DOE Oversight Bureau, New Mexico Environment Department

Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Groundwater Area of Concern

Conducted by the
New Mexico Environment Department DOE Oversight Bureau
for FFY 2017 Q-3

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Final Report

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The purpose of this communication is to transmit groundwater quality data collected by the New Mexico Environment Department DOE Oversight Bureau from Burn Site Groundwater Area of Concern during the third quarter of FFY 2017.

Acknowledgment:
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Introduction

The New Mexico Environment Department (NMED) DOE Oversight Bureau (DOE-OB or Bureau) has compiled and assessed groundwater data collected during April 2017. The Bureau collected groundwater samples from Burn Site Groundwater (BSG) Area of Concern (AOC). The Bureau collected split samples from BSG AOC monitoring wells CYN-MW7, CYN-MW8, CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, CYN-MW13, CYN-MW14A and CYN-MW15. Samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM) sampling procedures and equipment. Samples were analyzed for organics, inorganics and radionuclides. The Bureau used Test America Laboratories located in West Sacramento, California to analyze samples for nitrate-nitrite and high explosives (HE) compounds. All other analyses were conducted by ALS Environmental Laboratory located in Fort Collins, Colorado. Test America and ALS Environmental are both independent analytical laboratories under contract with the NMED.

Samples collected from CYN-MW7 were analyzed for volatile organic compounds, nitrate-nitrite, HE compounds and diesel and gasoline range organics only. All other BSG monitoring wells were analyzed for the full analytical suite.

Nitrate-nitrite levels exceeded the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL), or drinking water standard of 10 mg/L at monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, CYN-MW13, CYN-MW14A and CYN-MW15.

Data Assessment

All groundwater samples were collected and analyzed in accordance with U.S. EPA protocols. Data results are compared to applicable MCLs established by the U.S. 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 total target analyte list (TAL) metals plus uranium are presented in Table-1. No metal parameters were detected above established regulatory standards.

Analytical results for anions (bromide, chloride, fluoride and sulfate), nitrate-nitrite as nitrogen and perchlorate are presented in Table-2. No anions exceeded established MCLs. Nitrate-nitrite levels exceeded the EPA MCL of 10 mg/L at monitoring wells CYN-MW9 (29 mg/L), CYN-MW10 (17 mg/L), CYN-MW11 (17

mg/L), CYN-MW12 (14 mg/L), CYN-MW13 (33 mg/L), CYN-MW14A (11 mg/L) and CYN-MW15 (21 mg/L). Samples for perchlorate were collected from CYN-MW15 only. Perchlorate was detected below the COOC perchlorate screening level of 0.004 mg/L.

Analytical results for high explosive (HE) compounds are listed in Table-3. No HE compounds were detected above laboratory method detection limits (MDLs).

No volatile organic compounds (VOCs) were detected at concentrations above the laboratory MDLs. Table-4 summarizes the laboratory MDLs for VOCs analyzed in samples collected from BSG monitoring wells.

Analytical results for total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO) are presented in Table-5. No samples analyzed for GROs were detected above the laboratory MDLs. Samples collected from monitoring wells CYN-MW9 and CYN-MW13 detected DROs at concentrations of 0.29 mg/L and 0.19 mg/L, respectively. Sample results from both wells were “J” flagged, indicating an estimated value detected between the MDL and the laboratory detection limit.

Analytical results for radionuclides are summarized in Table-6 and used to screen for potential radiological contamination. Samples were analyzed for gross alpha, gross beta, gamma emitting isotopes, isotopic uranium and tritium. Unadjusted gross alpha activity ranged from 9.0 ± 0.97 pCi/L at CYN-MW9 to 28 ± 2.4 pCi/L at CYN-MW8. 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. Subsequently, when the total uranium activity is subtracted from the gross alpha value, the gross activity results from all samples are below the MCL. Gross alpha results in Table-6 are reported as uncorrected results. All radionuclide results were below established EPA MCLs and consistent with previous monitoring results.

Conclusion

The DOE-OB collected split samples from nine (9) BSG groundwater monitoring wells during third quarter FFY 2016. Samples were analyzed by ALS Environmental laboratory and Test America Laboratories. Nitrate concentrations exceeded the EPA MCL of 10 mg/L in samples collected from monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, CYN-MW13, CYN-MW14A and CYN-MW15.

Nitrate has been identified as a contaminant of concern in groundwater from the BSG AOC. Historically, nitrate at these wells have exceeded the EPA MCL and the Bureau’s results for this reporting period are consistent with past results.

The DOE-OB will continue to collect split samples with SNL/NM from BSG groundwater monitoring wells and continue to independently monitor nitrate concentrations in the AOC.

