



## NEW MEXICO ENVIRONMENT DEPARTMENT



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### **Groundwater Monitoring at Sandia National Laboratories/New Mexico Solid Waste Management Unit 68 Old Burn Site Conducted by NMED DOE OB for FFY 2012 Q-1**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data collected during October 2011. The Bureau collected groundwater samples from Old Burn Site (OBS) monitoring wells OBS-MW1, OBS-MW2 and OBS-MW3, located within Solid Waste Management Units (SWMU) 68 at Sandia National Laboratories/New Mexico (SNL/NM).

Split samples were collected using standard SNL/NM sampling procedures and equipment. Groundwater samples were analyzed for Target Analyte List (TAL) metals plus uranium, major cations, major anions, nitrate, nitrite, perchlorate, total cyanide, high explosive (HE) compounds, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), gross alpha and beta activity, radionuclides by gamma spectroscopy, and isotopic uranium. 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 MCLs from the EPA National Primary Drinking Water Regulations (40 CFR 141).

Currently there is no U.S. EPA National Primary Drinking Water MCL or State of New Mexico drinking water standard for perchlorate. However, perchlorate results are compared to the *Compliance Order on Consent (COOC) Pursuant to the New Mexico Hazardous Waste Act 74-4-10: Sandia National Laboratories Consent Order*, New Mexico Environment Department, April 19, 2004. The COOC screening level for perchlorate is 4 micrograms per liter ( $\mu\text{g/L}$ ).

#### Results

Analytical results for total target analyte list (TAL) metals plus uranium are listed in Table-1. All metal concentrations were below established MCLs.

Analytical results for dissolved (filtered) major cations (as calcium, lithium, magnesium, potassium, silicon, sodium, and strontium) are summarized in Table-2. No MCLs are established for these analytes.

Analytical results for major anions (as bromide, chloride, fluoride, and sulfate), cyanide, nitrate, nitrite and perchlorate are presented in Table-3. No parameters were detected above established MCLs. Perchlorate was not detected above the laboratory method detection limit (MDL) in any of the SWMU 68 groundwater samples.

Analytical results for HE compounds are listed in Table-4. No HE compounds were detected above laboratory MDLs.

Analytical results for volatile organic compounds (VOCs) detected above the MDL are listed in Table-5. Acetone was detected above the MDL at monitoring wells OBS-MW1 (9.1 µg/L) and OBS-MW3 (11 µg/L). No MCL currently exists for acetone.

No semi-volatile organic compounds (SVOCs) were detected above their associated MDLs. Table-6 lists the laboratory MDLs for VOCs and SVOCs analyzed from Old Burn Site monitoring wells.

The results for gamma-emitting radionuclides, gross alpha and beta activity, and isotopic uranium are presented in Table-6. All radionuclide activity results were below MCLs, where established.

### 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 Total Target Analyte List Metals plus Uranium Results
  - (2) Table-2 Major Cations (Dissolved) Results
  - (3) Table-3 Anions, Nitrate, Nitrite, Perchlorate and Total Cyanide Results
  - (4) Table-4 High Explosive Compounds Results
  - (5) Table-5 Detected Volatile Organic Compounds Results
  - (6) Table-6 Method Detection Limits for Volatile and Semi-Volatile Organic Compounds
  - (7) Table-7 Gross Alpha, Gross Beta, Gamma Spectroscopy, and Isotopic Uranium Results

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File: SGE42.Groundwater Monitoring. SWMU 68. FFY 2012 Q-1

Acknowledgment:

This material is based upon work supported by the Department of Energy Office of Environmental Management under Award Number *DE-EM0002420*.

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**Table-1 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Total Target Analyte List Metals plus Uranium**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
OBS-MW1 25-Oct-11	Aluminum	0.013	NE	0.03	0.013	U	SW-846:6020
	Antimony	0.0017	0.006	0.005	0.0017	U	SW-846:6020
	Arsenic	0.00095	0.01	0.01	0.00095	U	SW-846:6020
	Barium	0.023	2	0.002	0.0002		SW-846:6020
	Beryllium	0.00035	0.004	0.0005	0.00035	U	SW-846:6020
	Cadmium	0.0001	0.005	0.0005	0.0001	U	SW-846:6020
	Calcium	76	NE	0.1	0.068		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00022	NE	0.002	0.00022	U	SW-846:6020
	Copper	0.0013	1.3	0.001	0.00045		SW-846:6020
	Iron	0.02	NE	0.05	0.02	U	SW-846:6020
	Lead	0.00019	0.015	0.003	0.00017	B	SW-846:6020
	Magnesium	15.9	NE	0.05	0.0052		SW-846:6020
	Manganese	0.009	NE	0.002	0.00024		SW-846:6020
	Mercury	0.000081	0.002	0.0002	0.00006	B,J	SW-846:7470A
	Nickel	0.0004	NE	0.005	0.0004	U	SW-846:6020
	Potassium	1.8	NE	0.1	0.042		SW-846:6020
	Selenium	0.0024	0.05	0.005	0.0016	B	SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	22	NE	0.05	0.015		SW-846:6020
	Thallium	0.00055	0.002	0.002	0.00055	U	SW-846:6020
Uranium	0.01	0.03	0.001	0.00023		SW-846:6020	
Vanadium	0.0024	NE	0.01	0.0024	U	SW-846:6020	
Zinc	0.053	NE	0.01	0.0083		SW-846:6020	

B = Estimated result. Result is less than RL.

