



**NEW MEXICO  
ENVIRONMENT DEPARTMENT**



***DOE Oversight Bureau***

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**Groundwater Monitoring at Sandia National Laboratories/New Mexico Chemical Waste Landfill Conducted by the NMED DOE OB for FFY 2011 Q-1**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data from samples collected during December 2010. The Bureau collected groundwater samples from Chemical Waste Landfill groundwater monitoring wells CWL-MW9, CWL-MW10 and CWL-MW11. Split samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM) sampling procedures and equipment. Bureau samples were submitted to an independent contract laboratory to be analyzed for Target Analyte List (TAL) metals and volatile organic compounds (VOCs). No anomalies were detected in the groundwater results from samples collected at the CWL monitoring wells.

Data Assessment

Data results are compared to applicable Maximum Contaminant Levels (MCLs) from the EPA National Primary Drinking Water Regulations (40 CFR 141).

Results

Analytical results for TAL metals are listed in Table 1. All metal concentrations were detected below established EPA MCLs.

Volatile organic compounds (VOCs) detected above their associated method detection limits (MDLs) are listed in Table 2. Carbon disulfide was detected at a concentration of 0.7 µg/L at monitoring well CWL-MW9. No MCL currently exists for carbon disulfide. Trichloroethylene (TCE) was detected at a concentration of 1.0 µg/L at CWL-MW10, but below the EPA MCL of 5 µg/L.

Conclusions

Data results from SNL for this sampling event have been reviewed and evaluated against data results from NMED. Detection limits and methods vary, but overall data results from both sides are comparable.

Response

Questions or comments should be addressed to Chris Armijo by phone at (505) 383-2070, by email at [chris.armijo1@state.nm.us](mailto:chris.armijo1@state.nm.us), or to the address in the letterhead.

Enclosure: (1) Table 1 Total Target Analyte List Metals Results  
(2) Table 2 Volatile Organic Compounds Results  
(3) Map- SNL/NM Chemical Waste Landfill Groundwater Monitoring Wells

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**Table 1- NMED DOE Oversight Bureau FFY 2011 Q-1 Chemical Waste Landfill Groundwater Quality Results: TAL Metals**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (µg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW9 1-Dec-10	Aluminum	0.04	NE	0.2	0.04	E8,U	SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	E8,U	SW-846:6020
	Arsenic	0.0017	0.01	0.001	0.00034		SW-846:6020
	Barium	0.16	2	0.001	0.00026		SW-846:6020
	Beryllium	0.0004	0.004	0.001	0.0004	E8,U	SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	E8,U	SW-846:6020
	Calcium	100	NE	2	0.012		SW-846:6010B
	Chromium	0.00048	0.1	0.001	0.00023	J	SW-846:6020
	Cobalt	0.0013	NE	0.001	0.00005		SW-846:6020
	Copper	0.00089	1.3	0.001	0.00007	J	SW-846:6020
	Iron	0.68	NE	0.05	0.036		SW-846:6010B
	Lead	0.00006	0.015	0.001	0.00006	E8,U	SW-846:6020
	Magnesium	29	NE	2	0.04		SW-846:6010B
	Manganese	1.4	NE	0.005	0.00007		SW-846:6020
	Mercury	0.000089	0.002	0.0005	0.000089	E8,U	SW-846:7040
	Nickel	0.0041	NE	0.001	0.00017		SW-846:6020
	Potassium	7.8	NE	2	0.12		SW-846:6010B
	Selenium	0.0012	0.05	0.002	0.0012	E8,U	SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	E8, M2,U	SW-846:6020
	Sodium	73	NE	2	0.65		SW-846:6010B
Thallium	0.00012	0.002	0.001	0.00012	E8,U	SW-846:6020	
Vanadium	0.0012	NE	0.001	0.00019		SW-846:6020	
Zinc	0.026	NE	0.01	0.0033		SW-846:6020	

E8 = Analyte reported to the MDL per project specification. Target analyte was not detected in the sample.

J = Result falls between the MDL and RL.

M2 Matrix spike recovery was low; the associated blank spike recovery was acceptable.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (µg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW10 6-Dec-10	Aluminum	0.04	NE	0.2	0.04	E8,U	SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	E8,U	SW-846:6020
	Arsenic	0.0018	0.01	0.001	0.00034		SW-846:6020
	Barium	0.34	2	0.001	0.00026		SW-846:6020
	Beryllium	0.0004	0.004	0.001	0.0004	E8,U	SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	E8,U	SW-846:6020
	Calcium	92	NE	2	0.012		SW-846:6010B
	Chromium	0.0005	0.1	0.001	0.00023	J	SW-846:6020
	Cobalt	0.0017	NE	0.001	0.00005		SW-846:6020
	Copper	0.003	1.3	0.001	0.00007		SW-846:6020
	Iron	0.59	NE	0.05	0.036		SW-846:6010B
	Lead	0.00033	0.015	0.001	0.00006	J	SW-846:6020
	Magnesium	26	NE	2	0.04		SW-846:6010B
	Manganese	1.4	NE	0.005	0.00007		SW-846:6020
	Mercury	0.000089	0.002	0.0005	0.000089	E8,U	SW-846:7040
	Nickel	0.0069	NE	0.001	0.00017		SW-846:6020
	Potassium	8.1	NE	2	0.12		SW-846:6010B
	Selenium	0.0012	0.05	0.002	0.0012	E8,U	SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	E8,U	SW-846:6020
	Sodium	71	NE	2	0.65		SW-846:6010B
Thallium	0.00012	0.002	0.001	0.00012	E8,U	SW-846:6020	
Vanadium	0.0015	NE	0.001	0.00019		SW-846:6020	
Zinc	0.074	NE	0.01	0.0033		SW-846:6020	