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Table 1
Groundwater Quality Results: Total Target Analyte List Metals plus Uranium
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW8 12-Apr-17	Aluminum	0.014	NE	0.1	0.014	U	SW-846:6020
	Antimony	0.0003	0.006	0.001	0.0003	U	SW-846:6020
	Arsenic	0.00074	0.01	0.002	0.0006	J	SW-846:6020
	Barium	0.058	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00015	0.004	0.0005	0.0002	U	SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	100	NE	1	0.3		SW-846:6020
	Chromium	0.003	0.1	0.01	0.003	U	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.03	NE	0.1	0.03	U	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	21	NE	0.1	0.03		SW-846:6020
	Manganese	0.0021	NE	0.005	0.0015	J	SW-846:6020
	Mercury	0.00006	0.002	0.0001	6E-05	U	SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	2.1	NE	1	0.3		SW-846:6020
	Selenium	0.0057	0.05	0.01	0.0035	J	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	42	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.0071	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.003	NE	0.005	0.0015	J	SW-846:6020
	Zinc	0.048	NE	0.1	0.048	U	SW-846:6020

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW9 18-Apr-17	Aluminum	0.014	NE	0.1	0.014	J	SW-846:6020
	Antimony	0.0003	0.006	0.001	0.0003	U	SW-846:6020
	Arsenic	0.0006	0.01	0.002	0.0006	U	SW-846:6020
	Barium	0.054	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00015	0.004	0.0005	0.0002	U	SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	150	NE	1	0.3		SW-846:6020
	Chromium	0.014	0.1	0.01	0.003	B	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.097	NE	0.1	0.03	JB	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	42	NE	0.1	0.03		SW-846:6020
	Manganese	0.0026	NE	0.005	0.0015	J	SW-846:6020
	Mercury	0.00006	0.002	0.0001	6E-05	U	SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	2.4	NE	1	0.3		SW-846:6020
	Selenium	0.0059	0.05	0.01	0.0035	J	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	41	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.007	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.0024	NE	0.005	0.0015	J	SW-846:6020
	Zinc	0.048	NE	0.1	0.048	U	SW-846:6020

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CYN-MW10 24-Apr-17	Aluminum	0.027	NE	0.1	0.014	J	SW-846:6020
	Antimony	0.0003	0.006	0.001	0.0003	U	SW-846:6020
	Arsenic	0.00098	0.01	0.002	0.0006	J	SW-846:6020
	Barium	0.065	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00015	0.004	0.0005	0.0002	U	SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	140	NE	1	0.3		SW-846:6020
	Chromium	0.003	0.1	0.01	0.003	U	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.03	NE	0.1	0.03	U	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	38	NE	0.1	0.03		SW-846:6020
	Manganese	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Mercury	0.00006	0.002	0.0001	6E-05	U	SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	1.9	NE	1	0.3		SW-846:6020
	Selenium	0.0065	0.05	0.01	0.0035	J	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	41	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.006	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.0028	NE	0.005	0.0015	J	SW-846:6020
	Zinc	0.048	NE	0.1	0.048	U	SW-846:6020

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CYN-MW11 14-Apr-17	Aluminum	0.018	NE	0.1	0.014	J	SW-846:6020
	Antimony	0.00037	0.006	0.001	0.0003	J	SW-846:6020
	Arsenic	0.0006	0.01	0.002	0.0006	U	SW-846:6020
	Barium	0.083	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00015	0.004	0.0005	0.0002	U	SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	150	NE	1	0.3		SW-846:6020
	Chromium	0.003	0.1	0.01	0.003	U	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.04	NE	0.1	0.03	JB	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	43	NE	0.1	0.03		SW-846:6020
	Manganese	0.012	NE	0.005	0.0015		SW-846:6020
	Mercury	0.00006	0.002	0.0001	6E-05	U	SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	3.3	NE	1	0.3		SW-846:6020
	Selenium	0.0059	0.05	0.01	0.0035	J	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	42	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.0061	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Zinc	0.048	NE	0.1	0.048	U	SW-846:6020

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CYN-MW12 17-Apr-17	Aluminum	0.014	NE	0.1	0.014	U	SW-846:6020
	Antimony	0.0003	0.006	0.001	0.0003	U	SW-846:6020
	Arsenic	0.0006	0.01	0.002	0.0006	U	SW-846:6020
	Barium	0.037	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00015	0.004	0.0005	0.0002	U	SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	170	NE	1	0.3		SW-846:6020
	Chromium	0.0097	0.1	0.01	0.003	JB	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.055	NE	0.1	0.03	JB	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	44	NE	0.1	0.03		SW-846:6020
	Manganese	0.017	NE	0.005	0.0015		SW-846:6020
	Mercury	0.00006	0.002	0.0001	6E-05	U	SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	2.9	NE	1	0.3		SW-846:6020
	Selenium	0.0091	0.05	0.01	0.0035	J	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	44	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.0079	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Zinc	0.048	NE	0.1	0.048	U	SW-846:6020

