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**Groundwater Monitoring at Sandia National Laboratories/New Mexico Chemical Waste Landfill Conducted by NMED/DOE Oversight Bureau for FFY 2010 Q-3**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data from samples collected in April 2010. The Bureau collected groundwater samples from Chemical Waste Landfill (CWL) groundwater monitoring wells CWL-MW2BL, CWL-MW4, and CWL-MW5U. Split samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM or Sandia) sampling procedures and equipment. Bureau samples were submitted to an independent analytical 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 CWL monitoring wells.

Data Assessment

All groundwater samples were collected and analyzed in accordance with U.S. Environmental Protection Agency (EPA) protocols. Data results are compared to applicable maximum contaminant levels (MCLs) established by the U.S. EPA National Primary Drinking Water Regulations (40 CFR 141), National Primary Drinking Water Standards, EPA, July 2002.

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. Chloroform and trichloroethylene (TCE) were the only compounds detected above the laboratory MDLs, but they were both below the EPA MCL. Chloroform was detected at a concentration of 0.61 µg/L at monitoring well CWL-MW2BL and TCE was detected at a concentration of 2.8 µg/L at CWL-MW5U.

Conclusions

Data results from SNL/NM for this sampling event have not been received at this time, so there is no direct comparison of results.

No anomalies were detected in the groundwater results from samples collected at CWL monitoring wells. All samples were detected below established MCLs.

Response

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

Enclosure:     (1) Table 1: TAL Metals Results  
                  (2) Table 2: Detected Volatile Organic Compounds Results  
                  (3) Map: Chemical Waste Landfill Groundwater Monitoring Wells

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File:            SGE42.Groundwater Monitoring. CWL. FFY 2010 Q-3

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**Table 1- NMED DOE Oversight Bureau FFY 2010 Q-3 Chemical Waste Landfill Groundwater Quality Results: TAL Metals**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	PQL (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW2BL 14-Apr-10	Aluminum	0.02	NE	0.2	0.048	B	SW-846:6010
	Antimony	0.003	0.006	0.02	0.003	U	SW-846:6010
	Arsenic	0.0039	0.01	0.01	0.0023	U	SW-846:6010
	Barium	0.057	2	0.1	0.00088	B	SW-846:6010
	Beryllium	0.00018	0.004	0.005	0.00027	U	SW-846:6010
	Cadmium	0.00033	0.005	0.005	0.00056	U	SW-846:6010
	Calcium	130	NE	1	0.2		SW-846:6010
	Chromium	0.00065	0.1	0.01	0.0023	B	SW-846:6010
	Cobalt	0.00045	NE	0.01	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.01	0.0015	U	SW-846:6010
	Iron	0.0049	NE	0.1	0.058	U	SW-846:6010
	Lead	0.0013	0.015	0.003	0.0014	U	SW-846:6010
	Magnesium	36	NE	1	0.2		SW-846:6010
	Manganese	0.00026	NE	0.01	0.0013	B	SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.00093	NE	0.02	0.0019	U	SW-846:6010
	Potassium	7.9	NE	1	0.41		SW-846:6010
	Selenium	0.0027	0.05	0.005	0.0022	U	SW-846:6010
	Silver	0.0011	NE	0.01	0.0009	U	SW-846:6010
	Sodium	80	NE	1	0.22		SW-846:6010
Thallium	0.00002	0.002	0.0002	0.000021	B	SW-846:6020	
Vanadium	0.0024	NE	0.01	0.00076	B	SW-846:6010	
Zinc	0.00072	NE	0.02	0.0056	U	SW-846:6010	

Refer to the notes at the end of the tables.

