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Date: JAN 21 2011
Refer To: EP2011-0015

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

RECEIVED JAN 2011 NMED Hazardous Waste Bureau

Subject: Review of December 2010 Groundwater Data

Dear Mr. Bearzi:

Members of the Los Alamos National Laboratory Environmental Programs staff met on January 12, 2011, to review new groundwater data received in December 2010. At that time, several groundwater samples were identified with contaminant concentrations above the New Mexico or federal water quality standards.

An Environmental Programs staff member notified the New Mexico Environment Department Hazardous Waste Bureau about these findings by telephone on January 12, 2011, and followed up with an email on the same day.

The two instances of a contaminant above a standard for the first time (based on samples collected since June 14, 2007) are tabulated in the attached report. These instances are the following:

- Lead was found in an unfiltered sample in Mortandad Canyon regional aquifer well R-15 at 39.5 µg/L; the U.S. Environmental Protection Agency drinking water system action level is 15 µg/L.
- Nitrate (plus nitrite as nitrogen) was found in a filtered sample from the 1412-ft regional aquifer screen of Pajarito Canyon well R-19 at 793 mg/L. The New Mexico Groundwater Standard is 10 mg/L. Usual nitrate measurements at this screen are near 0.35 mg/L; this high value is likely a field preservation error. The total dissolved solids measurement for the sample was 135 mg/L.

This letter is our written submission that meets notification requirements laid out in Section IV.A.3.g of the Compliance Order on Consent, modified on May 13, 2008. The required information for the chemical constituents that meet the seven screening criteria contained in that section is given in the accompanying report and tables.

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If you have questions, please contact Steve Paris at (505) 606-0915 (smparis@lanl.gov) or Hai Shen at (505) 665-5046 (hshen@doeal.gov).

Sincerely,

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

George J. Rael, Manager
Environmental Projects Office
Los Alamos Site Office

MG/GR/DM/SP/DR:sm

Enclosure: Two hard copies with electronic files – Summary of New Los Alamos National Laboratory Groundwater Data Loaded in December 2010 (LA-UR-11-0291)

Cy: (w/enc.)
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Hai Shen, DOE-LASO, MS A316
Ed Worth, DOE-LASO, MS A316
Steve Paris, EP-CAP, MS M992
Jake Meadows, ENV-RCRA, MS K490
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Cy: (Letter and CD only)
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Pete Padilla, Los Alamos County Utility Department, Los Alamos, NM
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Annette Russell, DOE-LASO (date-stamped letter emailed)
David Rogers, EP-ET-DO, MS M992 (date-stamped letter emailed)
Mei Ding, EES-6, MS J514 (date-stamped letter emailed)
Craig Douglass, EP-CAP, MS M992 (date-stamped letter emailed)
Michael J. Graham, ADEP, MS M991 (date-stamped letter emailed)

SUMMARY OF NEW LOS ALAMOS NATIONAL LABORATORY GROUNDWATER DATA LOADED IN DECEMBER 2010

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 Compliance Order on Consent (Consent Order), modified May 13, 2008. 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 12-10 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 are often similar to data gathered before June 14, 2007. Over time, the data that exceed the reference data have decreased substantially.

This table includes additional comments on the significance of the results for those that appear to be exceptional or are first-time occurrences of results based on considering monitoring data acquired before June 14, 2007 (using statistics described below).

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 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. The definitions for abbreviations in the table may be found at http://www.lanl.gov/environment/all/racer.shtml.

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). In the table, the EPA Regional Screening Levels for tap water 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 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 seven screening criteria in the Consent 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 (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 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 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

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://www.lanl.gov/environment/all/racer.shtml)

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, divided by the basis for comparison in the criterion. For example, for a criterion (such as C3) that compares the value to 1/2 the standard, a value equal to a standard has an exceedance ratio of 2.

- C1, C2, and CA refer to a screening value so the exceedance ratio compares the result directly to the screening value.
- C3, C4, and C6 refer to 1/2 of a screening value so the exceedance ratio compares the result to 1/2 the screening value.
- C5 refers to 2 times a screening value so the exceedance ratio compares the result to 2 times the screening value.

