General

Summary of New LANL Groundwater Data Loaded in November 2006

December 13, 2006

Executive Summary

Key findings include:

- **Fluoride and nitrate results from Mortandad Canyon, which are consistent with prior values;**
- **A nitrate result from R-23i, likely resulting from incorrect field preservation;**
- **Perchlorate results from wells in Los Alamos and Mortandad Canyons, that are consistent with prior values;**
- **Iron and chromium results either previously reported or related to well-sampling issues.**

Introduction

This report provides preliminary information to NMED concerning recent groundwater data This report highlights constituents that exceed 50% of an applicable regulatory standard in groundwater samples taken from several wells or springs (listed on four accompanying tables), which provide surveillance of the groundwater zones indicated in the tables.

In the tables, information is given for sample date, detection limits, values for regulatory standards, analytical and secondary validation qualifiers, and comments on the observations. All data have been through secondary validation, as indicated on the tables by a preliminary flag of N.

The following discussion provides information on prior occurrence of the constituents at the given locations.

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General Chemistry Results

Fluoride results in MCO-4B are similar to earlier values. MCOI-5 nitrate values of about 5 mg/L indicate an increasing trend from 3 mg/L to 5 mg/L from 6/05 to 10/06. A sample from Pajarito Canyon intermediate well R-23i had a nitrate (as N) result of 800 mg/L, 1000 times the value in the field duplicate (and 80 times the groundwater standard). This result also suggests some sampling or analytical error, perhaps incorrect field preservation with nitric acid.

Perchlorate results are similar to prior results for the sampled locations. Results of about 4 μg /L in Los Alamos Canyon intermediate well LAOI-3.2 a are consistent with earlier values.

The LC/MS/MS values for MCOI-5 suggest an increasing trend of 88 μg/L to 132 μg/L over the last 1.5 years; however the 314 method is probably more accurate in this range and suggests values are constant at about 116 μg/L since 1/06.

Metals Results

Several wells and springs generally have dissolved concentrations of aluminum, iron, or manganese that were more than 50% of groundwater standards. These metals are derived from soil or aquifer materials or related to well-drilling impact on sample quality.

Many chromium results from the STLA lab from sampling events throughout 2006 were loaded in November but were evaluated earlier for the LANL report on chromium sampling (Chromium Contamination in Regional Well R-28 Groundwater Interim Measures Report). Data from R-11 suggest an increasing trend from 20 μg/L to 30 μg/L since 5/05.

Organic Results

(no results)

result>standard

Analyte	Hdr 1	Zone	Location Name	Well Class	Port Depth	Start Date	Source Ori	Fld Pr	Fld Q	Lab S	Sample Id	Symbol	Std Result	Std U	Std R	Std U	Load Date	Lab Co	Lab	Con	Con	Prel	Uri	Lvl Type Code	EPA PRIM DW STD Scr Lvl	EPA PRIM DW STD Ratio (Result/Scr Level)	NM GW LIM Scr Lvl	NM GW LIM Ratio (Result/Scr Level)
F(-1)	Mortandad	Alluvial	MCO-4B	SINGLE	8.9	10/19/06	ESH-18HD	F	FD	CS	GF060900G4BM90		0.954			mg/l	11/22/06	GELC				N	14027831				1.6	0.6
F(-1)	Mortandad	Alluvial	MCO-4B	SINGLE	8.9	10/19/06	ESH-18HD	F		CS	GF060900G4BM01		0.976			mg/l	11/22/06	GELC				N	14027651				1.6	0.61
F(-1)	Mortandad	Alluvial	MCO-4B	SINGLE	8.9	10/19/06	ESH-18HD	UF	FD	CS	GU060900G4BM90		0.972			mg/l	11/22/06	GELC				N	14032981				1.6	0.61
F(-1)	Mortandad	Alluvial	MCO-4B	SINGLE	8.9	10/19/06	ESH-18HD	UF		CS	GU060900G4BM01		0.977			mg/l	11/22/06	GELC				N	14030551				1.6	0.61
NO3+NO2-N	Mortandad	Interme	MCOI-5	SINGLE	689	10/19/06	ESH-18HD	F	FD	CS	GF061000GMC520		5.05			mg/l	11/22/06	GELC		J	I13b	N	13993541		10	0.51	10	0.51
NO3+NO2-N	Mortandad	Interme	MCOI-5	SINGLE	689	10/19/06	ESH-18HD	UF	FD	CS	GU061000GMC520		5.19			mg/l	11/22/06	GELC		J	I13b	N	13998221		10	0.52	10	0.52
NO3+NO2-N	Mortandad	Interme	MCOI-5	SINGLE	689	10/19/06	ESH-18HD	UF		CS	GU061000GMC501		5.08			mg/l	11/22/06	GELC		J	I13b	N	13995951		10	0.51	10	0.51
NO3+NO2-N	Pajarito Ca	Interme	R-23i	MULTI	470.2	10/03/06	ESH-18HD	F		CS	GF0609GR23I 02		801			mg/l	11/22/06	GELC				N	14018551		10	80.1	10	80.1