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

NE = Not Established

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

**Table-1 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Total Target Analyte List Metals plus Uranium**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
OBS-MW2 26-Oct-11	Aluminum	0.029	NE	0.03	0.013	B	SW-846:6020
	Antimony	0.0017	0.006	0.005	0.0017	U	SW-846:6020
	Arsenic	0.0014	0.01	0.01	0.00095	B	SW-846:6020
	Barium	0.021	2	0.002	0.0002		SW-846:6020
	Beryllium	0.00035	0.004	0.0005	0.00035	U	SW-846:6020
	Cadmium	0.00011	0.005	0.0005	0.0001	B	SW-846:6020
	Calcium	77.1	NE	0.1	0.068		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00022	NE	0.002	0.00022	U	SW-846:6020
	Copper	0.00063	1.3	0.001	0.00045	B	SW-846:6020
	Iron	0.044	NE	0.05	0.02	B	SW-846:6020
	Lead	0.00017	0.015	0.003	0.00017	U	SW-846:6020
	Magnesium	15.8	NE	0.05	0.0052		SW-846:6020
	Manganese	0.0011	NE	0.002	0.00024	B	SW-846:6020
	Mercury	0.00007	0.002	0.0002	0.00006	B,J	SW-846:7470A
	Nickel	0.0004	NE	0.005	0.0004	U	SW-846:6020
	Potassium	1.7	NE	0.1	0.042		SW-846:6020
	Selenium	0.0031	0.05	0.005	0.0016	B	SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	21.9	NE	0.05	0.015		SW-846:6020
	Thallium	0.0016	0.002	0.002	0.00055	B	SW-846:6020
Uranium	0.014	0.03	0.001	0.00023		SW-846:6020	
Vanadium	0.0024	NE	0.01	0.0024	U	SW-846:6020	
Zinc	0.0083	NE	0.01	0.0083	U	SW-846:6020	

B = Estimated result. Result is less than RL.

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

NE = Not Established

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

**Table-1 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Total Target Analyte List Metals plus Uranium**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
OBS-MW2 26-Oct-11 DUP	Aluminum	0.013	NE	0.03	0.013	U	SW-846:6020
	Antimony	0.0017	0.006	0.005	0.0017	U	SW-846:6020
	Arsenic	0.0012	0.01	0.01	0.00095	B	SW-846:6020
	Barium	0.021	2	0.002	0.0002		SW-846:6020
	Beryllium	0.00035	0.004	0.0005	0.00035	U	SW-846:6020
	Cadmium	0.0001	0.005	0.0005	0.0001	U	SW-846:6020
	Calcium	78	NE	0.1	0.068		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00022	NE	0.002	0.00022	U	SW-846:6020
	Copper	0.00045	1.3	0.001	0.00045	U	SW-846:6020
	Iron	0.02	NE	0.05	0.02	U	SW-846:6020
	Lead	0.00017	0.015	0.003	0.00017	U	SW-846:6020
	Magnesium	15.8	NE	0.05	0.0052		SW-846:6020
	Manganese	0.00076	NE	0.002	0.00024	B	SW-846:6020
	Mercury	0.00008	0.002	0.0002	0.00006	B,J	SW-846:7470A
	Nickel	0.0004	NE	0.005	0.0004	U	SW-846:6020
	Potassium	1.7	NE	0.1	0.042		SW-846:6020
	Selenium	0.0027	0.05	0.005	0.0016	B	SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	21.9	NE	0.05	0.015		SW-846:6020
	Thallium	0.00056	0.002	0.002	0.00055	B	SW-846:6020
Uranium	0.014	0.03	0.001	0.00023		SW-846:6020	
Vanadium	0.0024	NE	0.01	0.0024	U	SW-846:6020	
Zinc	0.0083	NE	0.01	0.0083	U	SW-846:6020	

B = Estimated result. Result is less than RL.