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 12-10 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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	Anyl Meth Code	Lab Code	Comment
C1	8	12	04/01/09	3.07	3.07	3.07	1	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-41	965.3	10/08/10		UF	CS	SVOA	Diethylphthalate	84-66-2	3.07	1.00	EPA TAP SCRN LVL N	29000	0.0	2.2	ug/L	1	J	J	J_LAB	SW-846:8270C	GELC	
C1	19	41	06/23/06	1.72	1.72	1.72	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		UF	DL	VOA	Naphthalene	91-20-3	1.72	1.00	NM GW STD	30	0.1	0.5	ug/L	2	BJ	J	V88	SW-846:8260B	GELC	
C1	6	6	04/21/09	3.11	3.11	3.11	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	751.6	10/20/10		UF	CS	SVOA	Bis(2-ethylhexyl)phthalate	117-81-7	3.11	1.00	EPA MCL	6	0.5	2.2	ug/L	1	J	J	J_LAB	SW-846:8270C	GELC	first detect of six samples
C1	6	6	04/21/09	1.87	1.87	1.87	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	751.6	10/20/10		UF	CS	VOA	Butanone[2-]	78-93-3	1.87	1.00	EPA TAP SCRN LVL N	7100	0.0	1.3	ug/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C1	8	12	10/11/06	4.67	4.67	4.67	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i	524	10/18/10		UF	CS	SVOA	Diethylphthalate	84-66-2	4.67	1.00	EPA TAP SCRN LVL N	29000	0.0	2.2	ug/L	1	J	J	J_LAB	SW-846:8270C	GELC	
C1	13	13	09/09/04	3.29	3.29	3.29	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Kieling Spring	0	10/08/10		UF	CS	SVOA	Diethylphthalate	84-66-2	3.29	1.00	EPA TAP SCRN LVL N	29000	0.0	2.1	ug/L	1	J	J	J_LAB	SW-846:8270C	GELC	
C1	4	6	02/15/10	0.27	0.27	0.27	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-54	830	10/13/10		UF	CS	VOA	Toluene	108-88-3	0.27	1.00	NM GW STD	750	0.0	0.25	ug/L	1	J	J	J_LAB	SW-846:8260B	GELC	
C1	13	21	12/14/07	96.3	96.3	96.3	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-32	867.5	10/14/10		UF	CS	SVOA	Diethylphthalate	84-66-2	96.3	1.00	EPA TAP SCRN LVL N	29000	0.0	2.1	ug/L	1				SW-846:8270C	GELC	second highest result for this compound in 2010; highest was 432
C2	1	1	10/13/10	0.548	0.548	0.548	1	Pueblo Canyon (includes Acid Canyon)	Regional	R-3	974.5	10/13/10		F	CS	GENINORG	Perchlorate	ClO4	0.548	1.00	LANL Reg BG LVL	0.46	1.2	0.05	ug/L	1				SW-846:6850	GELC	
C2	1	1	10/13/10	4.84	4.84	4.84	1	Pueblo Canyon (includes Acid Canyon)	Regional	R-3	974.5	10/13/10		F	CS	GENINORG	Magnesium	Mg	4.84	1.00	LANL Reg BG LVL	4.15	1.2	0.085	mg/L	1				SW-846:6010B	GELC	
C2	1	1	10/13/10	0.901	0.901	0.901	1	Pueblo Canyon (includes Acid Canyon)	Regional	R-3	974.5	10/13/10		UF	CS	GENINORG	Total Organic Carbon	TOC	0.901	1.00	LANL Reg BG LVL	0.33	2.7	0.33	mg/L	1	J	J	J_LAB	SW-846:9060	GELC	
C2	3	3	05/02/10	1.03	1.03	1.03	1	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-52	1035.2	10/12/10		F	CS	METALS	Cobalt	Co	1.03	1.00	LANL Reg BG LVL	0.5	2.1	1	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	8	8	07/13/09	8.28	8.28	8.28	1	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Intermediate	R-37	929.3	10/12/10		F	CS	METALS	Copper	Cu	8.28	1.00	LANL Int BG LVL	5.32	1.6	3	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	7	8	06/22/09	3.65	3.65	3.65	1	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-37	1026	10/14/10		F	CS	METALS	Tin	Sn	3.65	1.00	LANL Reg BG LVL	3.26	1.1	2.5	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	3	3	04/14/10	0.746	0.746	0.746	1	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-53	959.7	10/12/10		UF	CS	GENINORG	Total Organic Carbon	TOC	0.746	1.00	LANL Reg BG LVL	0.33	2.3	0.33	mg/L	1	J	J	J_LAB	SW-846:9060	GELC	
