



**NEW MEXICO  
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**Groundwater Monitoring at Sandia National Laboratories/New Mexico GWPP  
Conducted by NMED DOE OB for FFY 2011 Q-2**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data collected during March 2011. The Bureau collected groundwater samples from Groundwater Protection Program (GWPP) monitoring wells CTF-MW2 and CTF-MW3. Samples were also collected from Coyote Springs located in Arroyo del Coyote. Split samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM) sampling procedures and equipment. The samples were submitted for analysis to an independent analytical laboratory for Target Analyte List (TAL) metals plus uranium, anions, nitrate- nitrite as nitrogen (NPN), perchlorate, cyanide, volatile organic compounds (VOCs), high explosives (HE), gamma emitting isotopes, gross alpha and beta, radium 226 and 228, and isotopic uranium. Elevated concentrations of arsenic, beryllium, RDX, and radium 226 and 228 were noted in several samples.

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) 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.

Results

Analytical results for Target Analyte List (TAL) metals are presented in Table-1. Samples were analyzed for dissolved metals plus uranium and total mercury. No metal parameters were detected above established regulatory standards, except for arsenic and beryllium. Arsenic was detected above the EPA MCL of 0.01 mg/L at CTF-MW2 at a concentration 0.053 mg/L. Beryllium was detected above the MCL of 0.004 mg/L in Coyote Springs at a concentration of 0.0073 mg/L.

Analytical results for inorganic compounds are listed in Table-2. Samples were analyzed for anions (bromide, chloride, fluoride and sulfate), nitrate-nitrite as nitrogen, perchlorate and total cyanide. No samples exceeded their associated MCL.

Analytical results for high explosives (HE) are listed in Table-3. Samples were analyzed for HE compounds at monitoring wells CTF-MW2 and CTF-MW3. The compound RDX was detected above the practical quantitation limit at monitoring well CTF-MW2 at a concentration of 0.32 µg/L.

Analytical results for radionuclides are listed in Table-4. Samples were analyzed for gross alpha and beta, gamma emitting isotopes, radium 226 and 228, and isotopic uranium. Unadjusted gross alpha activity ranged from  $16.4 \pm 7.7$  pCi/L at CTF-MW3 to  $61 \pm 21$  pCi/L at CTF-MW2. The EPA MCL for gross alpha activity of 15 pCi/L is based on a corrected gross alpha value, which excludes both total uranium and radon from initial gross alpha count. When the total uranium activity was subtracted from the gross alpha value, the gross activity was below the MCL. The combined radium-226 and radium-228 activities exceeded the EPA MCL of 5 pCi/L at monitoring well CTF-MW2. Radium-226 activity was  $2.64 \pm 0.42$  pCi/L and radium-228 activity was  $6.52 \pm 0.77$  pCi/L.

Analytical results for VOCs detected above the method detection limit (MDL) are listed in Table-5. No VOCs were detected above the established regulatory standards.

### 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 Dissolved TAL Metals plus Uranium Results  
(2) Table-2 Anions, Nitrate-Nitrite as Nitrogen, Perchlorate, and Total Cyanide Results  
(3) Table-3 High Explosives Compounds Results  
(4) Table-4 Radionuclides Results  
(5) Table-5 Detected Volatile Organic Compounds

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Table-1 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Dissolved TAL 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
COYOTE SPRINGS 28-Mar-11 Dissolved	Aluminum	0.26	NE	0.2	0.04		SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	U	SW-846:6020
	Arsenic	0.0072	0.01	0.001	0.00034		SW-846:6020
	Barium	0.047	2	0.001	0.00026		SW-846:6020
	Beryllium	<b>0.0073</b>	0.004	0.001	0.0004		SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	U	SW-846:6020
	Calcium	290	NE	2	0.012		SW-846:6010B
	Chromium	0.00023	0.1	0.001	0.00023	U	SW-846:6020
	Cobalt	0.011	NE	0.001	0.00005		SW-846:6020
	Copper	0.0058	1.3	0.001	0.00007		SW-846:6020
	Iron	0.036	NE	0.05	0.036	M2,U	SW-846:6010B
	Lead	0.0023	0.015	0.001	0.00006		SW-846:6020
	Magnesium	62	NE	2	0.04	M2	SW-846:6010B
	Manganese	1.3	NE	0.005	0.00007		SW-846:6020
	Mercury (Total)	0.000089	0.002	0.0005	0.000089	U	SW-846:7040
	Mercury	0.000089	0.002	0.0005	0.000089	U	SW-846:7470
	Nickel	0.034	NE	0.001	0.00017		SW-846:6020
	Potassium	31	NE	2	0.12	M2	SW-846:6010B
	Selenium	0.0012	0.05	0.002	0.0012	U	SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	U	SW-846:6020
	Sodium	400	NE	2	0.65	MHA	SW-846:6010B
Thallium	0.0016	0.002	0.001	0.00012		SW-846:6020	
Uranium	0.0086	0.03	0.001	0.00005		SW-846:6020	
Vanadium	0.0017	NE	0.001	0.00019		SW-846:6020	
Zinc	0.04	NE	0.01	0.0033		SW-846:6020	

