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**Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site
Conducted by NMED DOE OB for FFY 2011 Q-4**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data collected during August 2011. The Bureau collected groundwater samples from Burn Site groundwater monitoring wells CYN-MW1D, CYN-MW3, CYN-MW4, CYN-MW6, CYN-MW7 and CYN-MW8. 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 plus nitrite as nitrogen, perchlorate, gamma emitting isotopes, gross alpha and beta, isotopic uranium, tritium, volatile organic compounds (VOCs) and diesel and gasoline range organics. Several samples analyzed for nitrate-nitrite as nitrogen were detected above the EPA MCL of 10 mg/L.

Data Assessment

Data results are compared to applicable Maximum Contaminant Levels (MCLs) established by the U.S. Environmental Protection Agency (EPA) National Primary Drinking Water Regulations (40 CFR 141), National Primary Drinking Water Standards, EPA, July 2002. 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 TAL metals are listed in Table-1. All metal concentrations were detected below established EPA MCLs.

Analytical results for anions, nitrate-nitrite as nitrogen and perchlorate are presented in Table-2. Nitrate concentrations were detected above the EPA MCL of 10 mg/L at monitoring wells CYN-MW1D (11.6 mg/L), CYN-MW3 (14.1 mg/L) and CYN-MW6 (22.2 mg/L). Perchlorate was analyzed from samples collected at CYN-MW6 only, and slightly exceeded the Consent Order screening level of 4 µg/L. The perchlorate concentration at CYN-MW6 was 4.2 µg/L.

Analytical results for radionuclides are listed in Table-3. Samples were analyzed for gross alpha and beta, gamma emitting isotopes and isotopic uranium. No isotopes were detected above EPA MCLs.

Acknowledgment:

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Table-1 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Total 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
CYN-MW1D 10-Aug-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	0.045	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	56.7	NE	0.1	0.068		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00025	NE	0.002	0.00022	B	SW-846:6020
	Copper	0.00045	1.3	0.001	0.00045	U	SW-846:6020
	Iron	6.8	NE	0.05	0.02		SW-846:6020
	Lead	0.00017	0.015	0.003	0.00017	U	SW-846:6020
	Magnesium	11.4	NE	0.05	0.0052		SW-846:6020
	Manganese	0.058	NE	0.002	0.00024		SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.0007	NE	0.005	0.0004	B	SW-846:6020
	Potassium	2.2	NE	0.1	0.042		SW-846:6020
	Selenium	0.0026	0.05	0.005	0.0016	B	SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	27	NE	0.05	0.015		SW-846:6020
Thallium	0.0016	0.002	0.002	0.00055	B	SW-846:6020	
Uranium	0.0012	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.

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW1D 10-Aug-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	0.0011	0.01	0.01	0.00095	B	SW-846:6020
	Barium	0.043	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	54.7	NE	0.1	0.068		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00023	NE	0.002	0.00022	B	SW-846:6020
	Copper	0.0007	1.3	0.001	0.00045	B	SW-846:6020
	Iron	6	NE	0.05	0.02		SW-846:6020
	Lead	0.00017	0.015	0.003	0.00017	U	SW-846:6020
	Magnesium	11.1	NE	0.05	0.0052		SW-846:6020
	Manganese	0.054	NE	0.002	0.00024		SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.00066	NE	0.005	0.0004	B	SW-846:6020
	Potassium	2.1	NE	0.1	0.042		SW-846:6020
	Selenium	0.0016	0.05	0.005	0.0016	U	SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	26.4	NE	0.05	0.015		SW-846:6020
Thallium	0.0014	0.002	0.002	0.00055	B	SW-846:6020	
Uranium	0.0012	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	