C2	7	10	06/09/08	1.06	1.06	1.06	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Vanadium	V	1.06	1.00	LANL Avl BG LVL	1	1.1	1	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	9	10	06/22/08	0.026	0.091	0.059	2	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-7a	9.7	10/20/10		F	CS	GENINORG	Ammonia as Nitrogen	NH3-N	0.091	1.54	LANL Avl BG LVL	0.04	2.3	0.016	mg/L	1		J-	I6a	EPA:350.1	GELC	
C2	9	10	06/22/08	0.085	0.63	0.404	9	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-7c	9.7	10/07/10		F	CS	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	0.63	1.56	LANL Avl BG LVL	0.57	1.1	0.05	mg/L	5				EPA:353.2	GELC	
C2	9	10	06/22/08	7.8	7.8	7.8	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-7c	9.7	10/07/10		F	CS	METALS	Tin	Sn	7.8	1.00	LANL Avl BG LVL	3.26	2.4	2.5	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	7	7	01/28/09	0.078	0.078	0.078	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	649.7	10/20/10		F	CS	GENINORG	Bromide	Br(-1)	0.078	1.00	LANL Int BG LVL	0.03	2.6	0.066	mg/L	1	J	J	J_LAB	EPA:300.0	GELC	
C2	6	6	04/21/09	4.05	4.05	4.05	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	751.6	10/20/10		F	CS	METALS	Chromium	Cr	4.05	1.00	LANL Int BG LVL	1	4.1	2.5	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	
C2	17	18	10/17/06	2.7	96.2	3.3	6	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-17	1124	10/22/10		F	CS	METALS	Zinc	Zn	5.57	1.69	LANL Reg BG LVL	3.89	1.4	3.3	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	20	20	04/09/01	0.233	793	0.35	20	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19	1412.9	10/14/10		F	CS	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	793	2265.71	LANL Reg BG LVL	0.89	891.0	10	mg/L	1000		J	I4a	EPA:353.2	GELC	preservation error; TDS about 135 mg/L
C2	12	12	07/20/05	3.86	3.86	3.86	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20	904.6	10/20/10		F	CS	METALS	Tin	Sn	3.86	1.00	LANL Reg BG LVL	3.26	1.2	2.5	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	7	7	06/23/09	3.74	3.74	3.74	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-49	845	10/07/10		F	CS	METALS	Tin	Sn	3.74	1.00	LANL Reg BG LVL	3.26	1.2	2.5	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	7	7	06/18/09	5.68	5.68	5.68	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-49	905.6	10/07/10		F	CS	METALS	Tin	Sn	5.68	1.00	LANL Reg BG LVL	3.26	1.7	2.5	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C2	23	37	12/17/03	1.4	2.12	1.59	22	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-23	816	10/22/10		F	CS	METALS	Molybdenum	Mo	2.12	1.33	LANL Reg BG LVL	2	1.1	0.1	ug/L	1		J	I4a	SW-846:6020	GELC	
C2	23	37	12/17/03	0.53	8.79	0.65	17	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-23	816	10/22/10		F	CS	METALS	Nickel	Ni	8.79	13.52	LANL Reg BG LVL	3.09	2.8	0.5	ug/L	1				SW-846:6020	GELC	
C3	19	29	06/23/06	1.3	2.61	1.57	7	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		UF	CS	METALS	Beryllium	Be	2.61	1.66	EPA MCL	4	1.3	1	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	second highest turbidity of 217 NTU; a few previous F and UF detects since 2006
C3	6	6	04/21/09	3.11	3.11	3.11	1	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	751.6	10/20/10		UF	CS	SVOA	Bis(2-ethylhexyl)phthalate	117-81-7	3.11	1.00	EPA MCL	6	1.0	2.2	ug/L	1	J	J	J_LAB	SW-846:8270C	GELC	first detect of six samples
C3	20	20	04/09/01	0.233	793	0.35	20	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19	1412.9	10/14/10		F	CS	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	793	2265.71	EPA MCL	10	158.6	10	mg/L	1000		J	I4a	EPA:353.2	GELC	preservation error; TDS about 135 mg/L

