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February 18, 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
Conducted by NMED/DOE OB for Monitoring Well CYN-MW6, FFY 2008
Q-4, February 18, 2009**

Dear Ms. Agogino:

This letter transmits the subject final report.

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 Conducted by NMED/DOE OB for Monitoring Well CYN-MW6, FFY 2008 Q-4, February 18, 2009" with the following enclosures:
(1) Table-1 Total (unfiltered) TAL Metals Results
(2) Table-2 Gross Alpha/Beta and Gamma Spectroscopy Results
(3) Table-3 Inorganic Results
(4) Table-4 Diesel Range and Gasoline Range Organic Results

cc: Gayle Dye, 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.CYN-MW6.FFY 2008 Q-4



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**Groundwater Monitoring at Sandia National Laboratories/New Mexico
Conducted by NMED/DOE OB for Monitoring Well CYN-MW6, FFY 2008 Q-4
February 18, 2009**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data collected on September 17, 2008 from Lurance Canyon Burn Site Monitoring well CYN-MW6. Samples were submitted to an independent analytical laboratory for metals, radionuclide isotopes, inorganic, and organic analyses.

Data Assessment

Data results are compared to applicable Maximum Allowable Concentrations (MAC) from the New Mexico Water Quality Control Commission (WQCC) (20.6.2.3103 NMAC Human Health Standards) and Maximum Contaminant Levels (MCLs) from the EPA National Primary Drinking Water Regulations (40 CFR 141).

Total (unfiltered) Target Analyte List (TAL) metals are listed in Table-1. All metal concentrations were below established regulatory standards.

Analytical results for radionuclide isotopes are listed in Table-2. Samples were analyzed for gross alpha/beta and gamma-emitting isotopes. All radionuclide activities were below MCLs, where established.

Analytical results for inorganic compounds are listed in Table-3. Samples were analyzed for anions, cations, nitrate plus nitrite (NPN) measured as nitrogen, and perchlorate. All anion and cation concentrations were below established MCLs. The nitrate concentration of 51 mg/L exceeded the MCL of 10 mg/L. Perchlorate was analyzed using EPA method 314.0. Perchlorate was detected above the SNL Compliance Order On Consent screening level of 0.004 mg/L set by NMED. The CYN-MW6 had a concentration of 0.0087 mg/L.

Analytical results for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), diesel range organics (DRO), and gasoline range organics (GRO) are listed in Table-4. No VOCs, SVOCS, or GRO were detected above the method detection limits (MDLs). The DRO concentration was detected above the MDL, but it was flagged with a "J" and a "B" indicating the concentration was estimated and also detected in the associated method blank.

Conclusions

Nitrate concentration exceeded the MCL of 10 mg/L by 5 times at monitoring well CYN-MW6. Concentrations have consistently exceeded the MCL over the life of the well. Trending data indicate the nitrate concentration has been increasing. The Oversight Bureau recommends that Sandia continues monitoring CYN-MW6 for NPN. Perchlorate concentrations at CYN-MW6 have consistently exceeded the NMED screening level of .004 mg/L and have been stable to slightly increasing over time.

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, or to the address in the letterhead.

Enclosure: (1) Table-1 Total (unfiltered) TAL Metals Results
(2) Table-2 Gross Alpha/Beta and Gamma-emitting Isotope Results
(3) Table-3 Inorganic Results
(4) Table-4 Diesel Range and Gasoline Range Organic Results

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

File: SGE42.Groundwater Monitoring.CYN-MW6.4Q FFY 2008

TABLE 1: SNL/NM Groundwater Monitoring, 4th Quarter FFY 2008
 Burn Site Monitoring Well, CYN-MW6
 Total Metals Results