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

M1 = The MS and/or MSD were above the acceptance limits due to sample matrix interference.

M2 = The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

MHA = Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.

NE = Not Established

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

**Table-1 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Dissolved TAL 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
COYOTE SPRINGS 28-Mar-11 DUP Dissolved	Aluminum	0.26	NE	0.2	0.04		SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	U	SW-846:6020
	Arsenic	0.0072	0.01	0.001	0.00034		SW-846:6020
	Barium	0.046	2	0.001	0.00026		SW-846:6020
	Beryllium	<b>0.007</b>	0.004	0.001	0.0004		SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	U	SW-846:6020
	Calcium	280	NE	2	0.012	M1	SW-846:6010B
	Chromium	0.00023	0.1	0.001	0.00023	U	SW-846:6020
	Cobalt	0.011	NE	0.001	0.00005		SW-846:6020
	Copper	0.0058	1.3	0.001	0.00007		SW-846:6020
	Iron	0.036	NE	0.05	0.036	U	SW-846:6010B
	Lead	0.00006	0.015	0.001	0.00006	U	SW-846:6020
	Magnesium	62	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	U	SW-846:7470
	Mercury (Total)	0.000089	0.002	0.0005	0.000089	U	SW-846:7040
	Nickel	0.034	NE	0.001	0.00017		SW-846:6020
	Potassium	31	NE	2	0.12		SW-846:6010B
	Selenium	0.0012	0.05	0.002	0.0012	U	SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	U	SW-846:6020
	Sodium	400	NE	2	0.65		SW-846:6010B
Thallium	0.0016	0.002	0.001	0.00012		SW-846:6020	
Uranium	0.0085	0.03	0.001	0.00005		SW-846:6020	
Vanadium	0.0018	NE	0.001	0.00019		SW-846:6020	
Zinc	0.04	NE	0.01	0.0033		SW-846:6020	

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

M1 = The MS and/or MSD were above the acceptance limits due to sample matrix interference.

M2 = The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

MHA = Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.

NE = Not Established

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

**Table-1 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Dissolved TAL 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
CTF-MW2 8-Mar-11 Dissolved	Aluminum	0.094	NE	0.2	0.04	J	SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	U	SW-846:6020
	Arsenic	<b>0.053</b>	0.01	0.001	0.00034		SW-846:6020
	Barium	0.082	2	0.001	0.00026		SW-846:6020
	Beryllium	0.0015	0.004	0.001	0.0004		SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	U	SW-846:6020
	Calcium	340	NE	2	0.012		SW-846:6010B
	Chromium	0.00052	0.1	0.001	0.00023	J	SW-846:6020
	Cobalt	0.0068	NE	0.001	0.00005		SW-846:6020
	Copper	0.007	1.3	0.001	0.00007		SW-846:6020
	Iron	1.6	NE	0.05	0.036		SW-846:6010B
	Lead	0.00011	0.015	0.001	0.00006	J	SW-846:6020
	Magnesium	72	NE	2	0.04		SW-846:6010B
	Manganese	2.7	NE	0.005	0.00007	MHA	SW-846:6020
	Mercury (Total)	0.000089	0.002	0.0005	0.000089	M2,U	SW-846:7470
	Nickel	0.022	NE	0.001	0.00017		SW-846:6020
	Potassium	44	NE	2	0.12		SW-846:6010B
	Selenium	0.0036	0.05	0.002	0.0012		SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	U	SW-846:6020
	Sodium	400	NE	2	0.65		SW-846:6010B
Thallium	0.0011	0.002	0.001	0.00012		SW-846:6020	
Uranium	0.028	0.03	0.001	0.00005		SW-846:6020	
Vanadium	0.0046	NE	0.005	0.00095	J, RL1	SW-846:6020	
Zinc	0.0058	NE	0.01	0.0033	J	SW-846:6020	

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

M2 = The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

MHA = Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.

