents have been detected previously in adjacent wells 03-B-10 and 03-B-13, which are screened in the same hydrologic zone. The following constituents exceeded standards:

- Chloride was measured at 351 mg/L. The result was 1.4 times the New Mexico groundwater standard (applicable to domestic water supply) of 250 mg/L.
- Manganese was measured at 1450 µg/L. The result was 7.3 times the New Mexico groundwater standard (applicable to domestic water supply) of 200 µg/L.
- Dichloroethene[1,1-] was measured at 11.1 µg/L. The result was 2.2 times the New Mexico groundwater standard of 5 µg/L.
- Dioxane[1,4-] was measured at 450 µg/L. The result was 7.4 times the Consent Order 10<sup>-5</sup> U.S. Environmental Protection Agency (EPA) tap water screening level of 61 µg/L.



- Trichloroethane[1,1,1-] was measured at 163  $\mu\text{g/L}$ . The result was 2.7 times the New Mexico groundwater standard of 60  $\mu\text{g/L}$ .

Sandia Canyon alluvial well SCA-4 was sampled for the first time. Turbidity was measured at 1000 nephelometric turbidity units during this sampling event, indicating that the high unfiltered metals values may be associated with suspended sediments in the groundwater sample. The following constituents exceeded standards:

- Arsenic was measured at 15  $\mu\text{g/L}$  from an unfiltered sample. The result was 1.5 times the EPA maximum contaminant level of 10  $\mu\text{g/L}$ .
- Lead was measured at 19.8  $\mu\text{g/L}$  from an unfiltered sample. The result was 1.3 times the EPA drinking water action level of 15  $\mu\text{g/L}$ .

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 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.

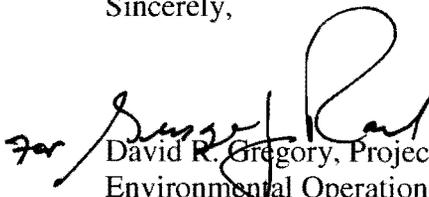
If you have questions, please contact Ardyth Simmons at (505) 665-3935 (asimmons@lanl.gov) or Mat Johansen at (505) 665-5046 (mjohansen@doeal.gov).

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/TBA/DBR:sm

Enclosure: Report and accompanying tables: "Summary of New Los Alamos National Laboratory Groundwater Data Loaded in August 2007" (LA-UR-07-6341)

Cy: (w/enc.)

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

September 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 than a regulatory standard, the second presents data that are above one-half a regulatory standard, and the third describes first-time detections of organic constituents.

Information in the accompanying table includes sample 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, and values for regulatory standards. 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 ( $10^{-6}$  excess) or noncancer risk values. The data were screened using 10 times the  $10^{-6}$  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:

- Nitrate at Mortandad Canyon regional well R-28 was above one-half the New Mexico groundwater standard for the first time.
- Pajarito Canyon intermediate well 03-B-9 was sampled for the first time (the well is usually dry), and several constituents were above standards. All of the constituents have been detected previously in adjacent wells 03-B-10 and 03-B13, which are screened in the same hydrologic zone.
- Sandia Canyon alluvial well SCA-4 was sampled for the first time; samples had high turbidity. The high unfiltered metals values may be associated with suspended sediments in the groundwater 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. They include bis(2-ethylhexyl)phthalate, acetone, toluene, methylene chloride, and carbon disulfide.

