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Date: August 23, 2007
Refer To: EP2007-0512

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 July 2007 Groundwater Data

Dear Mr. Bearzi:



The Los Alamos National Laboratory (LANL) Water Stewardship Project (LWSP) met on August 8, 2007, to review new groundwater data received in July 2007. At that time, several groundwater samples were identified with contaminant concentrations above the New Mexico or federal water quality standards. The LWSP director notified the Hazardous Waste Bureau by telephone on July 8, 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:

- At Pajarito Canyon intermediate wells 03-B-10 and 03-B-13, chloride was detected above the New Mexico groundwater standard (250 mg/L) at 414 and 387 mg/L, respectively. These wells are located in a parking lot, and the elevated chloride is most likely from the application of road salt.
- Also at 03-B-10, dioxane[1,4-] was detected at 72.7 µg/L and above the U.S. Environmental Protection Agency (EPA) tap screening level of 61.12 µg/L by the semivolatle organic analysis (SVOA) method. Dioxane[1,4-] has previously been detected above the screening level by the volatile organic analysis (VOA) method, which has a higher detection limit of 20 µg/L. The SVOA method detection limit (MDL) is 1 µg/L.
- At alluvial well MCO-2 in Mortandad Canyon, filtered aluminum was detected at 9410 µg/L, above the New Mexico groundwater standard of 5000 µg/L. Turbidity was 278 nephelometric turbidity units (NTUs) during this sampling event.
- Nonfiltered beryllium was detected at 5.8 µg/L and above the EPA maximum contaminant level (MCL) of 4 µg/L at Mortandad Canyon alluvial well MCO-2. Beryllium was not detected in the filtered companion sample. Turbidity was 278 NTUs and may account for the elevated beryllium.

- At Mortandad Canyon intermediate well MCOI-6, dioxane[1,4-] was detected at 63.9 µg/L and above the EPA tap screening level of 61.12 µg/L from a field duplicate sample analyzed by the VOA method. Dioxane[1,4-] was not detected in the field trip blank. The companion primary sample result from the same method was 55.9 µg/L and below the screening level. A result from the same sample by the SVOA method (MDL of 1 µg/L) was 24.1 µg/L. Dioxane[1,4-] has been detected in all seven previous sampling rounds.
- At Sandia Canyon alluvial well SCA-4, arsenic was detected from a nonfiltered sample at 15 µg/L and above the EPA MCL of 10 µg/L. The filtered result was 13 µg/L and also above the MCL. Turbidity was measured at 1000 NTU during sample collection and may have contributed to arsenic concentrations in the nonfiltered sample. This is the first sampling round at this location.
- At Sandia Canyon alluvial well SCA-4, lead was detected from a nonfiltered sample at 19.8 µg/L and above the EPA MCL of 15 µg/L. Lead was not detected in the filtered sample. Turbidity was measured at 1000 NTU during sample collection and is most likely responsible for the high lead concentrations. This is the first sampling round at this location.
- The organic compound acrolein was detected at 9.01 µg/L and above the EPA tap screening level of 0.04 µg/L at Water Canyon spring WA-625. Acrolein was not detected in the corresponding field trip blank. Acrolein has only been detected once out of 1062 previous analyses of groundwater. WA-625 Spring, a new location, represents alluvial groundwater and is located just below the confluence of Water Canyon and Cañon de Valle. This result is from the first sampling round at this location.

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/DR:sm

Enclosure: Report and accompanying tables: "Summary of New Los Alamos National Laboratory Groundwater Data Loaded in July 2007" (LA-UR-07-5615)

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

August 23, 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 different 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 an 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:

- Several alluvial locations in Sandia and Mortandad Canyon had exceedances of metals most likely related to turbidity (SCA-4, MCO-0.6, MCO-2, and at MCO-7).
- Elevated chloride was observed at wells 03-B-10, 03-B-13, and SCA-1. The water quality of these locations may be affected by road salting, resulting in elevated chloride during the winter.
- Results from well SCA-4 and spring WA-625 are from the first sampling at these locations. Therefore, the values automatically trigger some screening criteria as first results.
- Numerous compounds found in 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 July 2007

Date of review: 8/8/2007

Data compiled by: Data Team (A.R. Groffman)