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CYN-MW13 24-Apr-17	Aluminum	0.025	NE	0.1	0.014	J	SW-846:6020
	Antimony	0.0003	0.006	0.001	0.0003	U	SW-846:6020
	Arsenic	0.0006	0.01	0.002	0.0006	U	SW-846:6020
	Barium	0.093	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00015	0.004	0.0005	0.0002	U	SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	100	NE	1	0.3		SW-846:6020
	Chromium	0.003	0.1	0.01	0.003	U	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.03	NE	0.1	0.03	U	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	19	NE	0.1	0.03		SW-846:6020
	Manganese	0.0087	NE	0.005	0.0015		SW-846:6020
	Mercury	0.00006	0.002	0.0001	6E-05	U	SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	2.1	NE	1	0.3		SW-846:6020
	Selenium	0.0035	0.05	0.01	0.0035	U	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	23	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.0044	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.0025	NE	0.005	0.0015	J	SW-846:6020
	Zinc	0.048	NE	0.1	0.048	U	SW-846:6020

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CYN-MW14A 13-Apr-17	Aluminum	0.19	NE	0.1	0.014		SW-846:6020
	Antimony	0.00055	0.006	0.001	0.0003	J	SW-846:6020
	Arsenic	0.0006	0.01	0.002	0.0006	U	SW-846:6020
	Barium	0.046	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00073	0.004	0.0005	0.0002		SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	140	NE	1	0.3		SW-846:6020
	Chromium	0.003	0.1	0.01	0.003	U	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.042	NE	0.1	0.03	JB	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	35	NE	0.1	0.03		SW-846:6020
	Manganese	0.022	NE	0.005	0.0015		SW-846:6020
	Mercury	0.00006	0.002	0.0001	6E-05	U	SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	2.7	NE	1	0.3		SW-846:6020
	Selenium	0.0087	0.05	0.01	0.0035	J	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	40	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.0078	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Zinc	0.1	NE	0.1	0.048	J	SW-846:6020

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CYN-MW15 19-Apr-17	Aluminum	0.014	NE	0.1	0.014	U	SW-846:6020
	Antimony	0.0003	0.006	0.001	0.0003	U	SW-846:6020
	Arsenic	0.00068	0.01	0.002	0.0006	J	SW-846:6020
	Barium	0.074	2	0.005	0.0018		SW-846:6020
	Beryllium	0.00015	0.004	0.0005	0.0002	U	SW-846:6020
	Cadmium	0.0006	0.005	0.002	0.0006	U	SW-846:6020
	Calcium	190	NE	1	0.3		SW-846:6020
	Chromium	0.015	0.1	0.01	0.003	B	SW-846:6020
	Cobalt	0.0015	NE	0.005	0.0015	U	SW-846:6020
	Copper	0.006	NE	0.02	0.006	U	SW-846:6020
	Iron	0.083	NE	0.1	0.03	JB	SW-846:6020
	Lead	0.00085	NE	0.002	0.0009	U	SW-846:6020
	Magnesium	54	NE	0.1	0.03		SW-846:6020
	Manganese	0.0035	NE	0.005	0.0015	J	SW-846:6020
	Mercury	0.00021	0.002	0.0001	6E-05		SW-846:7470A
	Nickel	0.011	NE	0.02	0.011	U	SW-846:6020
	Potassium	3.1	NE	1	0.3		SW-846:6020
	Selenium	0.0097	0.05	0.01	0.0035	J	SW-846:6020
	Silver	0.00015	NE	0.0005	0.0002	U	SW-846:6020
	Sodium	50	NE	1	0.3		SW-846:6020
	Thallium	0.000084	0.002	0.0001	8E-05	U	SW-846:6020
	Uranium	0.01	0.03	0.0001	3E-05		SW-846:6020
	Vanadium	0.0021	NE	0.005	0.0015	J	SW-846:6020
	Zinc	0.048	NE	0.1	0.048	U	SW-846:6020

B = Compound was found in the blank and sample.

J = the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to the Method Detection Limit (MDL).