Groundwater Data Review for August 2007  
Date of review: 9/11/2007

Watershed	Location	Zone <sup>a</sup>	Well Class	Port Depth (feet)	Sampling Date	Analyte	Filtered (F) or Non Filtered (NF) Sample	Standard Result	Standard Uncertainty	MDL/MDA	Unit of Measurement	Standard or Screening Level Type	Standard or Screening Level Threshold	Exceedences Ratio of Standard Screening Level	Preliminary Flag <sup>b</sup>	Web Flag <sup>c</sup>	Comments
<b>Criteria A, First time above a Standard (24 hour Reporting)</b>																	
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Chloride	F	351	-	-	mg/L	NM GW STD	250	1.4	N	Y	First time a sample was collected at this location, first time to date above the NM GW Std (140%). Chloride has been elevated at companion locations 03-B-10 and 03-B-13 in the past, thought to be due to road salt.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Dichloroethene[1,1-]	NF	11.1	-	0.75	µg/L	NM GW STD	5	2.2	N	Y	First time a sample was collected at this location; first time detected and first time above a standard (222% of the NM GW Std); field trip blank was nondetect.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Dioxane[1,4-]	NF	450	-	50	µg/L	EPA TAP SCRNLVL C	61	7.4	N	Y	First time a sample was collected at this location; first time detected; first time above a standard (EPA Tap Screen C at 7362%) VOA analytical method; not detected in the field trip blank.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Manganese	F	1450	-	2	µg/L	NM GW STD	200	7.3	N	Y	First time a sample was collected at this location, first time to date above the NM GW Std (725%). Manganese has been elevated at companion locations 03-B-10 and 03-B-13 in the past.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Trichloroethane[1,1,1-]	NF	163	-	0.75	µg/L	NM GW STD	60	2.7	N	Y	First time a sample was collected at this location; first time detected; first time above a standard (NM GW Std @ 272%); VOA analytical method; field trip blank was nondetect.
Sandia Canyon	SCA-4	A	Single	37	06/18/07	Arsenic	NF	15	-	1.5	µg/L	EPA PRIM DW STD	10	1.5	N	Y	First time above a standard (EPA Primary Drinking Water Standard); first sampling round result.
Sandia Canyon	SCA-4	A	Single	37	06/18/07	Lead	NF	19.8	-	0.5	µg/L	EPA PRIM DW STD	15	1.3	N	Y	First time detection above a standard, first sampling round result, not detected in the companion filtered sample or the field blank.
<b>Criteria 3, First time above 1/2 a Standard (15 Day Reporting)</b>																	
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Total Dissolved Solids	F	939	-	-	mg/L	NM GW STD	1000	0.94	N	Y	First time a sample was collected at this location, first time to date above 1/2 the NM GW Std (94%). TDS has been elevated at companion locations 03-B-10 and 03-B-13 in the past, thought to be due to road salt.
Pajarito Canyon (includes Twomile and Threemile Canyons)	PC Spring	IS	Spring	0	03/28/07	Iron	F	623	-	18	µg/L	NM GW STD	1000	0.62	N	Y	Highest filtered and non filtered results to date, first time the result is > 1/2 the NM GW Std (62%), nine sample rounds to date.
Pajarito Canyon (includes Twomile and Threemile Canyons)	R-18	R	Single	1358	06/26/07	Iron	F	528	-	18	µg/L	NM GW STD	1000	0.53	N	Y	First time above 1/2 of the NM GW Std (53%) out of 8 sampling rounds.
Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	R-28	R	Single	934	03/06/07	Nitrate-Nitrite as N	F	5.04	-	0.1	mg/L	NM GW STD	10	0.50	N	Y	First time detected above 1/2 the NM GW Std (50.4%), 7 sampling rounds to date.