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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	Anyl Meth Code	Lab Code	Comment
C5	13	14	11/14/06	0.266	0.411	0.327	14	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Alluvial	CDBO-6	34	10/15/10		F	CS	GENINORG	Perchlorate	ClO4	0.266	0.81	LANL Avl BG LVL	0.05	2.7	0.05	ug/L	1				SW-846:6850	GELC	
C5	15	16	05/01/01	0.054	0.224	0.189	14	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Alluvial	CDBO-6	34	10/15/10		F	CS	GENINORG	Total Phosphate as Phosphorus	PO4-P	0.187	0.99	LANL Avl BG LVL	0.05	1.9	0.015	mg/L	1				EPA:365.4	GELC	
C5	21	26	05/25/05	5.34	8.06	6.58	26	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-15	958.6	11/09/10		F	CS	GENINORG	Perchlorate	ClO4	8.06	1.22	LANL Reg BG LVL	0.46	8.8	1	ug/L	20				SW-846:6850	GELC	gradual upward trend from 6 ppb in 2004
C5	25	30	02/24/00	1.89	3.31	2.24	30	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-15	958.6	11/09/10		F	CS	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	2.24	1.00	LANL Reg BG LVL	0.89	1.3	0.05	mg/L	5				EPA:353.2	GELC	
C5	8	8	07/13/09	0.435	0.613	0.533	8	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Intermediate	R-37	929.3	10/12/10		F	CS	GENINORG	Perchlorate	ClO4	0.52	0.98	LANL Int BG LVL	0.05	5.2	0.05	ug/L	1		J+	PE12f	SW-846:6850	GELC	
C5	8	8	07/13/09	1.33	1.84	1.63	8	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Intermediate	R-37	929.3	10/12/10		F	CS	METALS	Uranium	U	1.61	0.99	LANL Int BG LVL	0.72	1.1	0.05	ug/L	1				SW-846:6020	GELC	
C5	7	10	06/09/08	197	444	307	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	GENINORG	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	205	0.67	LANL Avl BG LVL	76	1.4	0.73	mg/L	1				EPA:310.1	GELC	
C5	7	10	06/09/08	54.5	114	79.6	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	GENINORG	Calcium	Ca	55.4	0.70	LANL Avl BG LVL	26.36	1.1	0.05	mg/L	1				SW-846:6010B	GELC	
C5	7	10	06/09/08	0.891	1.66	1.3	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	GENINORG	Ammonia as Nitrogen	NH3-N	1.35	1.04	LANL Avl BG LVL	0.04	16.9	0.016	mg/L	1				EPA:350.1	GELC	
C5	7	10	06/09/08	292	522	392	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	GENINORG	Total Dissolved Solids	TDS	327	0.83	LANL Avl BG LVL	139	1.2	2.4	mg/L	1				EPA:160.1	GELC	
C5	7	10	06/09/08	281	601	436	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Barium	Ba	361	0.83	LANL Avl BG LVL	68.57	2.6	1	ug/L	1				SW-846:6010B	GELC	
C5	7	10	06/09/08	9.6	26.5	20.1	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Cobalt	Co	19.7	0.98	LANL Avl BG LVL	0.5	19.7	1	ug/L	1				SW-846:6010B	GELC	
C5	7	10	06/09/08	6040	17500	11850	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Manganese	Mn	8350	0.70	LANL Avl BG LVL	2	2087.5	2	ug/L	1				SW-846:6010B	GELC	
C5	7	10	06/09/08	6.8	10.5	8	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Molybdenum	Mo	7.29	0.91	LANL Avl BG LVL	2	1.8	0.1	ug/L	1				SW-846:6020	GELC	