**Table 1- NMED DOE Oversight Bureau FFY 2010 Q-3 Chemical Waste Landfill Groundwater Quality Results: TAL Metals**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	PQL (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW4 5-Apr-10	Aluminum	0.031	NE	0.2	0.048	B	SW-846:6010
	Antimony	0.003	0.006	0.02	0.003	U	SW-846:6010
	Arsenic	0.0039	0.01	0.01	0.0023	U	SW-846:6010
	Barium	0.062	2	0.1	0.00088	B	SW-846:6010
	Beryllium	0.00019	0.004	0.005	0.00027	B	SW-846:6010
	Cadmium	0.00033	0.005	0.005	0.00056	U	SW-846:6010
	Calcium	110	NE	1	0.2		SW-846:6010
	Chromium	0.03	0.1	0.01	0.0023		SW-846:6010
	Cobalt	0.0034	NE	0.01	0.00077	B	SW-846:6010
	Copper	0.0022	1.3	0.01	0.0015	B	SW-846:6010
	Iron	0.52	NE	0.1	0.058		SW-846:6010
	Lead	0.0013	0.015	0.003	0.0014	U	SW-846:6010
	Magnesium	29	NE	1	0.2		SW-846:6010
	Manganese	0.035	NE	0.01	0.0013		SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.27	NE	0.02	0.0019		SW-846:6010
	Potassium	11	NE	1	0.41	E	SW-846:6010
	Selenium	0.0049	0.05	0.005	0.0022	B	SW-846:6010
	Silver	0.0011	NE	0.01	0.0009	U	SW-846:6010
	Sodium	70	NE	1	0.22		SW-846:6010
Thallium	0.00004	0.002	0.0002	0.000018	B	SW-846:6020	
Vanadium	0.0012	NE	0.01	0.00076	B	SW-846:6010	
Zinc	0.0026	NE	0.02	0.0056	B	SW-846:6010	

Refer to the notes at the end of the tables.

**Table 1- NMED DOE Oversight Bureau FFY 2010 Q-3 Chemical Waste Landfill Groundwater Quality Results: TAL Metals**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	PQL (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW5U 9-Apr-10	Aluminum	0.037	NE	0.2	0.048	B	SW-846:6010
	Antimony	0.003	0.006	0.02	0.003	U	SW-846:6010
	Arsenic	0.0039	0.01	0.01	0.0023	U	SW-846:6010
	Barium	0.07	2	0.1	0.00088	B	SW-846:6010
	Beryllium	0.00021	0.004	0.005	0.00027	B	SW-846:6010
	Cadmium	0.00033	0.005	0.005	0.00056	U	SW-846:6010
	Calcium	100	NE	1	0.2		SW-846:6010
	Chromium	0.0015	0.1	0.01	0.0023	B	SW-846:6010
	Cobalt	0.00045	NE	0.01	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.01	0.0015	U	SW-846:6010
	Iron	0.07	NE	0.1	0.058	B	SW-846:6010
	Lead	0.0013	0.015	0.003	0.0014	U	SW-846:6010
	Magnesium	26	NE	1	0.2		SW-846:6010
	Manganese	0.00085	NE	0.01	0.0013	B	SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.00095	NE	0.02	0.0019	B	SW-846:6010
	Potassium	11	NE	1	0.41		SW-846:6010
	Selenium	0.0046	0.05	0.005	0.0022	B	SW-846:6010
	Silver	0.0011	NE	0.01	0.0009	U	SW-846:6010
	Sodium	74	NE	1	0.22		SW-846:6010
Thallium	0.00005	0.002	0.0002	0.000021	B	SW-846:6020	
Vanadium	0.0018	NE	0.01	0.00076	B	SW-846:6010	
Zinc	0.029	NE	0.02	0.0056		SW-846:6010	

Refer to the notes at the end of the tables.

**Table 2- NMED DOE Oversight Bureau FFY 2010 Q-3 CWL Groundwater Quality Results: Detected Volatile Organic Compounds**

Monitoring Well/ Sample Date	Analyte	Result (µg/L)	EPA MCL (µg/L)	PQL (µg/L)	MDL (µg/L)	Laboratory Qualifier	Analytical Method
CWL-MW2BL 14-Apr-10	Chloroform	0.61	NE	0.5	0.17		SW8260_25
CWL-MW5U 9-Apr-10	Trichloroethylene	2.8	5	0.5	0.17		SW8260_25

*Refer to the notes at the end of the tables.*

## **Notes for CWL Groundwater Monitoring FFY 2010 Q-3**

### **Result Units**

mg/L = milligrams per liter

µg/L = micrograms per liter

### **EPA MCL**

Maximum contaminant level. Established by the U.S. Environmental Protection Agency Primary Water Regulations (40 CFR 141), National Primary Drinking Water Regulations.

NE = Not established

### **PQL**

Practical Quantitation Limit. The lowest concentration that can be reliably measured by a laboratory with defined limits of precision and accuracy.

### **MDL**

Method detection limit. The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

### **Inorganic/Organic Lab Qualifier**

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

E = Reported value is estimated due to interferences

J = Result is an estimated value

U = Analyte was analyzed for but was not detected