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Table-1 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Total 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
CYN-MW3 11-Aug-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	B	SW-846:6020
	Barium	0.055	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	131	NE	0.5	0.34		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	0.00064	1.3	0.001	0.00045	B	SW-846:6020
	Iron	0.036	NE	0.05	0.02	B	SW-846:6020
	Lead	0.00017	0.015	0.003	0.00017	U	SW-846:6020
	Magnesium	31.5	NE	0.05	0.0052		SW-846:6020
	Manganese	0.00024	NE	0.002	0.00024	U	SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.0004	NE	0.005	0.0004	U	SW-846:6020
	Potassium	2	NE	0.1	0.042		SW-846:6020
	Selenium	0.0086	0.05	0.005	0.0016		SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	35.8	NE	0.05	0.015		SW-846:6020
Thallium	0.00062	0.002	0.002	0.00055	B	SW-846:6020	
Uranium	0.0069	0.03	0.001	0.00023		SW-846:6020	
Vanadium	0.0031	NE	0.01	0.0024	B	SW-846:6020	
Zinc	0.0083	NE	0.01	0.0083	U	SW-846:6020	

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW4 8-Aug-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	0.0011	0.01	0.01	0.00095	B	SW-846:6020
	Barium	0.049	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	66.4	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	0.028	NE	0.05	0.02	B	SW-846:6020
	Lead	0.00017	0.015	0.003	0.00017	U	SW-846:6020
	Magnesium	30.7	NE	0.05	0.0052		SW-846:6020
	Manganese	0.0013	NE	0.002	0.00024	B	SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.00043	NE	0.005	0.0004	B	SW-846:6020
	Potassium	6.4	NE	0.1	0.042		SW-846:6020
	Selenium	0.014	0.05	0.005	0.0016		SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	42.3	NE	0.05	0.015		SW-846:6020
Thallium	0.0013	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	

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW6 18-Aug-11	Aluminum	0.041	NE	0.03	0.013	J	SW-846:6020
	Antimony	0.0017	0.006	0.005	0.0017	U	SW-846:6020
	Arsenic	0.001	0.01	0.01	0.00095	B	SW-846:6020
	Barium	0.061	2	0.002	0.0002		SW-846:6020
	Beryllium	0.00057	0.004	0.0005	0.00035		SW-846:6020
	Cadmium	0.0001	0.005	0.0005	0.0001	U	SW-846:6020
	Calcium	149	NE	1	0.68	J	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	0.0018	1.3	0.001	0.00045		SW-846:6020
	Iron	0.038	NE	0.05	0.02	B	SW-846:6020
	Lead	0.00045	0.015	0.003	0.00017	B	SW-846:6020
	Magnesium	36	NE	0.05	0.0052	J	SW-846:6020
	Manganese	0.0016	NE	0.002	0.00024	B	SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.00066	NE	0.005	0.0004	B	SW-846:6020
	Potassium	2.2	NE	0.1	0.042		SW-846:6020
	Selenium	0.014	0.05	0.005	0.0016		SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	40.7	NE	0.05	0.015	J	SW-846:6020
Thallium	0.0017	0.002	0.002	0.00055	B	SW-846:6020	
Uranium	0.0082	0.03	0.001	0.00023		SW-846:6020	
Vanadium	0.0024	NE	0.01	0.0024	U	SW-846:6020	
Zinc	0.021	NE	0.01	0.0083		SW-846:6020	

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW7 3-Aug-11	Aluminum	0.037	NE	0.03	0.013		SW-846:6020
	Antimony	0.0017	0.006	0.005	0.0017	U	SW-846:6020
	Arsenic	0.0013	0.01	0.01	0.00095	B	SW-846:6020
	Barium	0.12	2	0.002	0.0002	J	SW-846:6020
	Beryllium	0.00039	0.004	0.0005	0.00035	B	SW-846:6020
	Cadmium	0.00033	0.005	0.0005	0.0001	B	SW-846:6020
	Calcium	98.8	NE	0.1	0.068		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00053	NE	0.002	0.00022	B	SW-846:6020
	Copper	0.00062	1.3	0.001	0.00045	B	SW-846:6020
	Iron	0.038	NE	0.05	0.02	B	SW-846:6020
	Lead	0.00043	0.015	0.003	0.00017	B	SW-846:6020
	Magnesium	19.8	NE	0.05	0.0052		SW-846:6020
	Manganese	0.072	NE	0.002	0.00024	J	SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.0004	NE	0.005	0.0004	U	SW-846:6020
	Potassium	2.7	NE	0.1	0.042		SW-846:6020
	Selenium	0.0038	0.05	0.005	0.0016	B	SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	37.7	NE	0.05	0.015	J	SW-846:6020
Thallium	0.0019	0.002	0.002	0.00055	B	SW-846:6020	
Uranium	0.0075	0.03	0.001	0.00023		SW-846:6020	
Vanadium	0.0033	NE	0.01	0.0024	B	SW-846:6020	
Zinc	0.0083	NE	0.01	0.0083	U	SW-846:6020	