Watershed	Location	Zone	Well Class	Port Depth (feet)	Sampling Date	Analyte	Standard Result	Standard Uncertainty	MDL/MDA	Unit of Measurement	Standard or Screening Level Type	Standard or Screening Level Threshold	Exceedances Ratio of Standard of Screening Level	Preliminary Flag ^a	Web Flag ^b	Comments
Criteria A, First Time above a Standard (24-hour Reporting)																
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-10	I ^c	SINGLE	20.6	03/29/07	Chloride	414		3.3	mg/L	NM GW STD	250	1.66	N	Y	Three sampling rounds, previous range 51.8 to 54.4 mg/L, highest result to date.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-10	I	SINGLE	20.6	03/29/07	Dioxane[1,4-]	72.7		1.01	µg/L	EPA TAP SCRNLVL C	61.12	1.19	N	Y	First time detected above a std by the SVOA method, FTB was nondetect. Previously detected above the screening level by the VOA method, four sampling rounds total.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-13	I	SINGLE	21.5	03/29/07	Chloride	387		3.3	mg/L	NM GW STD	250	1.55	N	Y	Four sampling rounds; previous range 43.2 to 78.0 mg/L, highest result to date.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-2	A ^d	SINGLE	2	06/14/07	Aluminum	9410		68	µg/L	NM GW STD	5000	1.88	N	Y	First time result is above the New Mexico groundwater standard, also highest to date. Only one previous filtered sample was analyzed for aluminum in July 2000 at 110.0 µg/L.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-2	A	SINGLE	2	06/14/07	Beryllium	5.8		1	µg/L	EPA PRIM DW STD	4	1.45	N	Y	First time above a standard (EPA MCL) and highest to date; the companion filtered result was nondetect. Three detections (one filtered and two nonfiltered) out of four previous analyses.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCOI-6	I	SINGLE	686	06/05/07	Dioxane[1,4-]	63.9		20	µg/L	EPA TAP SCRNLVL C	61.12	1.05	N	Y	Field duplicate. This result represents the first time detection above the EPA tap screening level [C]; detections were observed in all seven previous analyses. Companion SVOC result with a lower detection limit (preferred method) was 24.1 µg/L.
Sandia Canyon	SCA-4	A	SINGLE	37	06/18/07	Arsenic	15		1.5	µg/L	EPA PRIM DW STD	10	1.5	Y	Y	First time above a standard (EPA MCL). In addition, this is the first sampling round result, first analysis, and the FB was nondetect.
Sandia Canyon	SCA-4	A	SINGLE	37	06/18/07	Lead	19.8		0.5	µg/L	EPA PRIM DW STD	15	1.32	Y	Y	First time detected above a std, first sampling round
Water Canyon (includes Cañon de Valle, Potrillo and Fence Canyons)	WA-625 Spring	A	SPRING	0	05/23/07	Acrolein	9.01		3	µg/L	EPA TAP SCRNLVL N	0.04	216.49	N	Y	First time detected above a std and first sampling round. Not detected in FTB, rarely detected across the Laboratory (only 2 detections out of 1019 analyses of primary samples and field duplicates), J qualifier.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-7	A	SINGLE	4.9	03/01/07	Mercury	4.9		0.06	µg/L	EPA PRIM DW STD	2	2.45	N	Y	Previously detected 5 times out of 25 sampling rounds since 1978. Previous concentrations ranged from 0.10 µg/L to 1.9 µg/L. This NF result was previously reported before undergoing secondary validation.

