

SUMMARY OF GROUNDWATER DATA REVIEWED IN AUGUST 2014 THAT MEET NOTIFICATION REQUIREMENTS

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 and contains results for chemical constituents that meet the seven screening criteria laid out in the Compliance Order on Consent (Consent Order). 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 7-14 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 may be similar to data gathered before June 14, 2007.

This table includes the following:

- Additional comments on results that appear to be exceptional or based on consideration of monitoring data acquired before the current result (using statistics described below)
- Supplemental information summarizing monitoring results obtained before the current result
- Sampling date, name of the well or spring, location of the well or spring, depth of the screened interval, 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.

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). The EPA regional screening levels for tap water are either for cancer (10^{-6} excess risk) or noncancer risk values. The data were screened using 10 times the EPA's 10^{-6} excess cancer risk values, to achieve 10^{-5} excess cancer risk 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. Some data meet more than one of the criteria and appear in the table multiple times. The table also presents only the instances where the results exceed criteria; therefore, all seven criteria may not appear in the table.

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 prior to the current result. The columns provide summary statistics 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 the 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

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

Start Date—sample date

Fld QC Type Code—identifies regular samples (REG) or field duplicates (FD)

Fld Prep Code—identifies whether samples are filtered or unfiltered

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

Anyl Suite Code—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—analytical result in standard measurement units

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

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

Screen Level—value of the LVL Type/Risk Code

Exceedance Ratio—ratio of Std Result to LVL Type/Risk Code. In earlier versions of this report, the ratio was divided by the basis for comparison in the criterion, but that is no longer the case. For example, for a criterion (such as C3) that compares the value to one-half the standard, a value equal to a standard previously had an exceedance ratio of 2. The current report shows this ratio as 1.