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NE = Not Established

U = Result is less than the sample selection limit.

Table-1 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Total 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
CYN-MW8 4-Aug-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	0.059	2	0.002	0.0002		SW-846:6020
	Beryllium	0.00035	0.004	0.0005	0.00035	U	SW-846:6020
	Cadmium	0.0002	0.005	0.0005	0.0001	B	SW-846:6020
	Calcium	112	NE	1	0.68		SW-846:6020
	Chromium	0.0033	0.1	0.01	0.0033	U	SW-846:6020
	Cobalt	0.00025	NE	0.002	0.00022	B	SW-846:6020
	Copper	0.0013	1.3	0.001	0.00045		SW-846:6020
	Iron	0.025	NE	0.05	0.02	B	SW-846:6020
	Lead	0.00017	0.015	0.003	0.00017	U	SW-846:6020
	Magnesium	22.7	NE	0.05	0.0052		SW-846:6020
	Manganese	0.0053	NE	0.002	0.00024		SW-846:6020
	Mercury	0.00006	0.002	0.0002	0.00006	U	SW-846:7470A
	Nickel	0.0009	NE	0.005	0.0004	B,J	SW-846:6020
	Potassium	2.2	NE	0.1	0.042		SW-846:6020
	Selenium	0.0051	0.05	0.005	0.0016		SW-846:6020
	Silver	0.00004	NE	0.002	0.00004	U	SW-846:6020
	Sodium	43.3	NE	0.05	0.015		SW-846:6020
Thallium	0.00055	0.002	0.002	0.00055	U	SW-846:6020	
Uranium	0.0088	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	

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U = Result is less than the sample selection limit.

Table-2 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Anions, Nitrate-Nitrite as Nitrogen and Perchlorate

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW1D 10-Aug-11	Bromide	0.46	NE	0.25	0.025		EPA:300.0
	Chloride	28.3	NE	2	0.2		EPA:300.0
	Fluoride	1.8	4	0.1	0.01		EPA:300.0
	Nitrate-nitrite as N	11.6	10	0.5	0.0472		EPA:353.1
	Sulfate	112	NE	5	0.5		EPA:300.0
CYN-MW1D 10-Aug-11 DUP	Bromide	0.44	NE	0.25	0.025		EPA:300.0
	Chloride	28.2	NE	2	0.2		EPA:300.0
	Fluoride	1.8	4	0.1	0.01		EPA:300.0
	Nitrate-nitrite as N	11.6	10	1	0.0944		EPA:353.1
	Sulfate	112	NE	5	0.5		EPA:300.0
CYN-MW3 11-Aug-11	Bromide	0.92	NE	0.25	0.025		EPA:300.0
	Chloride	63.2	NE	20	2		EPA:300.0
	Fluoride	0.45	4	0.1	0.01		EPA:300.0
	Nitrate-nitrite as N	14.1	10	1	0.0944		EPA:353.1
	Sulfate	194	NE	5	0.5		EPA:300.0
CYN-MW4 8-Aug-11	Bromide	0.32	NE	0.25	0.025		EPA:300.0
	Chloride	25.2	NE	2	0.2		EPA:300.0
	Fluoride	0.67	4	0.1	0.01		EPA:300.0
	Nitrate/Nitrite as N	0.109	10	0.05	0.0047		EPA:353.1
	Sulfate	135	NE	5	0.5		EPA:300.0
CYN-MW6 18-Aug-11	Bromide	0.64	NE	0.25	0.025		EPA:300.0
	Chloride	57.2	NE	20	2		EPA:300.0
	Fluoride	0.53	4	0.1	0.01		EPA:300.0
	Nitrate-nitrite as N	22.2	10	1	0.094		EPA:353.1
	Perchlorate	0.0042	NE	0.004	0.001		EPA:314.0
	Sulfate	128	NE	5	0.5	J	EPA:300.0
CYN-MW7 3-Aug-11	Bromide	0.52	NE	0.25	0.025		EPA:300.0
	Chloride	44	NE	2	0.2		EPA:300.0
	Fluoride	1.2	4	0.1	0.01		EPA:300.0
	Nitrate-nitrite as N	2.23	10	0.2	0.0189		EPA:353.1
	Sulfate	82.5	NE	5	0.5		EPA:300.0
CYN-MW8 4-Aug-11	Bromide	0.69	NE	0.25	0.025		EPA:300.0
	Chloride	54.3	NE	20	2		EPA:300.0
	Fluoride	1.2	4	0.1	0.01		EPA:300.0
	Nitrate-nitrite as N	5.86	10	0.5	0.0472		EPA:353.1
	Sulfate	119	NE	5	0.5		EPA:300.0