Watershed	Location	Zone	Well Class	Port Depth (feet)	Sampling Date	Analyte	Standard Result	Standard Uncertainty	MDL/MDA	Unit of Measurement	Standard or Screening Level Type	Standard or Screening Level Threshold	Exceedances Ratio of Standard Screening Level	Preliminary Flag ^a	Web Flag ^b	Comments
Criteria A, First Time above a Standard (24-hour Reporting)																
Pajarito Canyon (includes Twomile and Threemile Canyons)	Charlie's Spring	S ^e	SPRING		03/21/07	Fe	1930		18	µg/L	NM GW STD	1000	1.93	N	Y	Filtered result, nonfiltered also over std, three sampling rounds.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Homestead Spring	S	SPRING		03/21/07	Fe	1890		18	µg/L	NM GW STD	1000	1.89	N	Y	Filtered result, nonfiltered also over std but not first time, eight sampling rounds total.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-0.6	A	SINGLE	1.05	06/19/07	Arsenic	6.4		1.5	µg/L	EPA PRIM DW STD	10	0.64	N	Y	First time detected above one-half a standard (EPA MCL). This location has been sampled for arsenic 5 times.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-2	A	SINGLE	2	06/14/07	Chromium	41.8		1	µg/L	NM GW STD	50	0.84	N	Y	First time detected above one-half a standard and highest filtered result to date. The companion nonfiltered result is 4.6 times the filtered result. Four sampling rounds since 1998, with three nonfiltered and one filtered analyses previously.
Sandia Canyon	SCA-1	A	SINGLE	1.3	02/21/07	Chloride	197		1.32	mg/L	NM GW STD	250	0.79	N	Y	First time above one-half a standard (New Mexico groundwater standard); this is the second sampling round.
Water Canyon (includes Cañon de Valle, Potrillo and Fence Canyons)	WA-625 Spring	A	SPRING	0	05/23/07	Barium	701		1	µg/L	NM GW STD	1000	0.7	N	Y	First sampling round and first time detected above a std (New Mexico groundwater standard). Downgradient from TA-16 firing site.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Homestead Spring	S	SPRING	0	03/21/07	Aluminum	4200		68	µg/L	NM GW STD	5000	0.84	N	Y	The filtered aluminum result was reported in May but was not validated at that time. This represents the validated result.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Starmer Spring	S	SPRING	0	03/21/07	Aluminum	3810		68	µg/L	NM GW STD	5000	0.762	N	Y	Filtered aluminum, three sampling rounds to date, highest to date by 4 times. Filtered aluminum result was reported in May but was not validated at that time. This represents the validated result.
Pajarito Canyon (includes Twomile and Threemile Canyons)	Charlie's Spring	S	SPRING	0	03/21/07	Aluminum	4320		68	µg/L	NM GW STD	5000	0.864	N	Y	Filtered aluminum, eight sampling rounds to date, highest to date by 2 times. Filtered aluminum result was reported in May but was not validated at that time. This represents the validated result.
Los Alamos Canyon (includes Pueblo, DP, and Guaje Canyons)	PAO-2	A	SINGLE	6.06	04/23/07	Chloride	135		1.32	µg/L	NM GW STD	250	0.54	N	Y	Second and highest result of chloride; this value is about 5.7 times the first result in August 2006.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-13	I	SINGLE	21.5	03/29/07	Total Petroleum Hydrocarbons Gasoline Range Org.	75.3		25	µg/L	None	None	None	N	Y	Only one analysis and detection (MDL 25 µg/L).
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	R-1	R ^f	SINGLE	1031	06/11/07	DDT[4,4'-]	0.0136		0.01	µg/L	EPA TAP SCRNLVL C	0.19773981	0.068777	N	Y	First time detected to date, eight sampling rounds performed, FD was nondetect.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	R-1	R	SINGLE	1031	06/11/07	DDD[4,4'-]	0.00973		0.01	µg/L	EPA TAP SCRNLVL C	0.28	0.034734	N	Y	First time detected to date, eight sampling collection rounds at this location, FD was nondetect.

