



NEW MEXICO  
ENVIRONMENT DEPARTMENT



*DOE Oversight Bureau*

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June 17, 2009

Karen Agogino  
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P.O Box 5400 MS 0184  
Albuquerque, New Mexico 87185-5400

**Subject: Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Conducted by NMED/DOE OB FFY 2009 Q-2, June 17, 2009**

Dear Ms. Agogino:

This letter transmits the subject final report.

The monitoring results are provided to DOE as final. If you have any questions, or if you would like copies of the complete data set, please contact Chris Armijo at (505)845-5824 or contact me at (505)845-5933.

Sincerely,

Barry S. Birch, CHMM  
Program Manager  
Sandia Oversight Section

BSB:ca

Enclosure: Data submittal entitled: "Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Conducted by NMED/DOE OB for FFY 2009 Q-2, June 17, 2009" with the following enclosures:

- (1) Table-1 Inorganic Compound Results
- (2) Table-2 Organic Compound Results
- (3) Figure-1 CYN-MW3 NMED and Sandia NPN Concentrations
- (4) Figure-2 CYN-MW6 NMED NPN Concentrations
- (5) Figure-3 CYN-MW6 Sandia NPN Concentrations
- (6) Figure-4 CYN-MW6 NMED and Sandia Perchlorate Concentrations

cc: Gayle Dye, PhD, DOE/NNSA  
John Gould, DOE/SSO  
Franz Lauffer, SNL/GWPP  
Michael Skelly, SNL/NM Groundwater  
Thomas Skibitski, Chief, DOE OB  
Barry Birch, Program Manager, DOE OB/SOS  
Chris Armijo, Environmental Scientist, DOE OB/SOS

File: SGE42.Groundwater Monitoring.Burn Site FFY2009 Q-2



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**Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site  
Conducted by NMED/DOE OB for FFY 2009 Q-2  
June 17, 2009**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data collected in February and March 2009. The Bureau collected groundwater samples from Burn Site monitoring wells: CYN-MW1D, CYN-MW3 and CYN-MW6. Split samples were collected using standard Sandia sampling procedures and equipment. The samples were submitted to an independent analytical laboratory for analyses of organic and inorganic compounds. Elevated concentrations of nitrates were found in CYN-MW3 and CYN-MW6, and an elevated concentration of perchlorate was found in CYN-MW6.

Data Assessment

Data results are compared to applicable Maximum Allowable Concentrations (MACs) from the New Mexico Water Quality Control Commission (WQCC) (20.6.2.3103A NMAC Human Health Standards), Maximum Contaminant Levels (MCLs) from the EPA National Primary Drinking Water Regulations (40 CFR 141), and SNL Compliance Order on Consent (COOC) screening levels.

Results

Analytical results for inorganic compounds are listed in Table-1. Samples were analyzed for nitrate plus nitrite (NPN) and perchlorate. The NPN concentrations were detected above the EPA MCL of 10 mg/L at monitoring wells CYN-MW3 (12 mg/L) and CYN-MW6 (39 mg/L). Perchlorate was analyzed using method SW-846: 6850 at Burn Site monitoring well CYN-MW6. The perchlorate concentration, including the duplicate, was detected above the COOC screening level of 4 µg/L set by NMED. Concentrations at CYN-MW6 were 8 µg/L and 7.83 µg/L (Duplicate). There is currently no state of New Mexico or federal MCL established for perchlorate.

Analytical results for organic compounds are listed in Table-2. Samples at monitoring wells CYN-MW3 and CYN-MW6 were analyzed for diesel and gasoline range organics. No organic compounds were detected above the method detection limit (MDL).

Conclusion

Based on historical data provided by Sandia, NPN concentrations at CYN-MW3 have been steady to slightly decreasing over time (Figure 1). The Bureau does not have NPN data results from Sandia for FFY 2009 Q-2, but NMED data results for CYN-MW3 compare well to historical data. The Bureau data results for CYN-MW6 show that NPN concentrations have consistently exceeded the MCL of 10 mg/L, and have been increasing since December 2007 (Figure 2). Historical data results from Sandia show that NPN concentrations were stable to slightly increasing at CYN-MW6 (Figure 3) from March 2006 to September 2008.

Perchlorate concentrations at CYN-MW6 have consistently exceeded the Sandia COOC screening level of 4 µg/L. Past Sandia data results from March 2006 to September 2008 indicate that perchlorate concentrations at CYN-MW6 have been trending steady to slightly decreasing over time (Figure 4). The Bureau perchlorate results from CYN-MW6 during the 2<sup>nd</sup> quarter FFY 2009 are comparable to past analytical results.

### Response

Questions or comments should be addressed to Barry S. Birch by phone at (505)845-5933, by e-mail at [barry.birch@state.nm.us](mailto:barry.birch@state.nm.us), or to the address in the letterhead.

Enclosure: (1) Table-1 Inorganic Compound Results  
(2) Table-2 Organic Compound Results  
(3) Figure-1 CYN-MW3 NMED and Sandia NPN Concentrations  
(4) Figure-2 CYN-MW6 NMED NPN Concentrations  
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**Table 1- NMED DOE Oversight Bureau FFY 2009 Q-2 Burnsite Groundwater Quality Results: Inorganics**

Monitoring Well/ Sample Date	Analyte	Result	EPA MCL	MDL	Quantitation Limit	Units	Laboratory Qualifier	Analytical Method
CYN-MW1D 26-Feb-09	Nitrate-Nitrite as N	5.4	10	0.014	0.05	mg/L		EPA:353.2
CYN-MW3 27-Feb-09	Nitrate-Nitrite as N	<b>12</b>	10	0.055	0.2	mg/L		EPA:353.2
CYN-MW6 2-Mar-09	Nitrate-Nitrite as N	<b>39</b>	10	0.055	0.2	mg/L		EPA:353.2
	Nitrate-Nitrite as N (DUP)	<b>39</b>	10	0.055	0.2	mg/L		EPA:353.2
	Perchlorate	<b>8</b> <sup>(1)</sup>	NE	0.01	0.05	µg/L		SW-846:6850
	Perchlorate (DUP)	<b>7.83</b> <sup>(1)</sup>	NE	0.01	0.05	µg/L		SW-846:6850

NOTE: Values in bold exceed the established MCL.

NE = not established

(1)= Perchlorate concentration exceeds the NMED screening level of 4 µg/L

**Table 2- NMED DOE Oversight Bureau FFY 2009 Q-2 Burnsite Groundwater Quality Results: Organics**

<b>Monitoring Well/ Sample Date</b>	<b>Analyte</b>	<b>Result</b>	<b>EPA MCL</b>	<b>MDL</b>	<b>Quantitation Limit</b>	<b>Units</b>	<b>Laboratory Qualifier</b>	<b>Analytical Method</b>
CYN-MW3 27-Feb-09	Diesel Range Organics	0.17	NE	0.17	0.5	mg/L	U	SW-846:8015M
	Gasoline Range Organics	0.026	NE	0.026	0.1	mg/L	U	SW-846:8015
CYN-MW6 02-Mar-09	Diesel Range Organics	0.17	NE	0.17	0.5	mg/L	U	SW-846:8015M
	Gasoline Range Organics	0.026	NE	0.026	0.1	mg/L	U	SW-846:8015

NOTE: U=Analyte not detected above MDL

NE=not established