Watershed	Location	Zone <sup>a</sup>	Well Class	Port Depth (feet)	Sampling Date	Analyte	Filtered (F) or Non Filtered (NF) Sample	Standard Result	Standard Uncertainty	MDL/MDA	Unit of Measurement	Standard or Screening Level Type	Standard or Screening Level Threshold	Exceedences Ratio of Standard Screening Level	Preliminary Flag <sup>b</sup>	Web Flag <sup>c</sup>	Comments
Sandia Canyon	SCA-4	A	Single	37	06/18/07	Beryllium	NF	2.4	-	1	µg/L	EPA PRIM DW STD	4	0.60	N	Y	First time above 1/2 a standard (EPA Primary Drinking Water Standard), first sample round. The companion filtered sample was nondetect.
Sandia Canyon	SCA-4	A	Single	37	06/18/07	Fluoride	F	1.04	-	0.033	mg/L	NM GW STD	1.6	0.65	N	Y	First time above 1/2 a standard (New Mexico Groundwater Standard), this is the first sampling round result at this location.
<b>Criteria 1, First Time Detection of an Organic Constituent (15 Day Reporting)</b>																	
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-13	I	Single	21.5	07/10/07	Butanone[2-]	NF	6.63	-	1.25	µg/L	EPA TAP SCRNLVL N	7065	0.0002	N	Y	First time detected out of 5 sampling rounds.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-13	I	Single	21.5	07/10/07	Dichlorobenzene[1,3-]	NF	3.25	-	0.25	µg/L	EPA PRIM DW STD	600	0.01	N	Y	First time detected out of 5 sampling rounds; reanalysis result was 2.3 µg/L (2X dilution & 0.5 MDL).
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Dichloroethane[1,1-]	NF	5.89	-	0.75	µg/L	NM GW STD	25	0.24	N	Y	First time a sample was collected at this location; first time detected; field trip blank was nondetect.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-9	I	Single	21.3	07/11/07	Trichloroethene	NF	1.77	-	0.6.25	µg/L	NM GW STD	5	0.35	N	Y	First time a sample was collected at this location; first time detected; field trip blank was nondetect.
Pajarito Canyon (includes Twomile and Threemile Canyons)	18-MW-8	A	Single	8	06/27/07	Acetone	NF	1.25	-	1.25	µg/L	EPA TAP SCRNLVL N	5475	0.0002	N	Y	First time detected, both primary and FD samples show detections. Not detected in the field trip blank. Four sample rounds have occurred since 2006.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Bulldog Spring	I	Spring	0	07/10/07	Butanone[2-]	NF	2.98	-	1.25	µg/L	EPA TAP SCRNLVL N	7065	0.0004	N	Y	First time detected out of 6 sampling rounds; field trip blank was nondetect.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Homestead Spring	IS	-	0	07/09/07	Butanone[2-]	NF	1.46	-	1.25	µg/L	EPA TAP SCRNLVL N	7065	0.0002	N	Y	First time detected out of 6 sampling rounds, not detected in the primary sample or the field duplicate.
Upper Los Alamos Canyon (includes DP Canyon)	LAO-0.3	A	Single	5.9	07/17/07	Acetonitrile	NF	8.37	-	6.25	µg/L	EPA TAP SCRNLVL N	124	0.07	N	Y	First time detection out of 2 sample rounds, field trip blank was nondetect.
Upper Los Alamos Canyon (includes DP Canyon)	LAO-0.6	A	Single	8	07/17/07	Acetone	NF	2.35	-	1.25	µg/L	EPA TAP SCRNLVL N	5475	0.0004	N	Y	First time detection out of 2 sample rounds, field trip blank was nondetect.
Upper Los Alamos Canyon (includes DP Canyon)	LAO-B	A	Single	11.84	07/16/07	Acetonitrile	NF	7.95	-	6.25	µg/L	EPA TAP SCRNLVL N	124	0.06	N	Y	First time detection out of 2 sample rounds, field duplicate and field trip blank were both nondetect.
White Rock Canyon and Rio Grande	Pajarito Well (Pump 1)	WS	Single	-1	06/13/07	Bis(2-ethylhexyl)phthalate	NF	2.13	-	2.04	µg/L	EPA PRIM DW STD	6	0.36	N	Y	First time detection out of seven sample rounds; last sample from July 2005, first sample collected May 1995.
Pajarito Canyon (includes Twomile and Threemile Canyons)	PC Spring	IS	Spring	0	03/28/07	Butanone[2-]	NF	1.37	-	1.25	µg/L	EPA TAP SCRNLVL N	7065	0.0002	N	Y	First time detection, not detected in field blank or field trip blank, five sample rounds have been collected to date.
Pajarito Canyon (includes Twomile and Threemile Canyons)	PCO-2	A	Single	1.5	06/25/07	Butanone[2-]	NF	1.67	-	1.25	µg/L	EPA TAP SCRNLVL N	7065	0.0002	N	Y	First time detection out of three sampling rounds, not detected in the FTB.
Pajarito Canyon (includes Twomile and Threemile Canyons)	R-18	R	Single	1358	06/26/07	2,4-Diamino-6-nitrotoluene	NF	0.41	-	0.26	µg/L	None	NA	NA	N	Y	Detected in field duplicate but not in primary sample, first time detect out of 4 sampling rounds.
Pueblo Canyon including Acid Canyon and upper Pueblo Canyon	R-2	R	Single	918	07/16/07	Acetone	NF	1.57	-	1.25	µg/L	EPA TAP SCRNLVL N	5475	0.0003	N	Y	First time detection out of 7 sample rounds, field trip blank was nondetect.