NE = Not Established

U = the analyte was analyzed for but not detected

Table-2
Groundwater Quality Results: Major Anions, Nitrate-Nitrite as Nitrogen and Perchlorate
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW7 10-Apr-17	Nitrate-Nitrite as Nitrogen	2.3	10	0.1	0.0062		EPA:353.2
CYN-MW8 12-Apr-17	Bromide	0.64	NE	0.2	0.06		EPA:300.0
	Chloride	66	NE	1	0.3		EPA:300.0
	Fluoride	1.6	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	4.6	10	0.25	0.016		EPA:353.2
	Sulfate	120	NE	5	0.75		EPA:300.0
CYN-MW9 18-Apr-17	Bromide	0.59	NE	0.2	0.06		EPA:300.0
	Chloride	66	NE	1	0.3		EPA:300.0
	Fluoride	0.67	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	**29**	10	1	0.062		EPA:353.2
	Sulfate	140	NE	5	0.75		EPA:300.0
CYN-MW10 24-Apr-17	Bromide	0.06	NE	0.2	0.06	U	EPA:300.0
	Chloride	6	NE	0.2	0.06		EPA:300.0
	Fluoride	0.37	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	**17**	10	1	0.062		EPA:353.2
	Sulfate	22	NE	1	0.15		EPA:300.0
CYN-MW11 14-Apr-17	Bromide	0.93	NE	0.2	0.06		EPA:300.0
	Chloride	94	NE	1	0.3		EPA:300.0
	Fluoride	0.75	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	**17**	10	1	0.062		EPA:353.2
	Sulfate	220	NE	5	0.75		EPA:300.0
CYN-MW12 17-Apr-17	Bromide	0.82	NE	0.2	0.06		EPA:300.0
	Chloride	98	NE	1	0.3		EPA:300.0
	Fluoride	1.2	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	**14**	10	1	0.062		EPA:353.2
	Sulfate	240	NE	5	0.75		EPA:300.0
CYN-MW13 24-Apr-17	Bromide	0.25	NE	0.2	0.06		EPA:300.0
	Chloride	20	NE	0.4	0.12		EPA:300.0
	Fluoride	1.8	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	**33**	10	1	0.062		EPA:353.2
	Sulfate	76	NE	2	0.3		EPA:300.0

J = the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to the Method Detection Limit (MDL).

NE = Not Established

Table-2
Groundwater Quality Results: Major Anions, Nitrate-Nitrite as Nitrogen and Perchlorate
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW14A 13-Apr-17	Bromide	0.7	NE	0.2	0.06		EPA:300.0
	Chloride	77	NE	1	0.3		EPA:300.0
	Fluoride	1.2	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	**11**	10	1	0.062		EPA:353.2
	Sulfate	190	NE	5	0.75		EPA:300.0
CYN-MW15 19-Apr-17	Bromide	1.4	NE	1	0.3		EPA:300.0
	Chloride	150	NE	2	0.6		EPA:300.0
	Fluoride	0.72	4	0.1	0.03		EPA:300.0
	Nitrate-Nitrite as Nitrogen	**21**	10	1	0.062		EPA:353.2
	Perchlorate	0.0027	NE	0.004	0.002	J	EPA:314.0
	Sulfate	220	NE	10	1.5		EPA:300.0
CYN-MW15 19-Apr-17 DUP	Nitrate-Nitrite as Nitrogen	**20**	10	1	0.062		EPA:353.2
	Perchlorate	0.0022	NE	0.004	0.002	J	EPA:314.0

J = the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to the Method Detection Limit (MDL).

NE = Not Established

Table-3
Groundwater Quality Results: Method Detection Limits for High Explosive Compounds (EPA Method 8330A)
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Analyte	MDL (µg/L)
Amino-2,6-dinitrotoluene[4-]	0.053 - 0.056
Amino-4,6-dinitrotoluene[2-]	0.016 - 0.017
Dinitrobenzene[1,3-]	0.053 - 0.056
Dinitrotoluene[2,4-]	0.053 - 0.056
Dinitrotoluene[2,6-]	0.053 - 0.056
HMX	0.038 - 0.041
Nitrobenzene	0.053 - 0.056
Nitrotoluene[2-]	0.094 - 0.099
Nitrotoluene[3-]	0.061 - 0.064
Nitrotoluene[4-]	0.094 - 0.099
RDX	0.038 - 0.041
Tetryl	0.053 - 0.056
Trinitrobenzene[1,3,5-]	0.033 - 0.035
Trinitrotoluene[2,4,6-]	0.053 - 0.056