C5	7	10	06/09/08	5.8	14.9	10.1	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Nickel	Ni	9.44	0.93	LANL Avl BG LVL	1	4.7	0.5	ug/L	1				SW-846:6020	GELC	
C5	7	10	06/09/08	379	777	535	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Strontium	Sr	383	0.72	LANL Avl BG LVL	120	1.6	1	ug/L	1				SW-846:6010B	GELC	
C5	7	10	06/09/08	5.2	7.22	5.84	5	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-5	14.7	10/18/10		F	CS	METALS	Zinc	Zn	7.22	1.24	LANL Avl BG LVL	2	1.8	3.3	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C5	9	10	06/22/08	0.251	0.363	0.305	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Alluvial	PCAO-7a	9.7	10/20/10		F	CS	GENINORG	Perchlorate	ClO4	0.363	1.19	LANL Avl BG LVL	0.05	3.6	0.05	ug/L	1				SW-846:6850	GELC	
C5	19	29	06/23/06	18.5	610	142	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	GENINORG	Chloride	Cl(-1)	75.1	0.53	LANL Int BG LVL	7.78	4.8	0.66	mg/L	10				EPA:300.0	GELC	
C5	19	29	06/23/06	24.1	347	89.1	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	GENINORG	Sodium	Na	64.4	0.72	LANL Int BG LVL	12.19	2.6	0.1	mg/L	1				SW-846:6010B	GELC	
C5	19	35	06/23/06	107	1230	316	35	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	GENINORG	Total Dissolved Solids	TDS	428	1.35	LANL Int BG LVL	127	1.7	4.8	mg/L	1				EPA:160.1	GELC	
C5	19	29	06/23/06	12.4	54.9	37.9	24	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	METALS	Boron	B	54.9	1.45	LANL Int BG LVL	15.12	1.8	15	ug/L	1				SW-846:6010B	GELC	
C5	19	29	06/23/06	2.6	14.8	3.8	17	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	METALS	Chromium	Cr	5.13	1.35	LANL Int BG LVL	1	2.6	2.5	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	
C5	19	29	06/23/06	3.1	681	28.1	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	METALS	Manganese	Mn	33.2	1.18	LANL Int BG LVL	2	8.3	2	ug/L	1				SW-846:6010B	GELC	
C5	19	29	06/23/06	1.3	14.5	2.9	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	METALS	Nickel	Ni	7.99	2.76	LANL Int BG LVL	1	4.0	0.5	ug/L	1				SW-846:6020	GELC	
C5	19	29	06/23/06	0.51	20	2.8	23	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	METALS	Lead	Pb	7.09	2.53	LANL Int BG LVL	0.5	7.1	0.5	ug/L	1				SW-846:6020	GELC	
C5	19	29	06/23/06	3.3	83.5	31.4	28	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		F	CS	METALS	Zinc	Zn	47.6	1.52	LANL Int BG LVL	2	11.9	3.3	ug/L	1				SW-846:6010B	GELC	
C5	7	9	06/11/09	0.16	0.192	0.173	9	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	PCI-2	512	10/11/10		F	CS	GENINORG	Perchlorate	ClO4	0.177	1.02	LANL Int BG LVL	0.05	1.8	0.05	ug/L	1	J	J	J_LAB	SW-846:6850	GELC	
C5	10	10	07/21/05	0.317	0.381	0.347	10	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-19	909.3	10/15/10		F	CS	GENINORG	Perchlorate	ClO4	0.344	0.99	LANL Int BG LVL	0.05	3.4	0.05	ug/L	1				SW-846:6850	GELC	
C5	15	16	09/22/00	0.409	0.849	0.542	16	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-19	909.3	10/15/10		F	CS	GENINORG	Fluoride	F(-1)	0.503	0.93	LANL Int BG LVL	0.23	1.1	0.033	mg/L	1				EPA:300.0	GELC	