Std Mdl—method detection limit in standard measurement units

Std Uom—standard units of measurement

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

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

Concat Flag Code—secondary validation qualifier

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

Anyl Meth Code—analytical method number

Lab Code—analytical laboratory name

Comment—comment on the analytical result

Table 1: NMED 7-14 Groundwater Report

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	Zone	Location	Screen Depth	Start Date	Fld OC 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	Comments
C1	10	14	04/27/05	0.0102	0.0102	0.0102	1	Pueblo Canyon (includes Acid Canyon)	Regional	R-4	792.9	06/03/14	FD	UF	INIT	SVOC	Benzo(k)fluoranthene	207-08-9	0.0102	1	EPA TAP SCRNL LVL	3.4	0	0.009	ug/L	1	J	J	J_LAB	SW-846:8310	GELC	not found in primary sample
C1	10	14	04/27/05	0.0187	0.0187	0.0187	1	Pueblo Canyon (includes Acid Canyon)	Regional	R-4	792.9	06/03/14	FD	UF	INIT	SVOC	Pyrene	129-00-0	0.0187	1	EPA TAP SCRNL LVL	120	0	0.017	ug/L	1	J	J	J_LAB	SW-846:8310	GELC	not found in primary sample
C1	6	9	10/13/10	2.61	2.61	2.61	1	Pueblo Canyon (includes Acid Canyon)	Regional	R-3	974.5	06/04/14	REG	UF	INIT	VOC	Carbon Disulfide	75-15-0	2.61	1	EPA TAP SCRNL LVL	810	0	1.5	ug/L	1	HJ	J	J_LAB	SW-846:8260B	GELC	
C2	15	16	04/26/05	0.044	0.176	0.11	2	Pueblo Canyon (includes Acid Canyon)	Regional	R-2	906.4	06/05/14	REG	F	INIT	GENINORG	Ammonia as Nitrogen	NH3-N	0.176	1.6	LANL Reg BG LVL	0.05	3.5	0.017	mg/L	1	NQ	NQ	NQ	EPA:350.1	GELC	
C2	8	10	10/13/10	0.0185	0.0958	0.031	5	Pueblo Canyon (includes Acid Canyon)	Regional	R-3	974.5	06/04/14	REG	F	INIT	GENINORG	Ammonia as Nitrogen	NH3-N	0.0958	3.1	LANL Reg BG LVL	0.05	1.9	0.017	mg/L	1	NQ	NQ	NQ	EPA:350.1	GELC	
C2	9	14	03/26/12	1.81	3.14	2.1	14	Sandia Canyon	Regional	R-62	1158.4	06/26/14	REG	F	INIT	METALS	Nickel	Ni	3.14	1.5	LANL Reg BG LVL	3.09	1	0.5	ug/L	1	NQ	NQ	NQ	SW-846:6020	GELC	
C2	9	13	04/29/10	0.16	0.288	0.206	13	Pueblo Canyon (includes Acid Canyon)	Intermediate	TW-2Ar	102	06/02/14	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.288	1.4	LANL Int BG LVL	0.23	1.3	0.033	mg/L	1	NQ	NQ	NQ	EPA:300.0	GELC	
C3	15	22	04/27/05	0.551	0.909	0.754	22	Pueblo Canyon (includes Acid Canyon)	Regional	R-4	792.9	06/03/14	FD	F	INIT	GENINORG	Fluoride	F(-1)	0.909	1.2	NM GW STD	1.6	0.6	0.033	mg/L	1	NQ	NQ	NQ	EPA:300.0	GELC	slightly above earlier results with median of 0.75 mg/L
C3	15	22	04/27/05	0.551	0.909	0.754	22	Pueblo Canyon (includes Acid Canyon)	Regional	R-4	792.9	06/03/14	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.832	1.1	NM GW STD	1.6	0.5	0.033	mg/L	1	NQ	NQ	NQ	EPA:300.0	GELC	slightly above earlier results with median of 0.75 mg/L
C5	14	15	04/26/05	2.3	35.2	11.8	15	Pueblo Canyon (includes Acid Canyon)	Regional	R-2	906.4	06/05/14	REG	F	INIT	METALS	Manganese	Mn	13.6	1.2	LANL Reg BG LVL	2.94	4.6	2	ug/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	14	15	04/26/05	4.9	14.7	7.425	12	Pueblo Canyon (includes Acid Canyon)	Regional	R-2	906.4	06/05/14	REG	F	INIT	METALS	Zinc	Zn	13.2	1.8	LANL Reg BG LVL	3.89	3.4	3.3	ug/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	11	17	07/25/06	2.54	5.17	4.5	17	Pueblo Canyon (includes Acid Canyon)	Regional	R-4	792.9	06/03/14	FD	F	INIT	GENINORG	Perchlorate	ClO4	3.16	0.7	LANL Reg BG LVL	0.46	6.9	0.25	ug/L	5	NQ	NQ	NQ	SW-846:6850	GELC	
C5	11	17	07/25/06	2.54	5.17	4.5	17	Pueblo Canyon (includes Acid Canyon)	Regional	R-4	792.9	06/03/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	3.22	0.7	LANL Reg BG LVL	0.46	7	0.25	ug/L	5	NQ	NQ	NQ	SW-846:6850	GELC	
C5	14	17	11/15/05	6.96	8.31	7.47	17	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Regional	R-24	825	06/03/14	REG	F	INIT	GENINORG	Chloride	Cl(-1)	8.31	1.1	LANL Reg BG LVL	3.57	2.3	0.067	mg/L	1	NQ	NQ	NQ	EPA:300.0	GELC	
C5	13	16	11/15/05	10.1	33.1	14.7	15	Lower Los Alamos Canyon (San Ildefonso Pueblo)	Regional	R-24	825	06/03/14	REG	F	INIT	METALS	Zinc	Zn	11.2	0.8	LANL Reg BG LVL	3.89	2.9	3.3	ug/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	9	14	03/26/12	1.64	11.7	8.07	14	Sandia Canyon	Regional	R-62	1158.4	06/26/14	REG	F	INIT	GENINORG	Chloride	Cl(-1)	11.7	1.4	LANL Reg BG LVL	3.57	3.3	0.134	mg/L	2	NQ	NQ	NQ	EPA:300.0	GELC	
C5	9	14	03/26/12	123	221	135.5	14	Sandia Canyon	Regional	R-62	1158.4	06/26/14	REG	F	INIT	METALS	Chromium	Cr	221	1.6	LANL Reg BG LVL	5.75	38.4	2	ug/L	1	J	J	I4a	SW-846:6020	GELC	Estimated and biased high but was >5x concentration in method blank