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

NE = Not Established

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

**Table-1 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Total Target Analyte List Metals plus Uranium**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
OBS-MW3 24-Oct-11	Aluminum	0.013	NE	0.03	0.013	U	SW-846:6020
	Antimony	0.0017	0.006	0.005	0.0017	U	SW-846:6020
	Arsenic	0.0012	0.01	0.01	0.00095	B	SW-846:6020
	Barium	0.029	2	0.002	0.0002		SW-846:6020
	Beryllium	0.00035	0.004	0.0005	0.00035	U	SW-846:6020
	Cadmium	0.0001	0.005	0.0005	0.0001	B	SW-846:6020
	Calcium	76.2	NE	0.1	0.068		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00022	NE	0.002	0.00022	U	SW-846:6020
	Copper	0.001	1.3	0.001	0.00045		SW-846:6020
	Iron	0.02	NE	0.05	0.02	U	SW-846:6020
	Lead	0.00027	0.015	0.003	0.00017	B	SW-846:6020
	Magnesium	16.1	NE	0.05	0.0052		SW-846:6020
	Manganese	0.0033	NE	0.002	0.00024		SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.00064	NE	0.005	0.0004	B	SW-846:6020
	Potassium	1.7	NE	0.1	0.042		SW-846:6020
	Selenium	0.0031	0.05	0.005	0.0016	B	SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	22.5	NE	0.05	0.015		SW-846:6020
Thallium	0.0012	0.002	0.002	0.00055	B	SW-846:6020	
Uranium	0.012	0.03	0.001	0.00023		SW-846:6020	
Vanadium	0.0024	NE	0.01	0.0024	U	SW-846:6020	
Zinc	0.0083	NE	0.01	0.0083	U	SW-846:6020	

B = Estimated result. Result is less than RL.

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

NE = Not Established

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

**Table-2 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Major Cations (Dissolved)**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
OBS-MW1 25-Oct-11	Calcium	78.4	NE	5	0.53		SW-846:6010B
	Lithium	0.037	NE	0.05	0.0096	B	SW-846:6010B
	Magnesium	16.8	NE	1	0.13		SW-846:6010B
	Potassium	4.5	NE	5	1.6	B	SW-846:6010B
	Silicon	13.4	NE	2	0.2		SW-846:6010B
	Sodium	23.2	NE	1	0.32		SW-846:6010B
	Strontium	0.57	NE	0.025	0.0027	J	SW-846:6010B
OBS-MW2 26-Oct-11	Calcium	81.8	NE	5	0.53		SW-846:6010B
	Lithium	0.052	NE	0.05	0.0096		SW-846:6010B
	Magnesium	16.6	NE	1	0.13		SW-846:6010B
	Potassium	2.4	NE	5	1.6	B	SW-846:6010B
	Silicon	14.4	NE	2	0.2		SW-846:6010B
	Sodium	23	NE	1	0.32		SW-846:6010B
	Strontium	0.58	NE	0.025	0.0027	J	SW-846:6010B
OBS-MW2 26-Oct-11 DUP	Calcium	81.5	NE	5	0.53		SW-846:6010B
	Lithium	0.054	NE	0.05	0.0096		SW-846:6010B
	Magnesium	16.6	NE	1	0.13		SW-846:6010B
	Potassium	1.6	NE	5	1.6	U	SW-846:6010B
	Silicon	14.2	NE	2	0.2		SW-846:6010B
	Sodium	23.1	NE	1	0.32		SW-846:6010B
	Strontium	0.58	NE	0.025	0.0027	J	SW-846:6010B
OBS-MW3 24-Oct-11	Calcium	77.9	NE	5	0.53		SW-846:6010B
	Lithium	0.038	NE	0.05	0.0096	B	SW-846:6010B
	Magnesium	16.9	NE	1	0.13		SW-846:6010B
	Potassium	3.1	NE	5	1.6	B	SW-846:6010B
	Silicon	13.7	NE	2	0.2		SW-846:6010B
	Sodium	23.5	NE	1	0.32		SW-846:6010B
	Strontium	0.57	NE	0.025	0.0027	J	SW-846:6010B

B = Estimated result. Result is less than RL.