Table-4
Groundwater Quality Results: Method Detection Limits for VOCs (EPA Method 8260B)
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Analyte	MDL (µg/L)
Acetone	3
Benzene	0.32
Bromobenzene	0.3
Bromochloromethane	0.32
Bromodichloromethane	0.35
Bromoform	0.34
Bromomethane	0.3
Butanone[2-]	3
Butylbenzene[n-]	0.3
Butylbenzene[sec-]	0.3
Butylbenzene[tert-]	0.3
Carbon Disulfide	0.3
Carbon Tetrachloride	0.32
Chlorobenzene	0.3
Chlorodibromomethane	0.35
Chloroethane	0.32
Chloroform	0.3
Chlorohexane[1-]	0.3
Chloromethane	0.3
Chlorotoluene[2-]	0.3
Chlorotoluene[4-]	0.3
Dibromo-3-Chloropropane[1,2-]	0.66
Dibromoethane[1,2-]	0.3
Dibromomethane	0.31
Dichlorobenzene[1,2-]	0.3
Dichlorobenzene[1,3-]	0.3
Dichlorobenzene[1,4-]	0.3
Dichlorodifluoromethane	0.32
Dichloroethane[1,1-]	0.3
Dichloroethane[1,2-]	0.3
Dichloroethene[1,1-]	0.3
Dichloroethene[cis-1,2-]	0.33
Dichloroethene[trans-1,2-]	0.33
Dichloropropane[1,2-]	0.3
Dichloropropane[1,3-]	0.3

Analyte	MDL (µg/L)
Dichloropropane[2,2-]	0.33
Dichloropropene[1,1-]	0.3
Dichloropropene[cis-1,3-]	0.33
Dichloropropene[trans-1,3-]	0.33
Ethylbenzene	0.31
Hexachlorobutadiene	0.3
Hexanone[2-]	3
Iodomethane	0.3
Isopropylbenzene	0.3
Isopropyltoluene[4-]	0.3
Methyl tert-Butyl Ether	0.31
Methyl-2-pentanone[4-]	3
Methylene Chloride	0.3
Naphthalene	0.3
Propylbenzene[1-]	0.3
Styrene	0.32
Tetrachloroethane[1,1,1,2-]	0.3
Tetrachloroethane[1,1,2,2-]	0.3
Tetrachloroethene	0.3
Toluene	0.31
Trichloro-1,2,2-trifluoroethane[1,1,2-]	0.3
Trichlorobenzene[1,2,3-]	0.3
Trichlorobenzene[1,2,4-]	0.3
Trichloroethane[1,1,1-]	0.3
Trichloroethane[1,1,2-]	0.3
Trichloroethene	0.31
Trichlorofluoromethane	0.31
Trichloropropane[1,2,3-]	0.3
Trimethylbenzene[1,2,4-]	0.3
Trimethylbenzene[1,3,5-]	0.3
Vinyl acetate	0.78
Vinyl Chloride	0.31
Xylene[1,2-]	0.31
Xylene[1,3-]+Xylene[1,4-]	0.31

Table-5
Groundwater Quality Results: Diesel Range Organics and Gasoline Range Organics
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
CYN-MW7 10-Apr-17	Diesel Range Organics	0.17	NE	0.6	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW8 12-Apr-17	Diesel Range Organics	0.17	NE	0.6	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW9 18-Apr-17	Diesel Range Organics	0.29	NE	0.6	0.17	J	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW10 24-Apr-17	Diesel Range Organics	0.17	NE	0.6	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW11 14-Apr-17	Diesel Range Organics	0.17	NE	0.6	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW12 17-Apr-17	Diesel Range Organics	0.17	NE	0.6	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW13 24-Apr-17	Diesel Range Organics	0.19	NE	0.6	0.17	J	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW14A 13-Apr-17	Diesel Range Organics	0.17	NE	0.6	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW15 19-Apr-17	Diesel Range Organics	0.17	NE	0.59	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015
CYN-MW15 19-Apr-17 DUP	Diesel Range Organics	0.17	NE	0.6	0.17	U	SW-846:8015M
	Gasoline Range Organics	0.03	NE	0.1	0.03	U	SW-846:8015

J = the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to the Method Detection Limit (MDL).

NE = Not Established

U = the analyte was analyzed for but not detected

Table-6
Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW8 12-April-17	Actinium-228	13	±	5.9	19	U	EPA:901.1
	Americium-241	2.7	±	15	51	U	EPA:901.1
	Beryllium-7	-31	±	12	41	U	EPA:901.1
	Bismuth-212	23	±	21	70	U	EPA:901.1
	Bismuth-214	120	±	21	70		EPA:901.1
	Cesium-134	-0.34	±	1.5	4.9	U	EPA:901.1
	Cesium-137	-3.5	±	1.4	5	U	EPA:901.1
	Cobalt-60	-0.91	±	1.7	5.9	U	EPA:901.1
	Gross alpha	28	±	2.4	1.4		EPA:900
	Gross beta	5.9	±	0.79	2		EPA:900
	Iodine-131	4.3	±	3.4	11	U	EPA:901.1
	Lead-212	5.4	±	3.1	10	U	EPA:901.1
	Lead-214	120	±	8.8	16		EPA:901.1
	Potassium-40	-20	±	49	160	U	EPA:901.1
	Protactinium-234m	-610	±	250	890	U	EPA:901.1
	Sodium-22	0.29	±	1.4	4.9	U	EPA:901.1
	Thallium-208	3.8	±	1.6	5.1	U	EPA:901.1
	Thorium-234	60	±	21	68	U	EPA:901.1
	Tritium	66	±	100	340	U	EPA:906.0
	Uranium-234	23	±	1.9	0.071		HASL-300:ISOU
	Uranium-235	0.19	±	0.048	0.061		HASL-300:ISOU
	Uranium-238	2.6	±	0.26	0.063		HASL-300:ISOU

U = Result is less than the sample specific MDC or less than the associated TPU.