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

Table-3 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)		MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW1D 10-Aug-11	Actinium-228	2.8	± 6.2	13	U	EPA:901.1
	Americium-241	-0.5	± 5.2	8.6	U	EPA:901.1
	Bismuth-212	7	± 15	26	U	EPA:901.1
	Bismuth-214	41.6	± 6.5	6.3		EPA:901.1
	Cesium-134	-5	± 2.9	4.6	U	EPA:901.1
	Cesium-137	-5	± 230	5	U	EPA:901.1
	Cobalt-60	0.5	± 1.1	3.2	U	EPA:901.1
	Gross alpha	3.8	± 2	2.2		EPA:900
	Gross beta	2.8	± 1	1.3		EPA:900
	Lead-212	7.5	± 3.1	5.2		EPA:901.1
	Lead-214	48.7	± 8.7	6.8		EPA:901.1
	Potassium-40	-33	± 53	48	U	EPA:901.1
	Protactinium-234M	450	± 300	380		EPA:901.1
	Sodium-22	-0.02	± 2	3.5	U	EPA:901.1
	Thallium-208	3	± 3	3.6	U	EPA:901.1
	Thorium-234	-50	± 100	110	U	EPA:901.1
	Tritium	84	± 95	150	U	EPA:906.0
	Uranium-234	1.8	± 0.29	0.05		HASL-300:ISOU
	Uranium-235	5	± 13	19	U	EPA:901.1
	Uranium-235/236	0.015	± 0.03	0.054	U	HASL-300:ISOU
Uranium-238	0.32	± 0.11	0.04		HASL-300:ISOU	

U = Result is less than the sample selection limit.

Table-3 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)		MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW1D 10-Aug-11 DUP	Actinium-228	8	± 4.9	8.6	U	EPA:901.1
	Americium-241	-0.06	± 3.4	5.6	U	EPA:901.1
	Bismuth-212	3	± 13	22	U	EPA:901.1
	Bismuth-214	55.8	± 7.3	6.7		EPA:901.1
	Cesium-134	-2.1	± 2	3.3	U	EPA:901.1
	Cesium-137	-0.7	± 1.7	2.8	U	EPA:901.1
	Cobalt-60	0.4	± 0.42	2.9	U	EPA:901.1
	Gross alpha	5.2	± 2.1	2.1		EPA:900
	Gross beta	3.6	± 1	1.2		EPA:900
	Lead-212	1.5	± 2.5	4.8	U	EPA:901.1
	Lead-214	56.3	± 6.3	6.2		EPA:901.1
	Potassium-40	12	± 31	41	U	EPA:901.1
	Protactinium-234M	-40	± 230	280	U	EPA:901.1
	Sodium-22	-0.7	± 1.8	3	U	EPA:901.1
	Thallium-208	-2.2	± 3.7	3.1	U	EPA:901.1
	Thorium-234	5	± 37	57	U	EPA:901.1
	Tritium	30	± 84	150	U	EPA:906.0
	Uranium-234	1.74	± 0.28	0.04		HASL-300:ISOU
	Uranium-235	7	± 12	15	U	EPA:901.1
Uranium-235/236	0.021	± 0.029	0.028	U	HASL-300:ISOU	
Uranium-238	0.24	± 0.091	0.022		HASL-300:ISOU	