NE = Not Established

RL1 = Reporting limit raised due to sample matrix effects.

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

**Table-1 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Dissolved TAL 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
CTF-MW3 9-Mar-11 Dissolved	Aluminum	0.04	NE	0.2	0.04	U	SW-846:6010B
	Antimony	0.00023	0.006	0.003	0.00023	U	SW-846:6020
	Arsenic	0.0043	0.01	0.001	0.00034		SW-846:6020
	Barium	0.033	2	0.001	0.00026		SW-846:6020
	Beryllium	0.0004	0.004	0.001	0.0004	U	SW-846:6010B
	Cadmium	0.00009	0.005	0.001	0.00009	U	SW-846:6020
	Calcium	210	NE	2	0.012	MHA	SW-846:6010B
	Chromium	0.00073	0.1	0.001	0.00023	J	SW-846:6020
	Cobalt	0.00032	NE	0.001	0.00005	J	SW-846:6020
	Copper	0.0023	1.3	0.001	0.00007		SW-846:6020
	Iron	0.036	NE	0.05	0.036	U	SW-846:6010B
	Lead	0.00006	0.015	0.001	0.00006	U	SW-846:6020
	Magnesium	48	NE	2	0.04		SW-846:6010B
	Manganese	0.00063	NE	0.005	0.00007	J	SW-846:6020
	Mercury (Total)	0.000089	0.002	0.0005	0.000089	U	SW-846:7470
	Nickel	0.005	NE	0.001	0.00017		SW-846:6020
	Potassium	11	NE	2	0.12		SW-846:6010B
	Selenium	0.021	0.05	0.002	0.0012		SW-846:6020
	Silver	0.00009	NE	0.001	0.00009	U	SW-846:6020
	Sodium	160	NE	2	0.65	M2	SW-846:6010B
Thallium	0.00012	0.002	0.001	0.00012	U	SW-846:6020	
Uranium	0.01	0.03	0.001	0.00005		SW-846:6020	
Vanadium	0.0013	NE	0.001	0.00019		SW-846:6020	
Zinc	0.0051	NE	0.01	0.0033	J	SW-846:6020	

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

M2 = The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

MHA = Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.

NE = Not Established

RL1 = Reporting limit raised due to sample matrix effects.

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



**Table-2 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Anions, Nitrate-Nitrite as Nitrogen, Perchlorate and Total Cyanide**

Monitoring Well/ Sample Date	Analyte	Result	EPA MCL	Quantitation Limit	MDL	Units	Laboratory Qualifier	Analytical Method
COYOTE SPRINGS 28-Mar-11	Bromide	2	NE	0.5	0.077	mg/L		EPA:300
	Chloride	550	NE	20	0.56	mg/L		EPA:300
	Cyanide, Total	0.0026	0.2	0.01	0.002	mg/L	J, B	SW-846:9012B
	Fluoride	2.2	4	0.4	0.026	mg/L		EPA:300
	Nitrate-Nitrite as N	0.27	10	2	0.27	mg/L	RL1,U	EPA:300.0
	Sulfate	130	NE	20	0.91	mg/L		EPA:300
COYOTE SPRINGS 28-Mar-11 DUP	Bromide	2.9	NE	0.5	0.077	mg/L		EPA:300
	Chloride	550	NE	20	0.56	mg/L		EPA:300
	Cyanide, Total	0.0031	0.2	0.01	0.002	mg/L	J, B	SW-846:9012B
	Fluoride	2.3	4	0.4	0.026	mg/L		EPA:300
	Nitrate-Nitrite as N	0.27	10	2	0.27	mg/L	RL1,U	EPA:300.0
	Sulfate	130	NE	20	0.91	mg/L		EPA:300
CTF-MW2 8-Mar-11	Bromide	2.5	NE	0.5	0.077	mg/L		EPA:300
	Chloride	480	NE	20	0.56	mg/L		EPA:300
	Cyanide, Total	0.002	0.2	0.01	0.002	mg/L	U	SW-846:9012B
	Fluoride	2.3	4	0.4	0.026	mg/L		EPA:300
	Nitrate-Nitrite as N	0.27	10	2	0.27	mg/L	RL1,U	EPA:300.0
	Sulfate	160	NE	20	0.91	mg/L		EPA:300
CTF-MW3 9-Mar-11	Bromide	1.2	NE	0.5	0.077	mg/L		EPA:300
	Chloride	120	NE	20	0.56	mg/L		EPA:300
	Cyanide, Total	0.0038	0.2	0.01	0.002	mg/L	Ja, B	SW-846:9012B
	Fluoride	2.4	4	0.4	0.026	mg/L		EPA:300
	Nitrate-Nitrite as N	5.7	10	2	0.27	mg/L		EPA:300.0
	Perchlorate	0.47	NE	2	0.47	ug/L	U	EPA:314.0
	Sulfate	510	NE	20	0.91	mg/L		EPA:300