This report contains all LC/MS/MS results and all IC detections (Note lower IC MDL for EES-6)
Sample with result > 24.5 (EPA Drinking Water Equivalent Level)
Sample with result > 4 CO Screening Level)
Sample with 0.6 < result < 4 (NMED background upper limit and CO Screening Level)

Fl	H	Ul	Hdr 1	Zor	Location Name	Well Class	Port Depth	Start Date	Fld C	Fld P	Lab S	Analy	Anyl Meth Code	Symbol	Std Result	Std Mdl	Std U	Diluti	Lab Q	Conc	Conc	Prelir	Load Date	Lab Code	Source Or	Comments	Sample Id	Anyl Suite	Uri
W	#	#	Upper	Inte	LAOI-3.2a	SINGLE	181	10/13/06		F	CS	ClO4	EPA:314.0		4.09	4	ug/L	1	J			N	11/17/06	GELC	ESH-18HDRO		GF06100GI32A01	GENINOR	13963481
W	#	#	Upper	Inte	LAOI-3.2a	SINGLE	181	10/13/06		F	CS	ClO4	SW846 6850 Modified		4.26	0.5	ug/L	10				N	11/17/06	GELC	ESH-18HDRO		GF06100GI32A01	GENINOR	13963441
W	#	#	Mortar	Allu	MCO-4B	SINGLE	9	10/19/06		F	CS	ClO4	EPA:314.0		29.8	4	ug/L	1				N	11/22/06	GELC	ESH-18HDRO		GF060900G4BM01	GENINOR	14027561
W	#	#	Mortar	Allu	MCO-4B	SINGLE	9	10/19/06		F	CS	ClO4	SW846 6850 Modified		30.5	5	ug/L	100		J	LMS	N	11/22/06	GELC	ESH-18HDRO		GF060900G4BM01	GENINOR	14027511
W	#	#	Mortar	Allu	MCO-4B	SINGLE	9	10/19/06	FD	F	CS	ClO4	EPA:314.0		30.6	4	ug/L	1				N	11/22/06	GELC	ESH-18HDRO		GF060900G4BM90	GENINOR	14027781
W	#	#	Mortar	Allu	MCO-4B	SINGLE	9	10/19/06	FD	F	CS	ClO4	SW846 6850 Modified		30.1	5	ug/L	100		J	LMS	N	11/22/06	GELC	ESH-18HDRO		GF060900G4BM90	GENINOR	14027691
W	#	#	Mortar	Inte	MCOI-5	SINGLE	689	10/19/06		F	CS	ClO4	EPA:314.0		116	8	ug/L	2				N	11/22/06	GELC	ESH-18HDRO		GF061000GMC501	GENINOR	13993001
W	#	#	Mortar	Inte	MCOI-5	SINGLE	689	10/19/06		F	CS	ClO4	SW846 6850 Modified		132	10	ug/L	200		J	LMS	N	11/22/06	GELC	ESH-18HDRO		GF061000GMC501	GENINOR	13992961
W	#	#	Mortar	Inte	MCOI-5	SINGLE	689	10/19/06	FD	F	CS	ClO4	EPA:314.0		115	8	ug/L	2				N	11/22/06	GELC	ESH-18HDRO		GF061000GMC520	GENINOR	13993461
W	#	#	Mortar	Inte	MCOI-5	SINGLE	689	10/19/06	FD	F	CS	ClO4	SW846 6850 Modified		131	10	ug/L	200		J	LMS	N	11/22/06	GELC	ESH-18HDRO		GF061000GMC520	GENINOR	13993421