Monitoring Well/ Sample Date	Analyte	Result	MDL	Quantitation Limit	EPA MCL	NMED MAC	Laboratory Qualifier	Units	Analytical Method
CYN-MW6 17-Sep-08	Aluminum	0.13	0.014	0.1	NE	5		mg/L	SW-846:6010
	Antimony	0.000038	0.000041	0.0003	0.006	NE	B	mg/L	SW-846:6020
	Arsenic	0.0012	0.00011	0.002	0.01	0.1	B	mg/L	SW-846:6020
	Barium	0.079	0.0001	0.002	2	1		mg/L	SW-846:6010
	Beryllium	0.00012	0.00013	0.001	0.004	NE	U	mg/L	SW-846:6010
	Cadmium	0.000039	0.000042	0.0003	0.005	0.01	B	mg/L	SW-846:6020
	Calcium	200	0.014	0.5	NE	NE		mg/L	SW-846:6010
	Chromium	0.0013	0.00051	0.005	0.1	0.05	B	mg/L	SW-846:6010
	Cobalt	0.00063	0.00031	0.002	NE	0.05	U	mg/L	SW-846:6010
	Copper	0.0017	0.00047	0.002	1.3	1	B	mg/L	SW-846:6010
	Iron	0.19	0.0083	0.05	NE	1		mg/L	SW-846:6010
	Lead	0.0003	0.000045	0.0005	0.015	0.05	B	mg/L	SW-846:6020
	Magnesium	51	0.0075	0.5	NE	NE		mg/L	SW-846:6010
	Manganese	0.007	0.00015	0.002	NE	NE		mg/L	SW-846:6010
	Mercury	0.000034	0.0000075	0.0001	0.002	0.002	B	mg/L	SW-846:7470
	Nickel	0.001	0.00059	0.005	NE	0.2	U	mg/L	SW-846:6010
	Potassium	3	0.029	0.5	NE	NE	E	mg/L	SW-846:6010
	Selenium	0.011	0.00011	0.001	0.05	0.05		mg/L	SW-846:6020
	Silver	0.000035	0.000014	0.0001	NE	0.05	B	mg/L	SW-846:6020
	Sodium	42	0.006	0.5	NE	NE		mg/L	SW-846:6010
Thallium	0.000017	0.000015	0.0002	0.002	NE	B	mg/L	SW-846:6020	
Uranium	0.011	0.000074	0.0001	0.03	0.03		mg/L	SW-846:6020	
Vanadium	0.0024	0.00051	0.005	NE	NE	B	mg/L	SW-846:6010	
Zinc	0.0037	0.0044	0.005	NE	10	B	mg/L	SW-846:6010	

B = Result is an estimated value above MDL/IDL but less than reporting limit.

E = Reported value is estimated due to interferences.

NE = Not established.

U = Analyte was analyzed for but was not detected.

TABLE 2: SNL/NM Groundwater Monitoring, 4th Quarter FFY 2008
 Burn Site Monitoring Well CYN-MW6
 Radionuclide Results

Monitoring Well/ Sample Date	Analyte	Result	Uncertainty	MDA	Laboratory Qualifier	Units	Analytical Method
CYN-MW6 17-Sep-08	Actinium-228	4.1	16	27	U	pCi/L	713R10
	Aluminum-26	1.5	3.3	5.6	U	pCi/L	713R10
	Americium-241	21	27	44	U	pCi/L	713R10
	Antimony-124	0.53	3	5	U	pCi/L	713R10
	Antimony-125	4	6.2	11	U	pCi/L	713R10
	Beryllium-7	5.6	20	34	U	pCi/L	713R10
	Bismuth-212	14	64	110	U	pCi/L	713R10
	Bismuth-214	71	15	20	J	pCi/L	713R10
	Cadmium-109	73	46	72	SI	pCi/L	713R10
	Cerium-139	-0.53	1.8	3	U	pCi/L	713R10
	Cerium-144	2.9	11	18	U	pCi/L	713R10
	Cesium-134	0.29	2.8	4.7	U	pCi/L	713R10
	Cesium-137	-0.42	2.4	4.2	U	pCi/L	713R10
	Chromium-51	-8.3	21	36	U	pCi/L	713R10
	Cobalt-56	5.7	4.5	7.1	U	pCi/L	713R10
	Cobalt-57	1.4	1.7	2.7	U	pCi/L	713R10
	Cobalt-58	-2.1	2.8	4.8	U	pCi/L	713R10
	Cobalt-60	-3.8	3.1	5.5	U	pCi/L	713R10
	Europium-152	-2	16	27	U	pCi/L	713R10
Europium-154	0	14	24	U	pCi/L	713R10	
Europium-155	0.043	6.5	11	U	pCi/L	713R10	
Gross Alpha	12	2.5	1.4		pCi/L	724R10	
Gross Beta	4.5	1.9	2.7	M3	pCi/L	724R10	
Iodine-131	-2.7	3.9	6.7	U	pCi/L	713R10	

J = Activity is an estimated value.
 M3 = The requested MDA was not met, but the reported activity is greater than the reported MDA.
 SI = Nuclide identification and/or quantitation are tentative.
 U = Result is less than the sample specific MDA.