B = Compound was found in the blank and sample.

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).

NE = Not Established

RL1 = Reporting limit raised due to sample matrix effects.

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

**Table-3 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: High Explosives**

Monitoring Well/ Sample Date	Analyte	Result (µg/L)	Quantitation Limit (µg/L)	MDL (µg/L)	Laboratory Qualifier	Analytical Method
CTF-MW2 8-Mar-11	1,3,5-trinitrobenzene	0.02	0.12	0.02	U	SW-846:8321A(M)
	1,3-dichlorobenzene	0.017	0.12	0.017	U	SW-846:8321A(M)
	2,4,6-Trinitrotoluene	0.026	0.12	0.026	U	SW-846:8321A(M)
	2,4-Dinitrotoluene	0.022	0.12	0.022	U	SW-846:8321A(M)
	2,6-Dinitrotoluene	0.026	0.12	0.026	U	SW-846:8321A(M)
	2-Amino-4,6-dinitrotoluene	0.025	0.12	0.025	U	SW-846:8321A(M)
	2-nitrotoluene	0.026	0.12	0.026	U	SW-846:8321A(M)
	3-Nitrotoluene	0.03	0.12	0.03	U	SW-846:8321A(M)
	4-Amino-2,6-dinitrotoluene	0.022	0.12	0.022	U	SW-846:8321A(M)
	4-Methylnitrobenzene	0.031	0.12	0.031	U	SW-846:8321A(M)
	HMX	0.022	0.12	0.022	U	SW-846:8321A(M)
	Nitrobenzene	0.039	0.12	0.039	U	SW-846:8321A(M)
	RDX	0.32	0.12	0.025		SW-846:8321A(M)
	Tetryl	0.025	0.12	0.025	^,U	SW-846:8321A(M)
CTF-MW3 9-Mar-11	1,3,5-trinitrobenzene	0.021	0.13	0.021	U	SW-846:8321A(M)
	1,3-dichlorobenzene	0.018	0.13	0.018	U	SW-846:8321A(M)
	2,4,6-Trinitrotoluene	0.028	0.13	0.028	U	SW-846:8321A(M)
	2,4-Dinitrotoluene	0.024	0.13	0.024	U	SW-846:8321A(M)
	2,6-Dinitrotoluene	0.028	0.13	0.028	U	SW-846:8321A(M)
	2-Amino-4,6-dinitrotoluene	0.027	0.13	0.027	U	SW-846:8321A(M)
	2-nitrotoluene	0.028	0.13	0.028	U	SW-846:8321A(M)
	3-Nitrotoluene	0.032	0.13	0.032	U	SW-846:8321A(M)
	4-Amino-2,6-dinitrotoluene	0.024	0.13	0.024	U	SW-846:8321A(M)
	4-Methylnitrobenzene	0.033	0.13	0.033	U	SW-846:8321A(M)
	HMX	0.024	0.13	0.024	U	SW-846:8321A(M)
	Nitrobenzene	0.042	0.13	0.042	U	SW-846:8321A(M)
	RDX	0.027	0.13	0.027	U	SW-846:8321A(M)
	Tetryl	0.027	0.13	0.027	^,U	SW-846:8321A(M)

^ = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

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

**Table-4 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Radionuclides**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	Adjusted Gross Alpha (pCi/L)	EPA MCL (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
COYOTE SPRINGS 28-Mar-11 Dissolved	Actinium-228	15 ± 11		NE	18	U	EPA:901.1
	Americium-241	2.2 ± 5.9		NE	10	U	EPA:901.1
	Bismuth-212	-1 ± 43		NE	78	U	EPA:901.1
	Bismuth-214	6.8 ± 8.5		NE	13	U	EPA:901.1
	Cesium-134	-1.8 ± 3.4		NE	5.7	U	EPA:901.1
	Cesium-137	-1.2 ± 3.1		NE	5.3	U	EPA:901.1
	Cobalt-60	-0.03 ± 3.3		NE	6	U	EPA:901.1
	Gross alpha	27 ± 12	14.92	15	10		EPA:900
	Gross beta	20.2 ± 7.6		4 mRem/yr	9.8		EPA:900
	Lead-212	5.5 ± 6.1		NE	9.9	U	EPA:901.1
	Lead-214	-6 ± 17		NE	14	U	EPA:901.1
	Potassium-40	-0.9 ± 42		NE	91	U	EPA:901.1
	Protactinium-234M	-120 ± 480		NE	840	U	EPA:901.1
	Radium-226	0.2 ± 0.29		5	0.47	U	EPA:903.0
	Radium-228	0.54 ± 0.59		5	0.95	U	EPA:904.0
	Sodium-22	0.1 ± 3.2		NE	5.8	U	EPA:901.1
	Thallium-208	6.1 ± 3.8		NE	5.6		EPA:901.1
	Thorium-234	-2 ± 56		NE	95	U	EPA:901.1
	Uranium-234	10 ± 1		30 µg/L	0.07		HASL-300:ISOU
	Uranium-235	-0.2 ± 18		30 µg/L	29	U	EPA:901.1
Uranium-235/236	0.091 ± 0.061	30 µg/L		0.051		HASL-300:ISOU	
Uranium-238	1.99 ± 0.3	30 µg/L	0.04		HASL-300:ISOU		

NE = Not Established

U = Result is less than the sample detection limit.

Table-4 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Radionuclides

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	Adjusted Gross Alpha (pCi/L)	EPA MCL (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
COYOTE SPRINGS 28-Mar-11 DUP Dissolved	Actinium-228	10 ± 12		NE	20	U	EPA:901.1
	Americium-241	0.1 ± 6.1		NE	10	U	EPA:901.1
	Bismuth-212	2 ± 36		NE	68	U	EPA:901.1
	Bismuth-214	8.8 ± 9.5		NE	13	U	EPA:901.1
	Cesium-134	-0.5 ± 2.8		NE	4.8	U	EPA:901.1
	Cesium-137	0.01 ± 2.6		NE	4.6	U	EPA:901.1
	Cobalt-60	0.4 ± 2.9		NE	5.2	U	EPA:901.1
	Gross alpha	23 ± 12	8.74	15	13		EPA:900
	Gross beta	22 ± 8.1		4 mRem/yr	10		EPA:900
	Lead-212	-1 ± 7.8		NE	11	U	EPA:901.1
	Lead-214	13.5 ± 9.5		NE	12		EPA:901.1
	Potassium-40	-3 ± 39		NE	73	U	EPA:901.1
	Protactinium-234M	-100 ± 730		NE	810	U	EPA:901.1
	Radium-226	0.21 ± 0.12		5	0.15		EPA:903.0
	Radium-228	0.72 ± 0.29		5	0.41		EPA:904.0
	Sodium-22	-0.6 ± 3.1		NE	5.4	U	EPA:901.1
	Thallium-208	0.5 ± 5		NE	6.6	U	EPA:901.1
	Thorium-234	102 ± 50		NE	120	U	EPA:901.1
	Uranium-234	11.8 ± 1.2		30 µg/L	0.05		HASL-300:ISOU
	Uranium-235	-10 ± 470		30 µg/L	30	U	EPA:901.1
Uranium-235/236	0.069 ± 0.062	30 µg/L		0.037		HASL-300:ISOU	
Uranium-238	2.39 ± 0.38	30 µg/L	0.06		HASL-300:ISOU		

NE = Not Established

U = Result is less than the sample detection limit.