U = Result is less than the sample selection limit.

Table-3 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)		MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW3 11-Aug-11	Actinium-228	6.8	± 5.3	9.2	U	EPA:901.1
	Americium-241	-0.04	± 3.4	5.6	U	EPA:901.1
	Bismuth-212	13	± 11	17	U	EPA:901.1
	Bismuth-214	70.1	± 7.9	6.6		EPA:901.1
	Cesium-134	0.9	± 1.1	3	U	EPA:901.1
	Cesium-137	-0.2	± 1.8	3	U	EPA:901.1
	Cobalt-60	1	± 1.1	2.6	U	EPA:901.1
	Gross alpha	4	± 2	2.5		EPA:900
	Gross beta	0.49	± 0.77	1.2	U	EPA:900
	Lead-212	3.5	± 2.7	5	U	EPA:901.1
	Lead-214	71.8	± 6.9	5.6		EPA:901.1
	Potassium-40	7	± 33	42	U	EPA:901.1
	Protactinium-234M	87	± 72	370	U	EPA:901.1
	Sodium-22	1.1	± 1.5	2.5	U	EPA:901.1
	Thallium-208	-2.3	± 3.4	3.6	U	EPA:901.1
	Thorium-234	14	± 24	60	U	EPA:901.1
	Tritium	75	± 93	150	U	EPA:906.0
	Uranium-234	6.31	± 0.73	0.04		HASL-300:ISOU
	Uranium-235	-10	± 380	20	U	EPA:901.1
Uranium-235/236	0.086	± 0.065	0.033		HASL-300:ISOU	
Uranium-238	1.91	± 0.32	0.08		HASL-300:ISOU	

U = Result is less than the sample selection limit.

Table-3 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)		MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW4 8-Aug-11	Actinium-228	7	± 4.7	9.4	U	EPA:901.1
	Americium-241	-0.3	± 3	5	U	EPA:901.1
	Bismuth-212	10	± 13	21	U	EPA:901.1
	Bismuth-214	6.3	± 3.9	6.7	U	EPA:901.1
	Cesium-134	0.21	± 0.19	3.2	U	EPA:901.1
	Cesium-137	-0.9	± 1.9	3.1	U	EPA:901.1
	Cobalt-60	0.5	± 1.3	3.1	U	EPA:901.1
	Gross alpha	35.2	± 6.8	3.5		EPA:900
	Gross beta	5.4	± 2.1	2.7		EPA:900
	Lead-212	1.1	± 2.6	4.9	U	EPA:901.1
	Lead-214	12	± 4.3	6.3		EPA:901.1
	Potassium-40	30	± 25	36	U	EPA:901.1
	Protactinium-234M	240	± 200	350	U	EPA:901.1
	Sodium-22	-0.05	± 1.8	3.2	U	EPA:901.1
	Thallium-208	0.7	± 2.3	3	U	EPA:901.1
	Thorium-234	6.4	± 7	53	U	EPA:901.1
	Tritium	11	± 87	160	U	EPA:906.0
	Uranium-234	32.7	± 2.9	0.02		HASL-300:ISOU
	Uranium-235	7.6	± 9.2	12	U	EPA:901.1
Uranium-235/236	0.197	± 0.092	0.028		HASL-300:ISOU	
Uranium-238	3.91	± 0.49	0.02		HASL-300:ISOU	

U = Result is less than the sample selection limit.

