



SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lt. Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

DOE Oversight Bureau

121 Tijeras Ave., NE Suite 1000
Albuquerque, NM
Phone (505) 383-2073 Fax (505) 222-9510
www.env.nm.gov



BUTCH TONGATE
Cabinet Secretary

J. C. BORREGO
Deputy Secretary

August 20, 2018

Steven Black
Point of Contact
Water Quality Program Manager
U.S. Department of Energy
Sandia Field Office
P.O Box 5400 MS 0184
Albuquerque, New Mexico 87185-5400

Subject: Data Submittal for Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Groundwater Area of Concern Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2018 Q-2

Mr. Black:

This letter transmits the subject report as final. The report shows groundwater data results from Sandia National Laboratories Technical Area-V Groundwater Area of Concern collected by the New Mexico Environment Department DOE Oversight Bureau during the second quarter of FFY 2018.

The enclosed monitoring results were provided to the U.S Department of Energy in draft form on July 20, 2018 for 30-day review and comment. The final monitoring results are provided to DOE, the State of New Mexico and other federal agencies, the NMED website and interested members of the public. If you have any questions, or if you would like copies of the complete data set, please contact me by phone at (505) 383-2070, by email at chris.armijo1@state.nm.us, or by mail to the address in the above letterhead.

Sincerely,

Chris Armijo
Environmental Scientist
Sandia Oversight Section

Enclosure: (1) Groundwater Monitoring at Sandia National Laboratories/New Mexico
Technical Area-V Groundwater Area of Concern Conducted by the New
Mexico Environment Department DOE Oversight Bureau for FFY 2018 Q-2
(2) Table-1 Total Target Analyte List Metals Plus Uranium Results
(3) Table-2 Dissolved Metals (Arsenic, Iron and Manganese) Results
(4) Table-3 Major Anions and Nitrate-Nitrite as Nitrogen Results
(4) Table-4 Detected Volatile Organic Compound Results
(5) Table-5 Method Detection Limits for Volatile Organic Compounds
(6) Table-6 Gross Alpha, Gross Beta, Gamma Emitting Isotopes and Tritium
Results

Distribution: David Rast, DOE/SFO
Michael Skelly, SNL/NM Groundwater
Tim Jackson, SNL/NM Groundwater
Susan Lucas Kamat, Bureau Chief, DOE OB

File: SGE42. Groundwater Monitoring. TAVG AOC. FFY 2018 Q-2

DOE Oversight Bureau, New Mexico Environment Department

**Groundwater Monitoring at
Sandia National Laboratories/New Mexico
Technical Area-V Groundwater
Area of Concern**

**Conducted by the
New Mexico Environment Department DOE Oversight Bureau
for FFY 2018 Q-2**

**Prepared by Chris Armijo, Environmental Scientist
Sandia Oversight Section
121 Tijeras Ave., NE Suite 1000
Albuquerque, NM 87102
(505) 383-2070
chris.armijo1@state.nm.us**

Final Report

8/20/2018

The purpose of this communication is to transmit groundwater quality data results collected by the New Mexico Environment Department DOE Oversight Bureau from Sandia National Laboratories Technical Area-V Groundwater Area of Concern during the second quarter of Federal Fiscal Year 2018.

Acknowledgment:

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

Disclaimer:

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Introduction

The New Mexico Environment Department (NMED) DOE Oversight Bureau (DOE-OB or Bureau) has compiled and assessed groundwater data collected during February 2018. The Bureau collected groundwater samples from Technical Area-V Groundwater (TAVG) Area of Concern (AOC) monitoring wells TAV-MW2, TAV-MW4, TAV-MW8, TAV-MW10 (plus duplicate), TAV-MW11, TAV-MW12, TAV-MW14, TAV-MW15 and TAV-MW16 (plus duplicate). Samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM) sampling procedures and equipment. Samples from TAV-MW15 and TAV-MW16 were analyzed for metals, anions, nitrate-nitrite as nitrogen (N), volatile organic compounds (VOCs) and radionuclides. Samples collected from the remaining TAVG monitoring wells were analyzed for dissolved metals, nitrate-nitrite as N and VOCs only. The Bureau submitted samples for analysis to an independent analytical laboratory under contract with the NMED.

Nitrate levels exceeded the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL) or drinking water standard of 10 mg/L at monitoring well TAV-MW10. Trichloroethene (TCE) concentrations also exceeded the EPA MCL of 5 µg/L at monitoring wells TAV-MW10, TAV-MW12 and TAV-MW14.