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

NE = Not Established

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



**Table-3 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Anions, Nitrate, Nitrite, Perchlorate and Total Cyanide**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
OBS-MW1 25-Oct-11	Bromide	0.32	NE	0.25	0.025		EPA:300.0
	Chloride	23.6	NE	4	0.4		EPA:300.0
	Fluoride	2.2	4	0.1	0.01		EPA:300.0
	Nitrate	1.8	10	0.4	0.08	J	EPA:300.0
	Nitrite	0.003	1	0.02	0.003	U	EPA:300.0
	Perchlorate - LC/MS/MS	0.001	NE	0.004	0.001	U	EPA:314.0
	Sulfate	79.6	NE	10	1		EPA:300.0
	Total Cyanide	0.0052	0.2	0.01	0.0015	B,J	SW846-9012B
OBS-MW2 26-Oct-11	Bromide	0.43	NE	0.25	0.025		EPA:300.0
	Chloride	23	NE	4	0.4		EPA:300.0
	Fluoride	2.2	4	0.1	0.01		EPA:300.0
	Nitrate	1.4	10	0.4	0.08		EPA:300.0
	Nitrite	0.003	1	0.02	0.003	U	EPA:300.0
	Perchlorate - LC/MS/MS	0.001	NE	0.004	0.001	U	EPA:314.0
	Sulfate	88.3	NE	10	1		EPA:300.0
	Total Cyanide	0.0056	0.2	0.01	0.0015	B,J	SW846-9012B
OBS-MW2 26-Oct-11 DUP	Bromide	0.48	NE	0.25	0.025		EPA:300.0
	Chloride	23.5	NE	4	0.4		EPA:300.0
	Fluoride	2.2	4	0.1	0.01		EPA:300.0
	Nitrate	1.5	10	0.4	0.08		EPA:300.0
	Nitrite	0.003	1	0.02	0.003	U	EPA:300.0
	Perchlorate - LC/MS/MS	0.001	NE	0.004	0.001	U	EPA:314.0
	Sulfate	91.3	NE	10	1		EPA:300.0
	Total Cyanide	0.0064	0.2	0.01	0.0015	B,J	SW846-9012B
OBS-MW3 24-Oct-11	Bromide	0.34	NE	0.25	0.025		EPA:300.0
	Chloride	25	NE	2	0.2		EPA:300.0
	Fluoride	2.3	4	0.1	0.01		EPA:300.0
	Nitrate	1.5	10	0.2	0.04	J	EPA:300.0
	Nitrite	0.003	1	0.02	0.003	U	EPA:300.0
	Perchlorate - LC/MS/MS	0.001	NE	0.004	0.001	U	EPA:314.0
	Sulfate	95	NE	5	0.5		EPA:300.0
	Total Cyanide	0.0022	0.2	0.01	0.0015	B,J	SW846-9012B

B = Estimated Result. Result is less than the reporting limit.

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

NE = Not Established

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

**Table-4 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: High Explosive Compounds**

Monitoring Well/ Sample Date	Analyte	Result (µg/L)	Quantitation Limit (µg/L)	MDL (µg/L)	Laboratory Qualifier	Analytical Method
OBS-MW1 25-Oct-11	1,3,5-trinitrobenzene	0.025	0.2	0.025	U	SW-846:8321A
	1,3-Dinitrobenzene	0.03	0.2	0.03	U	SW-846:8321A
	2,4,6-Trinitrotoluene	0.015	0.1	0.015	U	SW-846:8321A
	2,4-Diamino-6-nitrotoluene	0.036	0.05	0.036	U	SW-846:8321A
	2,4-Dinitrotoluene	0.044	0.2	0.044	U	SW-846:8321A
	2,6-Diamino-4-nitrotoluene	0.022	0.05	0.022	U	SW-846:8321A
	2,6-Dinitrotoluene	0.017	0.2	0.017	U	SW-846:8321A
	2-Amino-4,6-dinitrotoluene	0.02	0.2	0.02	U	SW-846:8321A
	2-nitrotoluene	0.035	0.5	0.035	U	SW-846:8321A
	3,5-dinitroaniline	0.025	0.05	0.025	U	SW-846:8321A
	3-Nitrotoluene	0.099	0.2	0.099	U	SW-846:8321A
	4-Amino-2,6-dinitrotoluene	0.028	0.2	0.028	U	SW-846:8321A
	4-Methylnitrobenzene	0.043	0.5	0.043	U	SW-846:8321A
	HMX	0.018	0.2	0.018	U	SW-846:8321A
	Nitrobenzene	0.041	0.25	0.041	U	SW-846:8321A
	PETN	0.072	2	0.072	U	SW846-8321A
	RDX	0.03	0.2	0.03	U	SW-846:8321A
	TATB	0.47	2	0.47	U	SW846-8321A
	Tetryl	0.055	0.75	0.055	U	SW846-8321A
Tri-o-cresylphosphate (TOCP)	0.021	2	0.021	U	SW846-8321A	
OBS-MW2 26-Oct-11	1,3,5-trinitrobenzene	0.025	0.2	0.025	U	SW-846:8321A
	1,3-Dinitrobenzene	0.03	0.2	0.03	U	SW-846:8321A
	2,4,6-Trinitrotoluene	0.015	0.1	0.015	U	SW-846:8321A
	2,4-Diamino-6-nitrotoluene	0.036	0.05	0.036	U	SW-846:8321A
	2,4-Dinitrotoluene	0.044	0.2	0.044	U	SW-846:8321A
	2,6-Diamino-4-nitrotoluene	0.022	0.05	0.022	U	SW-846:8321A
	2,6-Dinitrotoluene	0.017	0.2	0.017	U	SW-846:8321A
	2-Amino-4,6-dinitrotoluene	0.02	0.2	0.02	U	SW-846:8321A
	2-nitrotoluene	0.035	0.5	0.035	U	SW-846:8321A
	3,5-dinitroaniline	0.025	0.05	0.025	U	SW-846:8321A
	3-Nitrotoluene	0.099	0.2	0.099	U	SW-846:8321A
	4-Amino-2,6-dinitrotoluene	0.028	0.2	0.028	U	SW-846:8321A
	4-Methylnitrobenzene	0.043	0.5	0.043	U	SW-846:8321A
	HMX	0.018	0.2	0.018	U	SW-846:8321A
	Nitrobenzene	0.041	0.25	0.041	U	SW-846:8321A
	PETN	0.072	2	0.072	U	SW846-8321A
	RDX	0.03	0.2	0.03	U	SW-846:8321A
	TATB	0.47	2	0.47	U	SW846-8321A
	Tetryl	0.055	0.75	0.055	U	SW846-8321A
Tri-o-cresylphosphate (TOCP)	0.021	2	0.021	U	SW846-8321A	

U = Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified

**Table-4 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: High Explosive Compounds**

Monitoring Well/ Sample Date	Analyte	Result (µg/L)	Quantitation Limit (µg/L)	MDL (µg/L)	Laboratory Qualifier	Analytical Method
OBS-MW2 26-Oct-11 DUP	1,3,5-trinitrobenzene	0.025	0.2	0.025	U	SW-846:8321A
	1,3-Dinitrobenzene	0.03	0.2	0.03	U	SW-846:8321A
	2,4,6-Trinitrotoluene	0.015	0.1	0.015	U	SW-846:8321A
	2,4-Diamino-6-nitrotoluene	0.036	0.05	0.036	U	SW-846:8321A
	2,4-Dinitrotoluene	0.044	0.2	0.044	U	SW-846:8321A
	2,6-Diamino-4-nitrotoluene	0.022	0.05	0.022	U	SW-846:8321A
	2,6-Dinitrotoluene	0.017	0.2	0.017	U	SW-846:8321A
	2-Amino-4,6-dinitrotoluene	0.02	0.2	0.02	U	SW-846:8321A
	2-nitrotoluene	0.035	0.5	0.035	U	SW-846:8321A
	3,5-dinitroaniline	0.025	0.05	0.025	U	SW-846:8321A
	3-Nitrotoluene	0.099	0.2	0.099	U	SW-846:8321A
	4-Amino-2,6-dinitrotoluene	0.028	0.2	0.028	U	SW-846:8321A
	4-Methylnitrobenzene	0.043	0.5	0.043	U	SW-846:8321A
	HMX	0.018	0.2	0.018	U	SW-846:8321A
	Nitrobenzene	0.041	0.25	0.041	U	SW-846:8321A
	PETN	0.072	2	0.072	U	SW846-8321A
	RDX	0.03	0.2	0.03	U	SW-846:8321A
	TATB	0.47	2	0.47	U	SW846-8321A
	Tetryl	0.055	0.75	0.055	U	SW846-8321A
Tri-o-cresylphosphate (TOCP)	0.021	2	0.021	U	SW846-8321A	
OBS-MW3 24-Oct-11	1,3,5-trinitrobenzene	0.025	0.2	0.025	U	SW-846:8321A
	1,3-Dinitrobenzene	0.03	0.2	0.03	U	SW-846:8321A
	2,4,6-Trinitrotoluene	0.015	0.1	0.015	U	SW-846:8321A
	2,4-Diamino-6-nitrotoluene	0.036	0.05	0.036	U	SW-846:8321A
	2,4-Dinitrotoluene	0.044	0.2	0.044	U	SW-846:8321A
	2,6-Diamino-4-nitrotoluene	0.022	0.05	0.022	U	SW-846:8321A
	2,6-Dinitrotoluene	0.017	0.2	0.017	U	SW-846:8321A
	2-Amino-4,6-dinitrotoluene	0.02	0.2	0.02	U	SW-846:8321A
	2-nitrotoluene	0.035	0.5	0.035	U	SW-846:8321A
	3,5-dinitroaniline	0.025	0.05	0.025	U	SW-846:8321A
	3-Nitrotoluene	0.099	0.2	0.099	U	SW-846:8321A
	4-Amino-2,6-dinitrotoluene	0.028	0.2	0.028	U	SW-846:8321A
	4-Methylnitrobenzene	0.043	0.5	0.043	U	SW-846:8321A
	HMX	0.018	0.2	0.018	U	SW-846:8321A
	Nitrobenzene	0.041	0.25	0.041	U	SW-846:8321A
	PETN	0.072	2	0.072	U	SW846-8321A
	RDX	0.03	0.2	0.03	U	SW-846:8321A
	TATB	0.47	2	0.47	U	SW846-8321A
	Tetryl	0.055	0.75	0.055	U	SW846-8321A
Tri-o-cresylphosphate (TOCP)	0.021	2	0.021	U	SW846-8321A	

U = Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified

**Table-5 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results:  
Detected Volatile Organic Compounds**

<b>Monitoring Well/ Sample Date</b>	<b>Analyte</b>	<b>Result (µg/L)</b>	<b>EPA MCL (µg/L)</b>	<b>Quantitation Limit (µg/L)</b>	<b>MDL (µg/L)</b>	<b>Laboratory Qualifier</b>	<b>Analytical Method</b>
OBS-MW1 25-Oct-11	Acetone	9.1	NE	20	6.7	J	SW-846:8260B
OBS-MW3 24-Oct-11	Acetone	11	NE	20	6.7	J,B	SW-846:8260B

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

J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).

**Table-6 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Method Detection Limits for Volatile and Semi-volatile Organic Compounds**

Analyte	MDL (µg/L)	Analytical Method
Acetone	6.7	SW-846:8260B
Benzene	0.25	SW-846:8260B
Bromodichloromethane	0.25	SW-846:8260B
Bromoform	0.37	SW-846:8260B
Bromomethane	0.4	SW-846:8260B
Butanone[2-]	0.39	SW-846:8260B
Carbon Disulfide	0.37	SW-846:8260B
Carbon Tetrachloride	0.36	SW-846:8260B
Chlorobenzene	0.38	SW-846:8260B
Chloroethane	0.38	SW-846:8260B
Chloroform	0.15	SW-846:8260B
Chloromethane	0.55	SW-846:8260B
Dibromochloromethane	0.33	SW-846:8260B
Dichloroethane[1,1-]	0.39	SW-846:8260B
Dichloroethane[1,2-]	0.37	SW-846:8260B
Dichloroethene[1,1-]	0.36	SW-846:8260B
Dichloroethene[cis-1,2-]	0.16	SW-846:8260B
Dichloroethene[trans-1,2-]	0.18	SW-846:8260B
Dichloropropane[1,2-]	0.32	SW-846:8260B
Dichloropropene[cis-1,3-]	0.34	SW-846:8260B
Dichloropropene[trans-1,3-]	0.35	SW-846:8260B
Ethylbenzene	0.3	SW-846:8260B
Hexanone[2-]	0.59	SW-846:8260B
Methyl-2-pentanone[4-]	0.33	SW-846:8260B
Methylene Chloride	1.7	SW-846:8260B
Styrene	0.35	SW-846:8260B
Tetrachloroethane[1,1,2,2-]	0.42	SW-846:8260B
Tetrachloroethene	0.28	SW-846:8260B
Toluene	1	SW-846:8260B
Trichloroethane[1,1,1-]	0.29	SW-846:8260B
Trichloroethane[1,1,2-]	0.57	SW-846:8260B
Trichloroethene	0.29	SW-846:8260B
Vinyl acetate	0.6	SW-846:8260B
Vinyl Chloride	0.43	SW-846:8260B
Xylene (Total)	0.85	SW-846:8260B

**Table-6 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Method Detection Limits for Volatile and Semi-volatile Organic Compounds**

Analyte	MDL (µg/L)	Analytical Method
2,4-Dinitrotoluene	1	SW-846:8270C
2,6-Dinitrotoluene	2.2	SW-846:8270C
Acenaphthene	1	SW-846:8270C
Acenaphthylene	1	SW-846:8270C
Aniline	1.3	SW-846:8270C
Anthracene	1	SW-846:8270C
Azobenzene	1	SW-846:8270C
Benzidine	20	SW-846:8270C
Benzo(a)anthracene	1	SW-846:8270C
Benzo(a)pyrene	1	SW-846:8270C
Benzo(b)fluoranthene	1	SW-846:8270C
Benzo(g,h,i)perylene	1	SW-846:8270C
Benzo(k)fluoranthene	1	SW-846:8270C
Benzoic acid	5	SW-846:8270C
Benzyl alcohol	1	SW-846:8270C
Bis(2-chloroethoxy)methane	1	SW-846:8270C
Bis(2-chloroethyl)ether	1	SW-846:8270C
Bis(2-ethylhexyl)phthalate	1	SW-846:8270C
Bromophenyl-phenylether[4-]	1	SW-846:8270C
Butylbenzylphthalate	1	SW-846:8270C
Carbazole	1	SW-846:8270C
Chloro-3-methylphenol[4-]	1	SW-846:8270C
Chloroaniline[4-]	2.2	SW-846:8270C
Chloronaphthalene[2-]	1	SW-846:8270C
Chlorophenol[2-]	1	SW-846:8270C
Chlorophenyl-phenyl[4-] ether	1	SW-846:8270C
Chrysene	1	SW-846:8270C
Dibenz(a,h)anthracene	1	SW-846:8270C
Dibenzofuran	1	SW-846:8270C
Dichlorobenzene[1,2-]	1	SW-846:8270C
Dichlorobenzene[1,3-]	1	SW-846:8270C
Dichlorobenzene[1,4-]	1	SW-846:8270C
Dichlorobenzidine[3,3'-]	1.3	SW-846:8270C
Dichlorophenol[2,4-]	1.1	SW-846:8270C
Diethylphthalate	1	SW-846:8270C
Dimethyl Phthalate	1	SW-846:8270C