UI = Nuclide identification is tentative.

[a] = Gross alpha results are reported as uncorrected.

[b] = Negative numbers indicate the sample count or result was less than the instrument background; result is below the Minimum Detectable Activity (MDA).

Table-6
Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW9 18-Apr-17	Actinium-228	11	±	5.8	19	U	EPA:901.1
	Americium-241	-2.1	±	12	40	U	EPA:901.1
	Beryllium-7	-9.5	±	12	40	U	EPA:901.1
	Bismuth-212	29	±	21	68	U	EPA:901.1
	Bismuth-214	30	±	5.1	17		EPA:901.1
	Cesium-134	-2.9	±	1.5	5.2	U	EPA:901.1
	Cesium-137	-1.2	±	1.5	5.1	U	EPA:901.1
	Cobalt-60	0.064	±	1.8	6.1	U	EPA:901.1
	Gross alpha	9	±	0.97	1.5		EPA:900
	Gross beta	5.1	±	0.82	2.2		EPA:900
	Iodine-131	3.6	±	1.6	5.2	U	EPA:901.1
	Lead-212	2.8	±	3.8	13	U	EPA:901.1
	Lead-214	25	±	5	18		EPA:901.1
	Potassium-40	-1.1	±	42	140	U	EPA:901.1
	Protactinium-234m	360	±	270	880	U	EPA:901.1
	Sodium-22	-1.8	±	1.7	5.8	U	EPA:901.1
	Thallium-208	1.3	±	2.9	9.7	U	EPA:901.1
	Thorium-234	2.3	±	43	140	U	EPA:901.1
	Tritium	-73	±	100	350	U	EPA:906.0
	Uranium-234	8.3	±	0.73	0.026		HASL-300:ISOU
	Uranium-235	0.17	±	0.046	0.063		HASL-300:ISOU
	Uranium-238	2.5	±	0.25	0.087		HASL-300:ISOU

U = Result is less than the sample specific MDC or less than the associated TPU.

UI = Nuclide identification is tentative.

[a] = Gross alpha results are reported as uncorrected.

[b] = Negative numbers indicate the sample count or result was less than the instrument background; result is below the Minimum Detectable Activity (MDA).

Table-6

Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

SNL/NM Burn Site Groundwater Area of Concern

New Mexico Environment Department DOE Oversight Bureau

April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW10 24-Apr-17	Actinium-228	13	±	11	37	U	EPA:901.1
	Americium-241	63	±	31	99	U	EPA:901.1
	Beryllium-7	-14	±	11	37	U	EPA:901.1
	Bismuth-212	64	±	18	57		EPA:901.1
	Bismuth-214	28	±	5.3	21		EPA:901.1
	Cesium-134	-2.9	±	1.4	4.9	U	EPA:901.1
	Cesium-137	-1.7	±	1.2	4.3	U	EPA:901.1
	Cobalt-60	-0.68	±	1.4	5	U	EPA:901.1
	Gross alpha	10	±	1.1	1.6		EPA:900
	Gross beta	-0.6	±	0.81	2.7	U	EPA:900
	Iodine-131	2.8	±	2.6	8.6	U	EPA:901.1
	Lead-212	5.1	±	4.4	14	U	EPA:901.1
	Lead-214	21	±	6.4	21	UI	EPA:901.1
	Potassium-40	16	±	40	130	U	EPA:901.1
	Protactinium-234m	37	±	230	770	U	EPA:901.1
	Sodium-22	-0.49	±	1.3	4.5	U	EPA:901.1
	Thallium-208	2.5	±	3	10	U	EPA:901.1
	Thorium-234	14	±	61	200	U	EPA:901.1
	Tritium	-55	±	110	370	U	EPA:906.0
	Uranium-234	6.2	±	0.55	0.026		HASL-300:ISOU
	Uranium-235	0.1	±	0.035	0.031		HASL-300:ISOU
	Uranium-238	2	±	0.22	0.073		HASL-300:ISOU

U = Result is less than the sample specific MDC or less than the associated TPU.

UI = Nuclide identification is tentative.

[a] = Gross alpha results are reported as uncorrected.