Table-3 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)		MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW6 18-Aug-11	Actinium-228	13.4	± 6.3	6.7		EPA:901.1
	Americium-241	-1	± 3.2	5.3	U	EPA:901.1
	Bismuth-212	-9	± 35	22	U	EPA:901.1
	Bismuth-214	12.7	± 6.1	6.6		EPA:901.1
	Cesium-134	-1.3	± 1.8	2.9	U	EPA:901.1
	Cesium-137	-0.1	± 1.2	2	U	EPA:901.1
	Cobalt-60	0.6	± 1.6	2.7	U	EPA:901.1
	Gross alpha	14.5	± 7.2	8.8		EPA:900
	Gross beta	3.7	± 2.9	4.3	U	EPA:900
	Lead-212	1.5	± 2.6	4.9	U	EPA:901.1
	Lead-214	9.1	± 4.9	6.1		EPA:901.1
	Potassium-40	-19	± 29	40	U	EPA:901.1
	Protactinium-234M	-140	± 490	380	U	EPA:901.1
	Sodium-22	1	± 1.4	2.3	U	EPA:901.1
	Thallium-208	-0.5	± 1.4	3	U	EPA:901.1
	Thorium-234	-13	± 40	56	U	EPA:901.1
	Tritium	-30	± 120	220	U	EPA:906.0
	Uranium-234	10.1	± 1	0.02		HASL-300:ISOU
	Uranium-235	6.3	± 6.6	13	U	EPA:901.1
Uranium-235/236	0.163	± 0.085	0.029		HASL-300:ISOU	
Uranium-238	2.41	± 0.35	0.02		HASL-300:ISOU	

U = Result is less than the sample selection limit.

Table-3 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)		MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW7 3-Aug-11	Actinium-228	11.2	± 5.5	7.8		EPA:901.1
	Americium-241	1.6	± 2.8	4.7	U	EPA:901.1
	Bismuth-212	7	± 14	23	U	EPA:901.1
	Bismuth-214	9.9	± 6.2	6.5		EPA:901.1
	Cesium-134	1.9	± 1.8	2.3	U	EPA:901.1
	Cesium-137	0.5	± 1.7	2.9	U	EPA:901.1
	Cobalt-60	0.08	± 0.21	3	U	EPA:901.1
	Gross alpha	15.5	± 5.7	5.4		EPA:900
	Gross beta	0.7	± 2.5	3.9	U	EPA:900
	Lead-212	3	± 3.2	4.9	U	EPA:901.1
	Lead-214	2.6	± 4.3	6.6	U	EPA:901.1
	Potassium-40	14	± 35	41	U	EPA:901.1
	Protactinium-234M	-190	± 610	390	U	EPA:901.1
	Sodium-22	0	± 1.7	3.1	U	EPA:901.1
	Thallium-208	1.1	± 1.6	3.4	U	EPA:901.1
	Thorium-234	2	± 36	52	U	EPA:901.1
	Tritium	10	± 130	210	U	EPA:906.0
	Uranium-234	15.9	± 1.5	0.05		HASL-300:ISOU
	Uranium-235	1.2	± 4.3	13	U	EPA:901.1
Uranium-235/236	0.104	± 0.065	0.054		HASL-300:ISOU	
Uranium-238	1.98	± 0.29	0.05		HASL-300:ISOU	

U = Result is less than the sample selection limit.