Analyte	MDL (µg/L)	Analytical Method
Dimethylphenol[2,4-]	1	SW-846:8270C
Di-n-butylphthalate	1	SW-846:8270C
Dinitro-2-methylphenol[4,6-]	1	SW-846:8270C
Dinitrophenol[2,4-]	2	SW-846:8270C
Di-n-octylphthalate	1	SW-846:8270C
Fluoranthene	1	SW-846:8270C
Fluorene	1	SW-846:8270C
Hexachlorobenzene	1	SW-846:8270C
Hexachlorobutadiene	1	SW-846:8270C
Hexachlorocyclopentadiene	1	SW-846:8270C
Hexachloroethane	1	SW-846:8270C
Indeno(1,2,3-cd)pyrene	1	SW-846:8270C
Isophorone	1	SW-846:8270C
Methylnaphthalene[2-]	1	SW-846:8270C
Methylphenol[2-]	1	SW-846:8270C
Methylphenol[4-]	2	SW-846:8270C
Naphthalene	1	SW-846:8270C
Nitroaniline[2-]	1	SW-846:8270C
Nitroaniline[3-]	1	SW-846:8270C
Nitroaniline[4-]	1	SW-846:8270C
Nitrobenzene	1.1	SW-846:8270C
Nitrophenol[2-]	1	SW-846:8270C
Nitrophenol[4-]	2	SW-846:8270C
Nitrosodimethylamine[N-]	2	SW-846:8270C
Nitroso-di-n-propylamine[N-]	1	SW-846:8270C
Nitrosodiphenylamine[N-]	1	SW-846:8270C
Oxybis(1-chloropropane)[2,2'-]	1	SW-846:8270C
Pentachlorophenol	1.3	SW-846:8270C
Phenanthrene	1	SW-846:8270C
Phenol	2	SW-846:8270C
Pyrene	1	SW-846:8270C
Pyridine	2	SW-846:8270C
Tetrachlorophenol[2,3,4,6-]	1.2	SW-846:8270C
Trichlorobenzene[1,2,4-]	1	SW-846:8270C
Trichlorophenol[2,4,5-]	1	SW-846:8270C
Trichlorophenol[2,4,6-]	1	SW-846:8270C

**Table-7 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Isotopic Uranium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
OBS-MW1 25-Oct-11	Actinium-228	-2 ± 11	12	U	EPA:901.1
	Americium-241	1.4 ± 4.3	7.1	U	EPA:901.1
	Bismuth-212	23 ± 12	19		EPA:901.1
	Bismuth-214	313 ± 22	7		EPA:901.1
	Cesium-134	2.1 ± 2.7	12	U	EPA:901.1
	Cesium-137	-3 ± 2.4	3.9	U	EPA:901.1
	Cobalt-60	-0.7 ± 2.2	3.7	U	EPA:901.1
	Gross alpha	21.4 ± 5.1	3.3		EPA:900
	Gross beta	3 ± 1.7	2.3		EPA:900
	Lead-212	2.4 ± 3.1	5.7	U	EPA:901.1
	Lead-214	358 ± 25	8		EPA:901.1
	Potassium-40	18 ± 37	47	U	EPA:901.1
	Protactinium-234M	220 ± 270	390	U	EPA:901.1
	Sodium-22	-4 ± 13	4	U	EPA:901.1
	Thallium-208	0.3 ± 2.6	3.4	U	EPA:901.1
	Thorium-234	-33 ± 72	67	U	EPA:901.1
	Uranium-234	18.1 ± 1.9	0.08		HASL-300:ISOU
	Uranium-235	13 ± 11	15	U	EPA:901.1
	Uranium-235/236	0.19 ± 0.13	0.11		HASL-300:ISOU
Uranium-238	3.3 ± 0.54	0.07		HASL-300:ISOU	
OBS-MW2 26-Oct-11	Actinium-228	7 ± 5.4	11	U	EPA:901.1
	Americium-241	1.7 ± 3.6	5.3	U	EPA:901.1
	Bismuth-212	7 ± 15	25	U	EPA:901.1
	Bismuth-214	327 ± 23	7		EPA:901.1
	Cesium-134	1.1 ± 2.1	11	U	EPA:901.1
	Cesium-137	-0.6 ± 1.9	3.2	U	EPA:901.1
	Cobalt-60	0.5 ± 1.6	3.5	U	EPA:901.1
	Gross alpha	25.4 ± 5.7	3.2		EPA:900
	Gross beta	2.4 ± 1.9	2.6	U	EPA:900
	Lead-212	2.5 ± 3.1	5.6	U	EPA:901.1
	Lead-214	356 ± 25	7		EPA:901.1
	Potassium-40	23 ± 38	43	U	EPA:901.1
	Protactinium-234M	-70 ± 380	430	U	EPA:901.1
	Sodium-22	0.7 ± 2	3.4	U	EPA:901.1
	Thallium-208	0.07 ± 2.6	3.4	U	EPA:901.1
	Thorium-234	-21 ± 49	65	U	EPA:901.1
	Uranium-234	21.7 ± 2.2	0.07		HASL-300:ISOU
	Uranium-235	1.8 ± 8.5	15	U	EPA:901.1
	Uranium-235/236	0.26 ± 0.14	0.05		HASL-300:ISOU
Uranium-238	4.07 ± 0.6	0.04		HASL-300:ISOU	

