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Groundwater Monitoring at Sandia National Laboratories/New Mexico Chemical Waste Landfill Conducted by the NMED DOE OB for FFY 2012 Q-2

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data collected during January 2012. The Bureau collected groundwater samples from Chemical Waste Landfill (CWL) monitoring wells CWL-MW9, CWL-MW10 and CWL-MW11 at Sandia National Laboratories/New Mexico (SNL/NM). Split samples were collected using standard SNL/NM sampling procedures and equipment. Groundwater samples were submitted to an independent analytical laboratory where they were analyzed for volatile organic compounds (VOCs) and Target Analyte List (TAL) metals. No constituents were detected above established U.S. Environmental Protection Agency (EPA) drinking water standards.

Data Assessment

All groundwater samples were collected and analyzed in accordance with U.S. EPA protocols. 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 below established MCLs.

Analytical results for VOCs detected above the laboratory method detection limits (MDLs) are listed in Table-2. Trichloroethene (TCE) was detected above the MDL at monitoring well CWL-MW10 at a concentration of 4 micrograms per liter (µg/L), but the results were below the EPA MCL of 5 µg/L. Table-3 lists the laboratory method detection limits for the remaining VOCs.

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, or to the address in the letterhead.

Enclosure: (1) Table-1 Total Target Analyte List Metals Results
(2) Table-2 Detected Volatile Organic Compounds Results
(3) Table-3 Method Detection Limits for Volatile Organic Compounds

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Table-1 NMED DOE OB FFY 2012 Q-2 Chemical Waste Landfill Groundwater Quality Results: Total Target Analyte List Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW9 17-Jan-12	Aluminum	0.048	NE	0.2	0.048	U	SW-846:6010B
	Antimony	0.0098	0.006	0.02	0.0098	U	SW-846:6010B
	Arsenic	0.012	0.01	0.02	0.012	U	SW-846:6010B
	Barium	0.16	2	0.005	0.0025		SW-846:6010B
	Beryllium	0.0003	0.004	0.002	0.0003	U	SW-846:6010B
	Cadmium	0.0005	0.005	0.002	0.0005	U	SW-846:6010B
	Calcium	102	NE	0.5	0.05		SW-846:6010B
	Chromium	0.0012	0.1	0.008	0.0012	U	SW-846:6010B
	Cobalt	0.003	NE	0.005	0.003	U	SW-846:6010B
	Copper	0.0021	1.3	0.01	0.0021	U	SW-846:6010B
	Iron	0.86	NE	0.1	0.02	J	SW-846:6010B
	Lead	0.0025	0.015	0.005	0.0025	U	SW-846:6010B
	Magnesium	28.4	NE	0.5	0.04		SW-846:6010B
	Manganese	1.1	NE	0.005	0.0025		SW-846:6010B
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0024	NE	0.005	0.0024	U	SW-846:6010B
	Potassium	7.7	NE	1	0.093		SW-846:6010B
	Selenium	0.013	0.05	0.02	0.013	U	SW-846:6010B
	Silver	0.00084	NE	0.005	0.00084	U	SW-846:6010B
	Sodium	70.8	NE	1	0.25		SW-846:6010B
	Thallium	0.009	0.002	0.02	0.009	U	SW-846:6010B
	Vanadium	0.0019	NE	0.005	0.0019	U	SW-846:6010B
	Zinc	0.013	NE	0.01	0.003	J	SW-846:6010B

B = Estimated result. Result is less than RL and greater than or equal to the IDL.

J = Method blank contamination. The associated method blank contains the target analyte at a reportable level.

NE = Not Established

U = Not detected at the reporting limit or MDL.

Table-1 NMED DOE OB FFY 2012 Q-2 Chemical Waste Landfill Groundwater Quality Results: Total Target Analyte List Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW10 23-Jan-12	Aluminum	0.074	NE	0.2	0.048	B	SW-846:6010B
	Antimony	0.0098	0.006	0.02	0.0098	U	SW-846:6010B
	Arsenic	0.012	0.01	0.02	0.012	U	SW-846:6010B
	Barium	0.19	2	0.005	0.0025		SW-846:6010B
	Beryllium	0.0003	0.004	0.002	0.0003	U	SW-846:6010B
	Cadmium	0.0005	0.005	0.002	0.0005	U	SW-846:6010B
	Calcium	87.1	NE	0.5	0.05		SW-846:6010B
	Chromium	0.0012	0.1	0.008	0.0012	U	SW-846:6010B
	Cobalt	0.003	NE	0.005	0.003	U	SW-846:6010B
	Copper	0.0023	1.3	0.01	0.0021	B	SW-846:6010B
	Iron	0.17	NE	0.1	0.02	J	SW-846:6010B
	Lead	0.0025	0.015	0.005	0.0025	U	SW-846:6010B
	Magnesium	25.3	NE	0.5	0.04		SW-846:6010B
	Manganese	0.3	NE	0.005	0.0025		SW-846:6010B
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0024	NE	0.005	0.0024	U	SW-846:6010B
	Potassium	7.5	NE	1	0.093		SW-846:6010B
	Selenium	0.013	0.05	0.02	0.013	U	SW-846:6010B
	Silver	0.00084	NE	0.005	0.00084	U	SW-846:6010B
	Sodium	68.6	NE	1	0.25		SW-846:6010B
	Thallium	0.009	0.002	0.02	0.009	U	SW-846:6010B
	Vanadium	0.0019	NE	0.005	0.0019	B	SW-846:6010B
	Zinc	0.091	NE	0.01	0.003	J	SW-846:6010B

B = Estimated result. Result is less than RL and greater than or equal to the IDL.