Table-3 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)		MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW8 4-Aug-11	Actinium-228	7.7	± 6.2	9.9	U	EPA:901.1
	Americium-241	1.8	± 3.6	6	U	EPA:901.1
	Bismuth-212	4	± 11	19	U	EPA:901.1
	Bismuth-214	99.1	± 9.3	7.3		EPA:901.1
	Cesium-134	-3.3	± 2.1	3.5	U	EPA:901.1
	Cesium-137	-0.1	± 1.4	2.4	U	EPA:901.1
	Cobalt-60	-0.1	± 1.7	2.9	U	EPA:901.1
	Gross alpha	36	± 8.7	5.8		EPA:900
	Gross beta	2.4	± 2.8	4.2	U	EPA:900
	Lead-212	-1.9	± 3.2	5.4	U	EPA:901.1
	Lead-214	117	± 9.7	6.6		EPA:901.1
	Potassium-40	-0.07	± 28	39	U	EPA:901.1
	Protactinium-234M	230	± 170	260	U	EPA:901.1
	Sodium-22	-0.3	± 1.7	2.9	U	EPA:901.1
	Thallium-208	0.3	± 2.6	3.3	U	EPA:901.1
	Thorium-234	9	± 40	57	U	EPA:901.1
	Tritium	20	± 150	250	U	EPA:906.0
	Uranium-234	23.2	± 2.1	0.05		HASL-300:ISOU
	Uranium-235	10.7	± 9	16	U	EPA:901.1
Uranium-235/236	0.209	± 0.097	0.03		HASL-300:ISOU	
Uranium-238	2.58	± 0.37	0.02		HASL-300:ISOU	

U = Result is less than the sample selection limit.

Table-4 NMED DOE OB FFY 2011 Q-4 Burn Site 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
CYN-MW1D 10-Aug-11 DUP	Chloroform	0.21	NE	5	0.15	J	SW-846:8260B
	Dibromochloromethane	0.45	NE	5	0.33	J	SW-846:8260B
CYN-MW3 11-Aug-11	Acetone	11	NE	20	6.7	J	SW-846:8260B

J = Estimated result. Result is less than RL.

NE = Not Established

Table-5 NMED DOE OB FFY 2011 Q-4 Burn Site Groundwater Quality Results: Diesel and Gasoline Range Organics

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW1D 10-Aug-11	Total petroleum hydrocarbons diesel range organics	0.017	0.5	0.017	U	SW-846:8015M_EXTRACTABLE
	Total Petroleum Hydrocarbons Gasoline Range Organics	0.01	0.1	0.01	U	SW-846:8015M_PURGEABLE
CYN-MW1D 10-Aug-11 DUP	Total petroleum hydrocarbons diesel range organics	0.017	0.5	0.017	U	SW-846:8015M_EXTRACTABLE
	Total Petroleum Hydrocarbons Gasoline Range Organics	0.01	0.1	0.01	U	SW-846:8015M_PURGEABLE
CYN-MW3 11-Aug-11	Total petroleum hydrocarbons diesel range organics	0.017	0.5	0.017	U	SW-846:8015M_EXTRACTABLE
	Total Petroleum Hydrocarbons Gasoline Range Organics	0.01	0.1	0.01	U	SW-846:8015M_PURGEABLE
CYN-MW4 8-Aug-11	TPH (as Diesel)	0.017	0.5	0.017	U	SW-846:8015M_EXTRACTABLE
	Volatile Petroleum Hydrocarbons	0.01	0.1	0.01	U	SW-846:8015M_PURGEABLE
CYN-MW6 18-Aug-11	Total Petroleum Hydrocarbons Diesel Range Organics	0.017	0.5	0.017	U	SW-846:8015M_EXTRACTABLE
	Total Petroleum Hydrocarbons Gasoline Range Organics	0.01	0.1	0.01	U	SW-846:8015M_PURGEABLE
CYN-MW7 3-Aug-11	Total petroleum hydrocarbons diesel range organics	0.017	0.5	0.017	U	SW-846:8015M_EXTRACTABLE
	Total Petroleum Hydrocarbons Gasoline Range Organics	0.01	0.1	0.01	U	SW-846:8015M_PURGEABLE
CYN-MW8 4-Aug-11	Total petroleum hydrocarbons diesel range organics	0.019	0.56	0.019	U	SW-846:8015M_EXTRACTABLE
	Total Petroleum Hydrocarbons Gasoline Range Organics	0.01	0.1	0.01	U	SW-846:8015M_PURGEABLE

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

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