TABLE 2: SNL/NM Groundwater Monitoring, 4th Quarter FFY 2008
 Burn Site Monitoring Well CYN-MW6
 Radionuclide Results

Monitoring Well/ Sample Date	Analyte	Result	Uncertainty	MDA	Laboratory Qualifier	Units	Analytical Method
CYN-MW6 17-Sep-08	Iron-59	4	5.6	9.2	U	pCi/L	713R10
	Lead-212	1.3	7.3	12	U	pCi/L	713R10
	Lead-214	81	14	18	J	pCi/L	713R10
	Manganese-54	-0.63	2.8	4.8	U	pCi/L	713R10
	Niobium-94	1.2	2.6	4.4	U	pCi/L	713R10
	Niobium-95	-3.1	3.5	6.2	U	pCi/L	713R10
	Potassium-40	23	73	120	U	pCi/L	713R10
	Protactinium-234m	81	440	740	U	pCi/L	713R10
	Ruthenium-106	6.7	23	39	U	pCi/L	713R10
	Scandium-46	-1.5	2.5	4.4	U	pCi/L	713R10
	Silver-110m	0.14	2.2	3.8	U	pCi/L	713R10
	Sodium-22	-2.1	2.7	4.9	U	pCi/L	713R10
	Strontium-85	1.9	3.2	5.3	U	pCi/L	713R10
	Thallium-208	0.85	5.5	9.2	U	pCi/L	713R10
	Thorium-227	-2.8	17	29	U	pCi/L	713R10
	Thorium-234	40	86	140	U	pCi/L	713R10
Uranium-235	-4.6	17	28	U	pCi/L	713R10	
Zinc-65	-0.46	8.7	15	U	pCi/L	713R10	

J = Activity is an estimated value.

M3 = The requested MDA was not met, but the reported activity is greater than the reported MDA.

SI = Nuclide identification and/or quantitation are tentative.

U = Result is less than the sample specific MDA.

TABLE 3: SNL/NM Groundwater Monitoring, 4th Quarter FFY 2008
 Burn Site Monitoring Well CYN-MW6
 Anions, Cations, Nitrate plus Nitrite and Perchlorate Results

Monitoring Well/ Sample Date	Analyte	Result	MDL	Quantitation Limit	EPA MCL	NMED MAC	Laboratory Qualifier	Units	Analytical Method
CYN-MW6 17-Sep-08	Bromide	1.1	0.16	0.4	NE	NE		mg/L	EPA:300
	Chloride	110	2.5	10	NE	250		mg/L	EPA:300
	Fluoride	0.5	0.067	0.2	4	1.6		mg/L	EPA:300
	Sulfate	210	17	50	NE	600		mg/L	EPA:300
	Nitrate-Nitrite as N	51	0.092	0.5	10	10		mg/L	EPA:353.2
	Perchlorate	0.0087 ⁽¹⁾	0.0013	0.004	NE	NE		mg/L	EPA314.0
	Calcium	210	0.014	1	NE	NE		mg/L	SW-846:6010
	Lithium	0.065	0.00044	0.01	NE	NE		mg/L	SW-846:6010
	Magnesium	52	0.0075	1	NE	NE		mg/L	SW-846:6010
	Potassium	3	0.029	1	NE	NE		mg/L	SW-846:6010
	Silicon	9.6	0.0082	0.05	NE	NE		mg/L	SW-846:6010
	Sodium	43	0.006	1	NE	NE		mg/L	SW-846:6010
	Strontium	1.4	0.00009	0.01	NE	NE		mg/L	SW-846:6010

Values in bold exceed the established MAC and/or MCL.

(1) = Perchlorate concentration exceeds NMED screening level/action level of 0.004 mg/L.

NE = Not established.

TABLE 4: SNL/NM Groundwater Monitoring, Fourth Quarter FFY 2008
 Burn Site Monitoring Well CYN-MW6
 Diesel Range and Gasoline Range Organic Results

Monitoring Well/ Sample Date	Analyte	Result	MDL	Quantitation Limit	Laboratory Qualifier	Units	Analytical Method
CYN-MW6 17-Sep-08	Diesel Range Organics	0.41	0.17	0.5	J,B	mg/L	SW-846:8015M
	Gasoline Range Organics	0.026	0.026	0.1	U	mg/L	SW-846:8015

B = Analyte is detected in blank as well as sample.
 J = Result is an estimated value.
 U = Analyte was analyzed for but was not detected.