Samples where result/screening level > 10
Samples where 1 < result/screening level < 10

Hr	Ut	Hdr 1	Zone	Location Name	Well Class	Port Depth	Start Date	Source Or	Analyt	Fld Pre	Lab Sa	Fld Qc	Symbo	Std Result	Std Mdl	Std U	Load Date	Lab Code	Lab Q	Conc	Conc	Prelin	Samp	Uri	Lvl Ty	EPA PRIM DW STD Scr Lvl	EPA PRIM DW STD Ratio (Res	NM GW LIM Scr Lvl	NM GW LIM Ratio (Res
#	#	Sand	Regic	R-11	SINGLE	855	02/03/06	ER	Cr(VI)	F	CS			26	0.6	ug/L	11/20/06	STLA		J+	I3	N	SF06	13976881				50	0.52
#	#	Sand	Regic	R-11	SINGLE	855	04/20/06	ER	Cr(VI)	F	CS			27.3	0.25	ug/L	11/20/06	STLA		J	IWQ1	N	SF06	13977341				50	0.55
#	#	Sand	Regic	R-11	SINGLE	855	10/10/06	ESH-18HD	Cr	F	CS	FD		29.3	1	ug/L	11/15/06	GELC				N	GF06	13923721				50	0.59
#	#	Sand	Regic	R-11	SINGLE	855	10/10/06	ESH-18HD	Cr	F	CS			29.4	1	ug/L	11/15/06	GELC				N	GF06	13923151				50	0.59
#	#	Morta	Intern	MCOI-6	SINGLE	686	01/31/06	ER	Cr(VI)	F	CS			53.2	1.5	ug/L	11/20/06	STLA				N	SF06	13977171		100	0.53	50	1.06
#	#	Morta	Regic	R-28	SINGLE	934.3	01/26/06	ER	Cr(VI)	F	CS			405	7.5	ug/L	11/20/06	STLA				N	SF06	13977201		100	4.05	50	8.1
#	#	Morta	Regic	R-28	SINGLE	934.3	04/19/06	ER	Cr(VI)	F	CS			417	1	ug/L	11/20/06	STLA		J	IWQ1	N	SF06	13977351		100	4.17	50	8.34
#	#	Pajar	Regic	R-17	MULTI	1057	10/19/06	ESH-18HD	Fe	F	CS			1510	18	ug/L	11/22/06	GELC	N	J+	I3	N	GF06	14013721				1000	1.51

Results from field QC samples
Samples where result/screening level > 10
Samples where 1 < result/screening level < 10
Samples with blank contamination, exceeded holding time, or rejected

Hd	Uli	Hd	Zone	Location Name	Well Class	Port Dept	Start Date	Fld C	Fld P	Lab S	Sample Id	Anyl S	Analyte Desc	Analyte	Sou	Sym	Std Result	Std Mdl	Std U	Diluti	Lab C	Conc	Conc	Preli	Lab S	Anyl	Lab S	Load Date	Uni	Lvl T Risk	EPA PRIM DW STD Code Scr Lvl	EPA PRIM DW STD Ratio (Resr	EPA TAP SCRN LVL C Scr Lvl	EPA TAP SCRN LVL C Ratio (Resu	EPA TAP SCRN LVL N Scr Lvl	EPA TAP SCRN LVL N Ratio (Resr	NM GW LIM Scr Lvl	NM GW LIM Ratio (Resr
				no results																																		