U = Result is less than the sample detection limit.

**Table-7 NMED DOE OB FFY 2012 Q-1 Solid Waste Management Unit 68 Old Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Isotopic Uranium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
OBS-MW2 26-Oct-11 DUP	Actinium-228	7.3 ± 6.4	11	U	EPA:901.1
	Americium-241	0.03 ± 3.6	5.9	U	EPA:901.1
	Bismuth-212	6 ± 15	25	U	EPA:901.1
	Bismuth-214	146 ± 11	6		EPA:901.1
	Cesium-134	0.33 ± 0.63	9.6	U	EPA:901.1
	Cesium-137	-1.9 ± 2.1	3.5	U	EPA:901.1
	Cobalt-60	1.1 ± 1.9	3.2	U	EPA:901.1
	Gross alpha	22.3 ± 5.3	2.8		EPA:900
	Gross beta	2.7 ± 1.9	2.6		EPA:900
	Lead-212	-2 ± 4.2	5.4	U	EPA:901.1
	Lead-214	152 ± 12	7		EPA:901.1
	Potassium-40	40 ± 34	40		EPA:901.1
	Protactinium-234M	-140 ± 590	440	U	EPA:901.1
	Sodium-22	0.4 ± 2	3.3	U	EPA:901.1
	Thallium-208	2.1 ± 2.1	3.1	U	EPA:901.1
	Thorium-234	12 ± 21	50	U	EPA:901.1
	Uranium-234	23.1 ± 2.1	0.04		HASL-300:ISOU
	Uranium-235	8 ± 11	18	U	EPA:901.1
	Uranium-235/236	0.28 ± 0.11	0.03		HASL-300:ISOU
	Uranium-238	4.37 ± 0.54	0.04		HASL-300:ISOU
OBS-MW3 24-Oct-11	Actinium-228	4.3 ± 6	12	U	EPA:901.1
	Americium-241	0.1 ± 4	6.6	U	EPA:901.1
	Bismuth-212	22 ± 13	16		EPA:901.1
	Bismuth-214	311 ± 22	7		EPA:901.1
	Cesium-134	0.35 ± 0.8	10	U	EPA:901.1
	Cesium-137	-2.1 ± 2.3	3.7	U	EPA:901.1
	Cobalt-60	-0.001 ± 1.6	2.8	U	EPA:901.1
	Gross alpha	25.4 ± 5.7	2.9		EPA:900
	Gross beta	1.7 ± 1.6	2.2	U	EPA:900
	Lead-212	7 ± 3	5.2		EPA:901.1
	Lead-214	329 ± 23	8		EPA:901.1
	Potassium-40	18 ± 38	44	U	EPA:901.1
	Protactinium-234M	-5 ± 190	330	U	EPA:901.1
	Sodium-22	0.1 ± 2.9	4.9	U	EPA:901.1
	Thallium-208	0.8 ± 1.7	3.2	U	EPA:901.1
	Thorium-234	12 ± 26	68	U	EPA:901.1
	Uranium-234	19.2 ± 1.9	0.1		HASL-300:ISOU
	Uranium-235	1.4 ± 5.5	22	U	EPA:901.1
	Uranium-235/236	0.22 ± 0.14	0.12		HASL-300:ISOU
	Uranium-238	3.96 ± 0.59	0.08		HASL-300:ISOU

U = Result is less than the sample detection limit.