C5	10	15	08/01/06	0.215	2.57	0.818	15	Upper Los Alamos Canyon (includes DP Canyon)	Alluvial	LAO-3a	4.7	06/06/14	REG	F	INIT	GENINORG	Bromide	Br(-1)	1.31	1.6	LANL Avl BG LVL	0.07	18.7	0.067	mg/L	1	NQ	NQ	NQ	EPA:300.0	GELC	
C5	12	18	03/28/01	2	5.42	2.68	12	Upper Los Alamos Canyon (includes DP Canyon)	Alluvial	LAO-3a	4.7	06/06/14	REG	F	INIT	METALS	Chromium	Cr	3.08	1.1	LANL Avl BG LVL	1	3.1	2	ug/L	1	J	J	J_LAB	SW-846:6020	GELC	
C5	15	23	03/28/01	0.227	0.961	0.631	23	Upper Los Alamos Canyon (includes DP Canyon)	Alluvial	LAO-3a	4.7	06/06/14	REG	F	INIT	GENINORG	Fluoride	F(-1)	0.665	1.1	LANL Avl BG LVL	0.27	2.5	0.033	mg/L	1	NQ	NQ	NQ	EPA:300.0	GELC	
C5	12	18	03/28/01	170	2470	242	18	Upper Los Alamos Canyon (includes DP Canyon)	Alluvial	LAO-3a	4.7	06/06/14	REG	F	INIT	METALS	Molybdenum	Mo	172	0.7	LANL Avl BG LVL	2	86	1.65	ug/L	10	NQ	NQ	NQ	SW-846:6020	GELC	
C5	10	15	08/01/06	0.229	0.614	0.434	15	Upper Los Alamos Canyon (includes DP Canyon)	Alluvial	LAO-3a	4.7	06/06/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.482	1.1	LANL Avl BG LVL	0.05	9.6	0.05	ug/L	1	NQ	NQ	NQ	SW-846:6850	GELC	
C5	13	19	03/28/01	32.8	75.4	46.8	19	Upper Los Alamos Canyon (includes DP Canyon)	Alluvial	LAO-3a	4.7	06/06/14	REG	F	INIT	GENINORG	Sodium	Na	51.7	1.1	LANL Avl BG LVL	15.54	3.3	0.1	mg/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	12	18	03/28/01	2.06	4.14	2.94	16	Upper Los Alamos Canyon (includes DP Canyon)	Alluvial	LAO-3a	4.7	06/06/14	REG	F	INIT	METALS	Vanadium	V	3.81	1.3	LANL Avl BG LVL	1	3.8	1	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C5	9	13	04/29/10	156	195	176	13	Pueblo Canyon (includes Acid Canyon)	Intermediate	TW-2Ar	102	06/02/14	REG	F	INIT	METALS	Boron	B	156	0.9	LANL Int BG LVL	15.12	10.3	15	ug/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	9	13	04/29/10	36.3	43.3	38.1	13	Pueblo Canyon (includes Acid Canyon)	Intermediate	TW-2Ar	102	06/02/14	REG	F	INIT	GENINORG	Calcium	Ca	37.4	1	LANL Int BG LVL	17.31	2.2	0.05	mg/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	9	13	04/29/10	40.2	50.8	46	13	Pueblo Canyon (includes Acid Canyon)	Intermediate	TW-2Ar	102	06/02/14	REG	F	INIT	GENINORG	Chloride	Cl(-1)	48.1	1	LANL Int BG LVL	7.78	6.2	0.67	mg/L	10	NQ	NQ	NQ	EPA:300.0	GELC	
C5	9	13	04/29/10	2.78	20.1	3.61	13	Pueblo Canyon (includes Acid Canyon)	Intermediate	TW-2Ar	102	06/02/14	REG	F	INIT	METALS	Nickel	Ni	5.08	1.4	LANL Int BG LVL	1	5.1	0.5	ug/L	1	NQ	NQ	NQ	SW-846:6020	GELC	
C5	9	13	04/29/10	0.469	0.565	0.495	13	Pueblo Canyon (includes Acid Canyon)	Intermediate	TW-2Ar	102	06/02/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.469	0.9	LANL Int BG LVL	0.05	9.4	0.05	ug/L	1	NQ	NQ	NQ	SW-846:6850	GELC	
C5	12	14	08/10/06	150	162	156.5	14	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	GENINORG	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	155	1	LANL Int BG LVL	52	3	0.725	mg/L	1	NQ	NQ	NQ	EPA:310.1	GELC	
C5	11	12	08/10/06	84.6	119	99.35	12	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	METALS	Boron	B	101	1	LANL Int BG LVL	15.12	6.7	15	ug/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	12	14	08/10/06	0.148	0.279	0.175	11	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	GENINORG	Bromide	Br(-1)	0.157	0.9	LANL Int BG LVL	0.03	5.2	0.067	mg/L	1	J	J	J_LAB	EPA:300.0	GELC	
C5	11	12	08/10/06	54.8	60	57.9	12	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	GENINORG	Calcium	Ca	57.7	1	LANL Int BG LVL	17.31	3.3	0.05	mg/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	12	14	08/10/06	34.4	44.9	37.65	14	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	GENINORG	Chloride	Cl(-1)	44.9	1.2	LANL Int BG LVL	7.78	5.8	0.67	mg/L	10	NQ	NQ	NQ	EPA:300.0	GELC	
C5	11	12	08/10/06	15.1	16.8	15.8	12	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	GENINORG	Magnesium	Mg	16.3	1	LANL Int BG LVL	6.12	2.7	0.11	mg/L	1	NQ	NQ	NQ	SW-846:6010C	GELC	
C5	11	12	08/10/06	7.6	9.7	8.8	12	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	METALS	Nickel	Ni	7.6	0.9	LANL Int BG LVL	1	7.6	0.5	ug/L	1	NQ	NQ	NQ	SW-846:6020	GELC	
C5	12	14	08/10/06	0.104	3.45	2.465	14	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	2.04	0.8	LANL Int BG LVL	0.05	40.8	0.2	ug/L	4	NQ	NQ	NQ	SW-846:6850	GELC	
C5	12	14	08/10/06	251	437	321	14	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	331	1	LANL Int BG LVL	127	2.6	3.4	mg/L	1	NQ	NQ	NQ	EPA:160.1	GELC	
C5	11	12	08/10/06	7.8	10.2	9.39	12	Pueblo Canyon (includes Acid Canyon)	Intermediate	R-3i	215.2	06/04/14	REG	F	INIT	RAD	Uranium	U	9.38	1	LANL Int BG LVL	0.72	13	0.067	ug/L	1	NQ	NQ	NQ	SW-846:6020	GELC	
C5	11	11	08/08/06	151	296	171	11	Pueblo Canyon (