Table-4 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Radionuclides

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	Adjusted Gross Alpha (pCi/L)	EPA MCL (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CTF-MW2 8-Mar-11 Total	Actinium-228	0 ± 63		NE	110	U	EPA:901.1
	Americium-241	0 ± 7.6		NE	14	U	EPA:901.1
	Bismuth-212	-100 ± 460		NE	260	U	EPA:901.1
	Bismuth-214	25 ± 15		NE	24		EPA:901.1
	Cesium-134	-0.1 ± 7.8		NE	15	U	EPA:901.1
	Cesium-137	-0.2 ± 8.3		NE	16	U	EPA:901.1
	Cobalt-60	0 ± 2.7		NE	10	U	EPA:901.1
	Gross alpha	61 ± 21	9.16	15	18		EPA:900
	Gross beta	40.2 ± 9.3		4 mRem/yr	9.1		EPA:900
	Lead-212	-5 ± 33		NE	27	U	EPA:901.1
	Lead-214	-10 ± 140		NE	30	U	EPA:901.1
	Potassium-40	20 ± 130		NE	280	U	EPA:901.1
	Protactinium-234M	800 ± 1400		NE	2500	U	EPA:901.1
	Radium-226	2.64 ± 0.42		5	0.15		EPA:903.0
	Radium-228	<b>6.52</b> ± 0.77		5	0.36		EPA:904.0
	Sodium-22	0 ± 13		NE	26	U	EPA:901.1
	Thallium-208	-5 ± 210		NE	20	U	EPA:901.1
	Thorium-234	-5 ± 120		NE	230	U	EPA:901.1
	Uranium-234	44.5 ± 4.9		30 µg/L	0.5		HASL-300:ISOU
	Uranium-235	0 ± 42		30 µg/L	75	U	EPA:901.1
Uranium-235/236	0.44 ± 0.37	30 µg/L		0.37		HASL-300:ISOU	
Uranium-238	6.9 ± 1.4	30 µg/L	0.4		HASL-300:ISOU		

NE = Not Established

U = Result is less than the sample detection limit.

Table-4 NMED DOE OB FFY 2011 Q-2 GWPP Groundwater Quality Results: Radionuclides

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	Adjusted Gross Alpha (pCi/L)	EPA MCL (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CTF-MW3 9-Mar-11 Dissolved	Actinium-228	20 ± 40		NE	69	U	EPA:901.1
	Americium-241	2.5 ± 9.5		NE	17	U	EPA:901.1
	Bismuth-212	30 ± 110		NE	200	U	EPA:901.1
	Bismuth-214	1 ± 15		NE	28	U	EPA:901.1
	Cesium-134	-0.7 ± 7.1		NE	13	U	EPA:901.1
	Cesium-137	3.5 ± 7.5		NE	13	U	EPA:901.1
	Cobalt-60	0 ± 13		NE	25	U	EPA:901.1
	Gross alpha	16.4 ± 7.7	1.43	15	8.7		EPA:900
	Gross beta	6.1 ± 3		4 mRem/yr	4		EPA:900
	Lead-212	-2 ± 18		NE	23	U	EPA:901.1
	Lead-214	-0.2 ± 9.8		NE	19	U	EPA:901.1
	Potassium-40	-20 ± 190		NE	230	U	EPA:901.1
	Protactinium-234M	-300 ± 50000		NE	2000	U	EPA:901.1
	Radium-226	0.32 ± 0.15		5	0.17		EPA:903.0
	Radium-228	0.91 ± 0.28		5	0.33		EPA:904.0
	Sodium-22	0 ± 12		NE	23	U	EPA:901.1
	Thallium-208	-4 ± 60		NE	15	U	EPA:901.1
	Thorium-234	167 ± 65		NE	230	U	EPA:901.1
	Uranium-234	11.7 ± 1.9		30 µg/L	0.3		HASL-300:ISOU
	Uranium-235	-8 ± 32		30 µg/L	56	U	EPA:901.1
Uranium-235/236	0.12 ± 0.19	30 µg/L		0.29	U	HASL-300:ISOU	
Uranium-238	3.15 ± 0.87	30 µg/L	0.26		HASL-300:ISOU		

NE = Not Established

U = Result is less than the sample detection limit.

**Table-5 NMED DOE OB FFY 2011 Q-2 SWMU149/154 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
CTF-MW2 8-Mar-11	Carbon Disulfide	1.1	NE	1	0.18		SW-846:8260B
	Vinyl chloride	0.7	2	1	0.24	J	SW-846:8260B
CTF-MW3 9-Mar-11	Bromodichloromethane	0.49	NE	1	0.15	J	SW-846:8260B
	Chloroform	0.76	NE	1	0.16	J	SW-846:8260B
	Dibromochloromethane	0.17	NE	1	0.15	J	SW-846:8260B

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).

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