C5	7	7	01/28/09	106	398	340	7	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	649.7	10/20/10		F	CS	METALS	Manganese	Mn	340	1.00	LANL Int BG LVL	2	85.0	2	ug/L	1				SW-846:6010B	GELC	
C5	7	7	01/28/09	9.7	22	18.3	7	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	649.7	10/20/10		F	CS	METALS	Molybdenum	Mo	18.3	1.00	LANL Int BG LVL	2	4.6	0.1	ug/L	1	E			SW-846:6020	GELC	
C5	6	6	04/21/09	4.01	400	47.05	6	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	751.6	10/20/10		F	CS	METALS	Manganese	Mn	4.01	0.09	LANL Int BG LVL	2	1.0	2	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	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	Anyl Meth Code	Lab Code	Comment
C5	6	6	04/21/09	6.42	12.9	8.85	6	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	751.6	10/20/10		F	CS	METALS	Molybdenum	Mo	6.71	0.76	LANL Int BG LVL	2	1.7	0.1	ug/L	1	E			SW-846:6020	GELC	
C5	6	6	04/21/09	4.86	909	18.05	6	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-40	751.6	10/20/10		F	CS	METALS	Zinc	Zn	4.86	0.27	LANL Int BG LVL	2	1.2	3.3	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C5	17	19	10/03/06	0.146	0.263	0.221	19	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i	470.2	10/18/10		F	CS	GENINORG	Perchlorate	ClO4	0.252	1.14	LANL Int BG LVL	0.05	2.5	0.05	ug/L	1				SW-846:6850	GELC	
C5	16	18	10/11/06	0.186	0.29	0.255	18	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i	524	10/18/10	FD	F	CS	GENINORG	Perchlorate	ClO4	0.259	1.02	LANL Int BG LVL	0.05	2.6	0.05	ug/L	1				SW-846:6850	GELC	
C5	16	18	10/11/06	0.186	0.29	0.255	18	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i	524	10/18/10		F	CS	GENINORG	Perchlorate	ClO4	0.253	0.99	LANL Int BG LVL	0.05	2.5	0.05	ug/L	1				SW-846:6850	GELC	
C5	14	16	10/11/06	1.1	4.43	2.76	8	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i	524	10/18/10		F	CS	METALS	Chromium	Cr	4.39	1.59	LANL Int BG LVL	1	2.2	2.5	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	
C5	14	16	10/11/06	1.1	4.43	2.76	8	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	R-23i	524	10/18/10	FD	F	CS	METALS	Chromium	Cr	4.43	1.61	LANL Int BG LVL	1	2.2	2.5	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	
C5	15	15	09/09/04	6.91	34.8	19.3	15	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Kieling Spring	0	10/08/10		F	CS	GENINORG	Chloride	Cl(-1)	21.2	1.10	LANL Int BG LVL	7.78	1.4	0.13	mg/L	2		J+	I6b	EPA:300.0	GELC	
C5	14	14	06/20/05	0.377	0.804	0.477	14	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Kieling Spring	0	10/08/10		F	CS	GENINORG	Perchlorate	ClO4	0.479	1.00	LANL Int BG LVL	0.05	4.8	0.05	ug/L	1				SW-846:6850	GELC	
C5	15	15	09/09/04	12.1	27.5	18.1	15	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	10/08/10		F	CS	GENINORG	Chloride	Cl(-1)	19.4	1.07	LANL Int BG LVL	7.78	1.3	0.13	mg/L	2		J+	I6b	EPA:300.0	GELC	