[b] = Negative numbers indicate the sample count or result was less than the instrument background; result is below the Minimum Detectable Activity (MDA).

Table-6

Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

SNL/NM Burn Site Groundwater Area of Concern

New Mexico Environment Department DOE Oversight Bureau

April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW11 14-Apr-17	Actinium-228	11	±	15	49	U	EPA:901.1
	Americium-241	19	±	10	34	U	EPA:901.1
	Beryllium-7	-4.5	±	13	43	U	EPA:901.1
	Bismuth-212	38	±	24	80	U	EPA:901.1
	Bismuth-214	36	±	8	31		EPA:901.1
	Cesium-134	15	±	12	41	U	EPA:901.1
	Cesium-137	-2.6	±	1.9	6.4	U	EPA:901.1
	Cobalt-60	-0.91	±	2.3	8	U	EPA:901.1
	Gross alpha	10	±	1.1	1.6		EPA:900
	Gross beta	7.9	±	1.1	2.8		EPA:900
	Iodine-131	3.8	±	3	9.9	U	EPA:901.1
	Lead-212	-0.72	±	4	13	U	EPA:901.1
	Lead-214	46	±	6.5	22		EPA:901.1
	Potassium-40	-29	±	55	190	U	EPA:901.1
	Protactinium-234m	-430	±	320	1100	U	EPA:901.1
	Sodium-22	0.44	±	2.2	7.6	U	EPA:901.1
	Thallium-208	-1.2	±	4	13	U	EPA:901.1
	Thorium-234	-36	±	44	150	U	EPA:901.1
	Tritium	110	±	100	350	U	EPA:906.0
	Uranium-234	7.4	±	0.68	0.077		HASL-300:ISOU
	Uranium-235	0.091	±	0.037	0.075		HASL-300:ISOU
	Uranium-238	2.3	±	0.25	0.077		HASL-300:ISOU

U = Result is less than the sample specific MDC or less than the associated TPU.

UI = Nuclide identification is tentative.

[a] = Gross alpha results are reported as uncorrected.

[b] = Negative numbers indicate the sample count or result was less than the instrument background; result is below the Minimum Detectable Activity (MDA).

Table-6

Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

SNL/NM Burn Site Groundwater Area of Concern

New Mexico Environment Department DOE Oversight Bureau

April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW12 17-Apr-17	Actinium-228	9.4	±	6.2	28	U	EPA:901.1
	Americium-241	-35	±	33	110	U	EPA:901.1
	Beryllium-7	-16	±	11	37	U	EPA:901.1
	Bismuth-212	-1.3	±	19	64	U	EPA:901.1
	Bismuth-214	43	±	7.4	24		EPA:901.1
	Cesium-134	-0.37	±	1.5	5	U	EPA:901.1
	Cesium-137	-3.3	±	1.3	4.7	U	EPA:901.1
	Cobalt-60	-1	±	1.4	4.9	U	EPA:901.1
	Gross alpha	17	±	1.6	1.8		EPA:900
	Gross beta	5.6	±	0.91	2.5		EPA:900
	Iodine-131	3.9	±	2.9	9.6	U	EPA:901.1
	Lead-212	2.5	±	4.4	15	U	EPA:901.1
	Lead-214	51	±	5.4	17		EPA:901.1
	Potassium-40	-10	±	35	120	U	EPA:901.1
	Protactinium-234m	340	±	220	710	U	EPA:901.1
	Sodium-22	-2.9	±	1.5	5.2	U	EPA:901.1
	Thallium-208	-0.16	±	2.9	9.6	U	EPA:901.1
	Thorium-234	33	±	67	220	U	EPA:901.1
	Tritium	-30	±	98	330	U	EPA:906.0
	Uranium-234	12	±	1	0.051		HASL-300:ISOU
	Uranium-235	0.13	±	0.041	0.082		HASL-300:ISOU
	Uranium-238	2.7	±	0.27	0.076		HASL-300:ISOU