Watershed	Location	Zone <sup>a</sup>	Well Class	Port Depth (feet)	Sampling Date	Analyte	Filtered (F) or Non Filtered (NF) Sample	Standard Result	Standard Uncertainty	MDL/MDA	Unit of Measurement	Standard or Screening Level Type	Standard or Screening Level Threshold	Exceedences Ratio of Standard Screening Level	Preliminary Flag <sup>b</sup>	Web Flag <sup>c</sup>	Comments
Lower Los Alamos Canyon (San Ildefonso Pueblo)	R-24	R	Single	825	07/18/07	Bis(2-ethylhexyl)phthalate	NF	2.14	-	2.11	µg/L	EPA PRIM DW STD	6	0.23	N	Y	First time detection out of 6 sample rounds, field trip blank and field duplicate were nondetect.
Pueblo Canyon (includes Acid Canyon)	R-5	I	Multi	383	07/16/07	Acetone	NF	1.62	-	1.25	µg/L	EPA TAP SCR N LVL	5475	0.0003	N	Y	First time detection in both primary and field duplicate samples out of 7 sample rounds, field trip blank was nondetect.
Upper Los Alamos Canyon including DP Canyon	R-6	R	Single	1205	07/17/07	Acetone	NF	1.35	-	1.25	µg/L	EPA TAP SCR N LVL	5475	0.0002	N	Y	First time detection out of 7 sample rounds, field trip blank was nondetect.
Sandia Canyon	SCA-4	A	Single	37	06/18/07	Butanone[2-]	NF	6.26	-	1.25	µg/L	EPA TAP SCR N LVL	7065	0.001	N	Y	First time detection, not detected in FB or FTB, this is the first sampling round at this location.
Sandia Canyon	SCA-4	A	Single	37	06/18/07	Dichlorobenzene[1,3-]	NF	3.49	-	0.25	µg/L	EPA PRIM DW STD	600	0.24	N	Y	First time detection, not detected in field blank or field trip blank, this is the first sampling round at this location.
Sandia Canyon	SCA-4	A	Single	37	06/18/07	Toluene	NF	0.26	-	0.25	µg/L	NM GW STD	750	0.0003	N	Y	First time detection, not detected in field blank or field trip blank, this is the first sampling round at this location.
Pajarito Canyon (includes Twomile and Threemile Canyons)	TA-18 Spring	AS	Spring	0	06/26/07	Aroclor-1260	NF	0.061	-	0.0362	µg/L	EPA PRIM DW STD	0.5	0.12	N	Y	Field duplicate. Not detected in corresponding primary sample, four sample rounds to data.

<sup>a</sup> A = Alluvial groundwater, AS = alluvial groundwater spring, I = intermediate groundwater, IS = intermediate groundwater spring, R = regional groundwater, WS = water supply well in the regional aquifer.

<sup>b</sup> Preliminary Flag = Denoted whether the data is preliminary "Y" (yes) and has not been qualified and "N" or no if the data has been qualified and is not preliminary.

<sup>c</sup> Web Flag = Denoted whether the data can be released to the Web, "Y" for yes and "N" or no if the data is proprietary (San Ildefonso, Municipal water supply) and must be reviewed by that entity before release.