Criteria Code	Visits	Samples	First Event	Min Detect	Max Detect	Median Detect	Num Detect	Hdr 1	Zone	Location	Screen Depth	Start Date	Fid QC Type Code	Fid Prep Code	Lab Sample Type Code	AnyI 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	AnyI Meth Code	Lab Code	Comments
C5	10	10	08/08/06	1.1	2.1	1.69	9	Pueblo Canyon (includes Acid Canyon)	Intermediate	POI-4	159	06/02/14	REG	F	INIT	METALS	Cobalt	Co	1.3	0.8	LANL Int BG LVL	0.5	2.6	1	ug/L	1	J	J	J_LAB	SW-846:6010C	GELC	
C5	10	10	08/08/06	9.43	11.4	10.1	10	Pueblo Canyon (includes Acid Canyon)	Intermediate	POI-4	159	06/02/14	REG	F	INIT	METALS	Nickel	Ni	9.66	1	LANL Int BG LVL	1	9.7	0.5	ug/L	1		NQ	NQ	SW-846:6020	GELC	
C5	11	11	08/08/06	0.234	0.372	0.306	11	Pueblo Canyon (includes Acid Canyon)	Intermediate	POI-4	159	06/02/14	REG	F	INIT	GENINORG	Perchlorate	ClO4	0.264	0.9	LANL Int BG LVL	0.05	5.3	0.05	ug/L	1		NQ	NQ	SW-846:6850	GELC	
C5	10	10	08/08/06	42.6	53	45.6	10	Pueblo Canyon (includes Acid Canyon)	Intermediate	POI-4	159	06/02/14	REG	F	INIT	GENINORG	Sodium	Na	43.3	0.9	LANL Int BG LVL	12.19	3.6	0.1	mg/L	1		NQ	NQ	SW-846:6010C	GELC	
C5	11	11	08/08/06	331	393	369	11	Pueblo Canyon (includes Acid Canyon)	Intermediate	POI-4	159	06/02/14	REG	F	INIT	GENINORG	Total Dissolved Solids	TDS	366	1	LANL Int BG LVL	127	2.9	3.4	mg/L	1		NQ	NQ	EPA:160.1	GELC	
C5	12	12	05/07/05	0.032	1.69	1.135	12	Pueblo Canyon (includes Acid Canyon)	Intermediate	POI-4	159	06/02/14	REG	F	INIT	GENINORG	Total Phosphate as Phosphorus	PO4-P	1.08	1	LANL Int BG LVL	0.08	13.5	0.017	mg/L	1		J	I4a	EPA:365.4	GELC	
C5	10	10	08/08/06	2.38	3.6	2.895	10	Pueblo Canyon (includes Acid Canyon)	Intermediate	POI-4	159	06/02/14	REG	F	INIT	RAD	Uranium	U	2.89	1	LANL Int BG LVL	0.72	4	0.067	ug/L	1		NQ	NQ	SW-846:6020	GELC	