Watershed	Location	Zone	Well Class	Port Depth (feet)	Sampling Date	Analyte	Standard Result	Standard Uncertainty	MDL/MDA	Unit of Measurement	Standard or Screening Level Type	Standard or Screening Level Threshold	Exceedances Ratio of Standard Screening Level	Preliminary Flag ^a	Web Flag ^b	Comments
Criteria A, First Time above a Standard (24-hour Reporting)																
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	R-1	R	SINGLE	1031	06/11/07	DDE[4,4'-]	0.0118		0.01	µg/L	EPA TAP SCR N LVL C	0.20	0.059674	N	Y	First time detected to date, eight sampling rounds, FD was nondetect.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-4B	A	SINGLE	8.9	06/04/07	Benzoic Acid	7.65		6	µg/L	EPA TAP SCR N LVL N	146000	5.24E-05	N	Y	First time detected to date out of 13 sampling rounds and subsequent analyses.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MT-3	A	SINGLE	44	06/07/07	Bis(2-ethylhexyl) phthalate	1.38		1.35	µg/L	EPA PRIM DW STD	6	0.23	N	Y	First time detected out of six sampling rounds, installation blank from 2002 was a detect.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-10	I	SINGLE	20.6	03/29/07	Acetone	16		1.25	µg/L	EPA TAP SCR N LVL N	5475	0.002922	N	Y	First time detected out of four sampling rounds, not detected in the FTB.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-10	I	SINGLE	20.6	03/29/07	Butanone[2-]	3.17		1.25	µg/L	EPA TAP SCR N LVL N	7064.52	0.000449	N	Y	First time detected out of four sampling rounds, not detected in the FTB.
Pajarito Canyon (includes Twomile and Threemile Canyons)	03-B-13	I	SINGLE	21.5	03/29/07	Acetone	22.7		2.5	µg/L	EPA TAP SCR N LVL N	5475	0.004146	N	Y	First time detected out of four sampling rounds, no FTB results are available at this time.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCA-2	A	SINGLE	45	06/05/07	Acetone	1.4		1.25	µg/L	EPA TAP SCR N LVL N	5475	0.000256	N	Y	First time detected out of five analyses, not detected in the FTB.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-2	A	SINGLE	2	06/14/07	Acetone	1.8		1.25	µg/L	EPA TAP SCR N LVL N	5475	0.000329	N	Y	First time detected out of four sampling rounds since 1998, not detected in the accompanying FTB.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-2	A	SINGLE	2	06/14/07	Butanone[2-]	1.34		1.25	µg/L	EPA TAP SCR N LVL N	7064.52	0.00019	N	Y	First time detected out of four analyses since 1998, not detected in the FTB.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-4B	A	SINGLE	8.9	06/04/07	Toluene	0.289		0.25	µg/L	NM GW STD	750	0.000385	N	Y	First time detected out of 14 sampling rounds, not detected in the accompanying FTB.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCO-4B	A	SINGLE	8.9	06/04/07	Isopropyl toluene[4-]	0.419		0.25	µg/L	None	None	None	N	Y	First time detected out of 13 sampling rounds, not detected in the accompanying FTB.
Mortandad Canyon (includes Ten Site Canyon and Cañada del Buey)	MCOI-5	I	SINGLE	689	06/04/07	Acetone	1.75		1.25	µg/L	EPA TAP SCR N LVL N	5475	0.00032	N	Y	First time detected out of seven sampling rounds, not detected in the FTB.
Pajarito Canyon (includes Twomile and Threemile Canyons)	R-32	R	MULTI	976	03/27/07	Acetone	2.48		1.25	µg/L	EPA TAP SCR N LVL N	5475	0.000453	N	Y	First time detected out of eight sampling rounds, not detected in the FTB.
Water Canyon (includes Cañon de Valle, Potrillo and Fence Canyons)	WA-625 Spring	A	SPRING	0	05/23/07	Butanone[2-]	2.32		1.25	µg/L	EPA TAP SCR N LVL N	7064.52	0.000328	N	Y	First time detected and first sampling round at this location.

Watershed	Location	Zone	Well Class	Port Depth (feet)	Sampling Date	Analyte	Standard Result	Standard Uncertainty	MDL/MDA	Unit of Measurement	Standard or Screening Level Type	Standard or Screening Level Threshold	Exceedances Ratio of Standard Screening Level	Preliminary Flag ^a	Web Flag ^b	Comments
Criteria A, First Time above a Standard (24-hour Reporting)																
Pajarito Canyon (includes Twomile and Threemile Canyons)	R-17	R	MULTI	1057	04/25/07	Aroclor-1242	0.17		0.04	µg/L	EPA PRIM DW STD	0.5	0.34	N	Y	Detected for the first time, not detected in the field duplicate. Previously sampled for three times, and all were nondetects. This Aroclor-1242 detection is probably a false positive from analytical laboratory contamination.
Los Alamos Canyon (includes Pueblo, DP, and Guaje Canyons)	DP Spring	S	SPRING	0	04/18/07	Butanone[2-]	1.76		1.25	µg/L	EPA TAP SCR N LVL	7064.52	0.000249	N	Y	This first detection is just above the MDL of 1.25 µg/L and not detected in the companion field trip blank nor in eight previous samples collected since 1997.

^a Preliminary Flag = Denotes 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.

^b Web Flag = Denotes whether the data can be released to the Web, "Y" for yes and "N" or no, if the data are proprietary (San Ildefonso, municipal water supply) be reviewed by that entity.

^c I = Intermediate groundwater.

^d A = Alluvial groundwater.

^e S = Spring.

^f R = Regional groundwater.