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (µg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW10 6-Dec-10 DUP	Aluminum	0.04	NE	0.2	0.04	E8,U	SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	E8,U	SW-846:6020
	Arsenic	0.0018	0.01	0.001	0.00034		SW-846:6020
	Barium	0.34	2	0.001	0.00026		SW-846:6020
	Beryllium	0.0004	0.004	0.001	0.0004	E8,U	SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	E8,U	SW-846:6020
	Calcium	94	NE	2	0.012		SW-846:6010B
	Chromium	0.00044	0.1	0.001	0.00023	J	SW-846:6020
	Cobalt	0.0017	NE	0.001	0.00005		SW-846:6020
	Copper	0.0031	1.3	0.001	0.00007		SW-846:6020
	Iron	0.61	NE	0.05	0.036		SW-846:6010B
	Lead	0.0003	0.015	0.001	0.00006	J	SW-846:6020
	Magnesium	26	NE	2	0.04		SW-846:6010B
	Manganese	1.4	NE	0.005	0.00007		SW-846:6020
	Mercury	0.000089	0.002	0.0005	0.000089	E8,U	SW-846:7040
	Nickel	0.0067	NE	0.001	0.00017		SW-846:6020
	Potassium	8.1	NE	2	0.12		SW-846:6010B
	Selenium	0.0012	0.05	0.002	0.0012	E8,U	SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	E8,U	SW-846:6020
	Sodium	71	NE	2	0.65		SW-846:6010B
Thallium	0.00012	0.002	0.001	0.00012	E8,U	SW-846:6020	
Vanadium	0.0014	NE	0.001	0.00019		SW-846:6020	
Zinc	0.074	NE	0.01	0.0033		SW-846:6020	

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (µg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW11 14-Dec-10	Aluminum	0.093	NE	0.2	0.04	J	SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	E8,U	SW-846:6020
	Arsenic	0.0015	0.01	0.001	0.00034		SW-846:6020
	Barium	0.09	2	0.001	0.00026		SW-846:6020
	Beryllium	0.0004	0.004	0.001	0.0004	E8,U	SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	E8,U	SW-846:6020
	Calcium	110	NE	2	0.012		SW-846:6010B
	Chromium	0.0032	0.1	0.001	0.00023		SW-846:6020
	Cobalt	0.00043	NE	0.001	0.00005	J	SW-846:6020
	Copper	0.0016	1.3	0.001	0.00007		SW-846:6020
	Iron	0.34	NE	0.05	0.036		SW-846:6010B
	Lead	0.00058	0.015	0.001	0.00006	J	SW-846:6020
	Magnesium	30	NE	2	0.04		SW-846:6010B
	Manganese	0.15	NE	0.005	0.00007		SW-846:6020
	Mercury	0.000089	0.002	0.0005	0.000089	E8,U	SW-846:7040
	Nickel	0.0043	NE	0.001	0.00017		SW-846:6020
	Potassium	9.6	NE	2	0.12		SW-846:6010B
	Selenium	0.0019	0.05	0.002	0.0012	J	SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	E8,U	SW-846:6020
	Sodium	76	NE	2	0.65		SW-846:6010B
Thallium	0.00012	0.002	0.001	0.00012	E8,U	SW-846:6020	
Vanadium	0.003	NE	0.001	0.00019		SW-846:6020	
Zinc	0.022	NE	0.01	0.0033		SW-846:6020	

E8 = Analyte reported to the MDL per project specification. Target analyte was not detected in the sample.

J = Result falls between the MDL and RL.