J = Method blank contamination. The associated method blank contains the target analyte at a reportable level.

NE = Not Established

U = Not detected at the reporting limit or MDL.

Table-1 NMED DOE OB FFY 2012 Q-2 Chemical Waste Landfill Groundwater Quality Results: Total Target Analyte List Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CWL-MW11 19-Jan-12	Aluminum	0.048	NE	0.2	0.048	U	SW-846:6010B
	Antimony	0.0098	0.006	0.02	0.0098	U	SW-846:6010B
	Arsenic	0.012	0.01	0.02	0.012	U	SW-846:6010B
	Barium	0.098	2	0.005	0.0025		SW-846:6010B
	Beryllium	0.0003	0.004	0.002	0.0003	U	SW-846:6010B
	Cadmium	0.0005	0.005	0.002	0.0005	U	SW-846:6010B
	Calcium	107	NE	0.5	0.05		SW-846:6010B
	Chromium	0.0012	0.1	0.008	0.0012	U	SW-846:6010B
	Cobalt	0.003	NE	0.005	0.003	U	SW-846:6010B
	Copper	0.0021	1.3	0.01	0.0021	U	SW-846:6010B
	Iron	0.031	NE	0.1	0.02	B,J	SW-846:6010B
	Lead	0.0025	0.015	0.005	0.0025	U	SW-846:6010B
	Magnesium	29.3	NE	0.5	0.04		SW-846:6010B
	Manganese	0.036	NE	0.005	0.0025		SW-846:6010B
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0024	NE	0.005	0.0024	U	SW-846:6010B
	Potassium	9	NE	1	0.093		SW-846:6010B
	Selenium	0.013	0.05	0.02	0.013	U	SW-846:6010B
	Silver	0.00084	NE	0.005	0.00084	U	SW-846:6010B
	Sodium	74.1	NE	1	0.25		SW-846:6010B
	Thallium	0.009	0.002	0.02	0.009	U	SW-846:6010B
	Vanadium	0.0022	NE	0.005	0.0019	B	SW-846:6010B
	Zinc	0.003	NE	0.01	0.003	U	SW-846:6010B

B = Estimated result. Result is less than RL and greater than or equal to the IDL.

J = Method blank contamination. The associated method blank contains the target analyte at a reportable level.

NE = Not Established

U = Not detected at the reporting limit or MDL.

Table-2 NMED DOE OB FFY 2012 Q-2 Chemical Waste Landfill 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-MW10 23-Jan-12	Trichloroethene	4	5	1	0.13		SW-846:8260B

Table-3 NMED DOE OB FFY 2012 Q-2 Chemical Waste Landfill Groundwater Quality Results: Method Detection Limits for Volatile Organic Compounds

Analyte	MDL (µg/L)	Analytical Method
4-Methyl-2-pentanone (MIBK)	0.18	SW-846:8260B
Acetone	2.1	SW-846:8260B
Benzene	0.13	SW-846:8260B
Bromodichloromethane	0.14	SW-846:8260B
Bromoform	0.1	SW-846:8260B
Bromomethane	0.29	SW-846:8260B
Butanone[2-]	0.35	SW-846:8260B
Carbon Disulfide	0.16	SW-846:8260B
Carbon Tetrachloride	0.15	SW-846:8260B
Chlorobenzene	0.12	SW-846:8260B
Chloroethane	0.34	SW-846:8260B
Chloroform	0.12	SW-846:8260B
Chloromethane	0.25	SW-846:8260B
Dibromochloromethane	0.13	SW-846:8260B
Dichloroethane[1,1-]	0.1	SW-846:8260B
Dichloroethane[1,2-]	0.22	SW-846:8260B
Dichloroethene[1,1-]	0.14	SW-846:8260B
Dichloroethene[cis-1,2-]	0.1	SW-846:8260B
Dichloroethene[trans-1,2-]	0.11	SW-846:8260B
Dichloropropane[1,2-]	0.15	SW-846:8260B
Dichloropropene[cis-1,3-]	0.22	SW-846:8260B
Dichloropropene[trans-1,3-]	0.08	SW-846:8260B
Ethylbenzene	0.1	SW-846:8260B
Hexanone[2-]	0.17	SW-846:8260B
Methylene Chloride	0.35	SW-846:8260B
Styrene	0.15	SW-846:8260B
Tetrachloroethane[1,1,2,2-]	0.09	SW-846:8260B
Tetrachloroethene	0.1	SW-846:8260B
Toluene	0.25	SW-846:8260B
Trichloroethane[1,1,1-]	0.19	SW-846:8260B
Trichloroethane[1,1,2-]	0.31	SW-846:8260B
Trichloroethene	0.13	SW-846:8260B
Vinyl acetate	0.21	SW-846:8260B
Vinyl Chloride	0.22	SW-846:8260B
Xylene (Total)	0.18	SW-846:8260B