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Table-6
Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium
SNL/NM Burn Site Groundwater Area of Concern
New Mexico Environment Department DOE Oversight Bureau
April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW13 24-Apr-17	Actinium-228	22	±	7.1	22	U	EPA:901.1
	Americium-241	19	±	10	34	U	EPA:901.1
	Beryllium-7	-12	±	13	44	U	EPA:901.1
	Bismuth-212	-11	±	22	77	U	EPA:901.1
	Bismuth-214	32	±	7.2	25		EPA:901.1
	Cesium-134	0.33	±	18	58	U	EPA:901.1
	Cesium-137	-3.5	±	1.8	6.4	U	EPA:901.1
	Cobalt-60	-0.83	±	2.3	7.8	U	EPA:901.1
	Gross alpha	11	±	1	0.89		EPA:900
	Gross beta	4	±	0.49	1.1		EPA:900
	Iodine-131	-4	±	3.3	11	U	EPA:901.1
	Lead-212	-0.26	±	4.1	14	U	EPA:901.1
	Lead-214	16	±	5.5	21	U	EPA:901.1
	Potassium-40	-6.9	±	57	190	U	EPA:901.1
	Protactinium-234m	-56	±	300	1000	U	EPA:901.1
	Sodium-22	-0.22	±	2.2	7.6	U	EPA:901.1
	Thallium-208	4.9	±	1.7	5.6	U	EPA:901.1
	Thorium-234	-24	±	49	160	U	EPA:901.1
	Tritium	-180	±	110	360	U	EPA:906.0
	Uranium-234	8.5	±	0.74	0.059		HASL-300:ISOU
	Uranium-235	0.084	±	0.03	0.028		HASL-300:ISOU
	Uranium-238	1.5	±	0.17	0.074		HASL-300:ISOU

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Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

SNL/NM Burn Site Groundwater Area of Concern

New Mexico Environment Department DOE Oversight Bureau

April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW14A 13-Apr-17	Actinium-228	24	±	9.3	30	U	EPA:901.1
	Americium-241	-19	±	19	65	U	EPA:901.1
	Beryllium-7	-14	±	13	43	U	EPA:901.1
	Bismuth-212	77	±	23	72		EPA:901.1
	Bismuth-214	200	±	18	39		EPA:901.1
	Cesium-134	-0.44	±	2.1	7.2	U	EPA:901.1
	Cesium-137	0	±	2.1	7.1	U	EPA:901.1
	Cobalt-60	-1.3	±	1.8	6.3	U	EPA:901.1
	Gross alpha	18	±	1.6	1.3		EPA:900
	Gross beta	6	±	0.78	1.9		EPA:900
	Iodine-131	4.2	±	3	9.9	U	EPA:901.1
	Lead-212	-2.4	±	3.8	13	U	EPA:901.1
	Lead-214	220	±	14	17		EPA:901.1
	Potassium-40	30	±	43	140	U	EPA:901.1
	Protactinium-234m	-150	±	430	1500	U	EPA:901.1
	Sodium-22	-2.9	±	1.8	6.2	U	EPA:901.1
	Thallium-208	0.75	±	2.7	9	U	EPA:901.1
	Thorium-234	46	±	47	160	U	EPA:901.1
	Tritium	58	±	98	330	U	EPA:906.0
	Uranium-234	13	±	1.1	0.11		HASL-300:ISOU
	Uranium-235	0.17	±	0.047	0.062		HASL-300:ISOU
	Uranium-238	2.8	±	0.28	0.072		HASL-300:ISOU

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Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, Isotopic Uranium and Tritium

SNL/NM Burn Site Groundwater Area of Concern

New Mexico Environment Department DOE Oversight Bureau

April 2017

Monitoring Well/ Sample Date	Analyte[a]	Activity[b] (pCi/L)			MDA (pCi/L)	Laboratory Qualifier	Analytical Method
CYN-MW15 19-Apr-17	Actinium-228	12	±	5.8	19	U	EPA:901.1
	Americium-241	-20	±	14	49	U	EPA:901.1
	Beryllium-7	-4.7	±	11	38	U	EPA:901.1
	Bismuth-212	7.9	±	21	70	U	EPA:901.1
	Bismuth-214	71	±	7.9	25		EPA:901.1
	Cesium-134	-4.5	±	1.5	5.2	U	EPA:901.1
	Cesium-137	-3.5	±	1.5	5.2	U	EPA:901.1
	Cobalt-60	1.5	±	1.5	5.2	U	EPA:901.1
	Gross alpha	18	±	1.8	2.3		EPA:900
	Gross beta	5	±	1.2	3.6		EPA:900
	Iodine-131	-2.2	±	2.8	9.6	U	EPA:901.1
	Lead-212	6.1	±	2.1	6.9	U	EPA:901.1
	Lead-214	65	±	6.5	22		EPA:901.1
	Potassium-40	-22	±	49	160	U	EPA:901.1
	Protactinium-234m	12	±	240	810	U	EPA:901.1
	Sodium-22	-1.3	±	1.5	5.2	U	EPA:901.1
	Thallium-208	2.7	±	3	10	U	EPA:901.1
	Thorium-234	24	±	20	65	U	EPA:901.1
	Tritium	-41	±	100	340	U	EPA:906.0
	Uranium-234	15	±	1.3	0.079		HASL-300:ISOU
	Uranium-235	0.19	±	0.049	0.062		HASL-300:ISOU
	Uranium-238	3.4	±	0.33	0.064		HASL-300:ISOU

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