C5	14	14	06/22/05	0.606	0.947	0.703	14	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate Spring	Bulldog Spring	0	10/08/10		F	CS	GENINORG	Perchlorate	ClO4	0.788	1.12	LANL Int BG LVL	0.05	7.9	0.05	ug/L	1				SW-846:6850	GELC	
C5	16	16	09/26/00	1.69	32	8.58	16	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19	1190.7	10/15/10		F	CS	METALS	Manganese	Mn	7.45	0.87	LANL Reg BG LVL	2.94	1.3	2	ug/L	1	J	J	J_LAB	SW-846:6010B	GELC	
C5	16	19	03/11/04	11.9	28.5	16.8	19	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20	904.6	10/20/10		F	CS	METALS	Manganese	Mn	21	1.25	LANL Reg BG LVL	2.94	3.6	2	ug/L	1				SW-846:6010B	GELC	
C5	14	22	03/10/04	1.26	51.7	2.52	20	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20	1147.1	10/11/10		UF	CS	GENINORG	Total Organic Carbon	TOC	2.5	0.99	LANL Reg BG LVL	0.33	3.8	0.33	mg/L	1				SW-846:9060	GELC	
C5	16	21	03/10/04	113	253	180	21	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20	1147.1	10/11/10		F	CS	METALS	Barium	Ba	166	0.92	LANL Reg BG LVL	56.83	1.5	1	ug/L	1				SW-846:6010B	GELC	
C5	16	22	03/10/04	47.1	392	70.8	22	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-20	1147.1	10/11/10		F	CS	METALS	Manganese	Mn	63.7	0.90	LANL Reg BG LVL	2.94	10.8	2	ug/L	1				SW-846:6010B	GELC	
C5	12	18	12/14/07	0.401	4.87	1.31	18	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-32	867.5	10/14/10		UF	CS	GENINORG	Total Organic Carbon	TOC	1.26	0.96	LANL Reg BG LVL	0.33	1.9	0.33	mg/L	1				SW-846:9060	GELC	
C5	13	19	12/14/07	27.2	103	42.8	19	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-32	867.5	10/14/10		F	CS	METALS	Zinc	Zn	43.5	1.02	LANL Reg BG LVL	3.89	5.6	3.3	ug/L	1				SW-846:6010B	GELC	
C6	21	26	05/25/05	5.34	8.06	6.58	26	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-15	958.6	11/09/10		F	CS	GENINORG	Perchlorate	ClO4	8.06	1.22	NM GW CONS	4	4.0	1	ug/L	20				SW-846:6850	GELC	gradual upward trend from 6 ppb in 2004
C6	19	29	06/23/06	0.57	23.5	5.1	29	Pajarito Canyon (includes Twomile and Threemile Canyons)	Intermediate	03-B-13	21.5	10/22/10		UF	CS	METALS	Lead	Pb	21.8	4.27	EPA MCL	15	2.9	0.5	ug/L	1				SW-846:6020	GELC	
C6	20	20	04/09/01	0.233	793	0.35	20	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19	1412.9	10/14/10		F	CS	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	793	2265.71	EPA MCL	10	158.6	10	mg/L	1000		J	I4a	EPA:353.2	GELC	preservation error; TDS about 135 mg/L
CA	27	39	02/24/00	0.224	39.5	0.648	14	Mortandad Canyon (includes Ten Site Canyon and Canada del Buey)	Regional	R-15	958.6	11/09/10		UF	CS	METALS	Lead	Pb	39.5	60.96	EPA MCL	15	2.6	0.5	ug/L	1				SW-846:6020	GELC	UF Fe, Mn, Cu also high; Turb was 4.3 NTU, range is 0.6 to 7 NTU
CA	20	20	04/09/01	0.233	793	0.35	20	Pajarito Canyon (includes Twomile and Threemile Canyons)	Regional	R-19	1412.9	10/14/10		F	CS	GENINORG	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	793	2265.71	EPA MCL	10	79.3	10	mg/L	1000		J	I4a	EPA:353.2	GELC	preservation error; TDS about 135 mg/L