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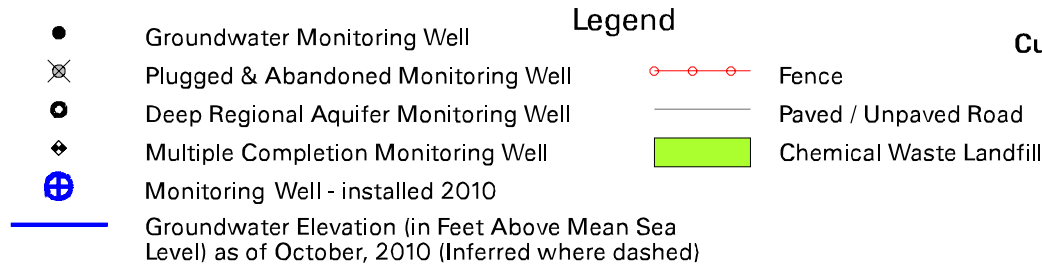
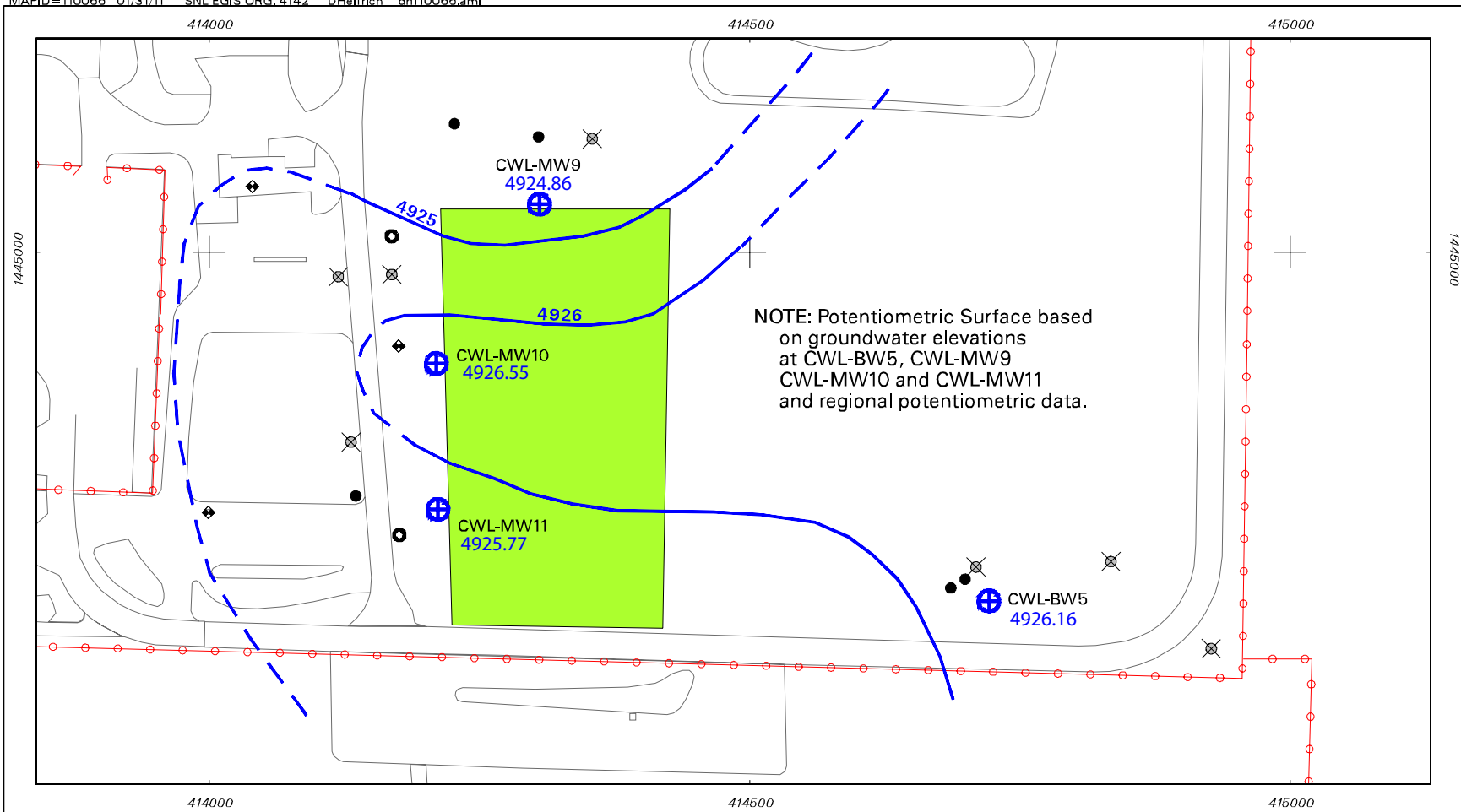


**Table 2- NMED DOE OB FFY 2011 Q-1 CWL Groundwater Quality Results: Detected Volatile Organic Compounds**

Monitoring Well/ Sample Date	Analyte	Result (µg/L)	EPA MCL (µg/L)	Quantitation Limit (µg/L)	MDL (µg/L)	Laboratory Qualifier	Analytical Method
CWL-MW9 1-Dec-10	Carbon Disulfide	0.7	NE	1	0.18	J	SW-846:8260B
CWL-MW10 6-Dec-10	Trichloroethylene	1	5	1	0.19		SW-846:8260B
CWL-MW10 6-Dec-10 DUP	Trichloroethylene	0.88	5	1	0.19	J	SW-846:8260B

J = Result is an estimated value

NE = Not established



**Figure A-2**  
**Current Monitoring Well Network and Potentiometric Surface Map, Chemical Waste Landfill**  
**Sandia National Laboratories, New Mexico**