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.

Results

Analytical results for total (unfiltered) target analyte list (TAL) metals plus uranium are presented in Table-1. No metal results exceed established MCLs.

Table-2 presents the analytical results for dissolved (filtered) metal results for arsenic, iron and manganese. No metal results exceed established MCLs.

Analytical results for anions (bromide, chloride, fluoride and sulfate) and nitrate-nitrite as N are summarized in Table-3. All anion results were below MCLs. Nitrate exceeded the EPA MCL of 10 mg/L at monitoring well TAV-MW10 (11 mg/L) and TAV-MW10 duplicate (11 mg/L). All other nitrate results were detected below the EPA MCL.

Table-4 presents a summary of detected VOCs at concentrations above the method detection limits (MDLs). Compounds detected at concentrations above the MDLs in groundwater samples from TAVG monitoring wells include acetone,

chloroform, chloromethane, dichloroethene [cis-, 2-] and TCE. No VOCs were detected above their associated MCL, except for TCE. TCE was detected above the EPA MCL of 5 µg/L at TAVG monitoring wells TAV-MW10 (9.6 µg/L), TAV-MW10 duplicate (10 µg/L), TAV-MW12 (7.1 µg/L) and TAV-MW14 (5.7 µg/L). Table-5 summarizes the laboratory MDLs for the remaining VOCs analyzed from samples collected at TAVG.

Analytical results for radionuclides are presented in Table-6 and used to screen for potential radiological contamination. Samples were analyzed for gross alpha, gross beta, gamma emitting isotopes and tritium. No radionuclides results exceed established MCLs.

Conclusion

The DOE-OB collected split samples from a total of nine (9) TAVG monitoring wells during the second quarter of FFY 2018. Samples were analyzed by an independent analytical laboratory under contract with the NMED. Samples were analyzed for metals, anions, nitrates, VOCs and radionuclides. Nitrate results exceeded the EPA MCL of 10 mg/L from a sample collected from monitoring well TAV-MW10. TCE concentrations also exceeded the EPA MCL of 5 µg/L at monitoring wells TAV-MW10, TAV-MW12 and TAV-MW14.

Both nitrate and TCE have been identified as contaminants of concern at TAV. Historically, nitrate and TCE have been detected above the EPA drinking water standards in several wells and the Bureau's results for this reporting period are consistent with historical concentrations results.

The DOE-OB will continue to independently monitor for contaminants of concern at TAVG AOC and make the data reports available to the public.

References

Data Submittal for Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Groundwater Area of Concern Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2017 Q-3.

Data Submittal for Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Groundwater Area of Concern Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2017 Q-4.

Sandia National Laboratories/New Mexico (SNL/NM). "Annual Groundwater Monitoring Report Calendar Year 2017." Sandia National Laboratories, Albuquerque, New Mexico.

U.S. EPA National Primary Drinking Water Regulations (40 CFR 141), National Primary Drinking Water Standards, EPA, July 2002.

This page intentionally left blank.

Table-1

Groundwater Quality Results: Total Target Analyte List Metals plus Uranium
 Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring
 New Mexico Environment Department DOE Oversight Bureau
 February 2018

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	EPA MCL (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW15 1-Feb-18	Aluminum	0.02	0.1	0.0087	NE	J	SW846: 6020
	Antimony	0.000049	0.001	0.000049	0.006	U	SW846: 6020
	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Barium	0.069	0.005	0.0016	2		SW846: 6020
	Beryllium	0.000081	0.0005	0.000081	0.004	U	SW846: 6020
	Cadmium	0.000062	0.002	0.000062	0.005	U	SW846: 6020
	Calcium	72	1	0.077	NE		SW846: 6020
	Chromium	0.00082	0.01	0.00082	0.1	U	SW846: 6020
	Cobalt	0.00016	0.005	0.00016	NE	U	SW846: 6020
	Copper	0.0016	0.02	0.0016	NE	U	SW846: 6020
	Iron	0.034	0.1	0.0047	NE	J	SW846: 6020
	Lead	0.000096	0.002	0.000096	NE	U	SW846: 6020
	Magnesium	25	0.1	0.012	NE		SW846: 6020
	Manganese	0.0017	0.005	0.00032	NE	J	SW846: 6020
	Mercury	0.00006	0.0001	0.00006	0.002	U	SW846: 7470A
	Nickel	0.00081	0.02	0.00081	NE	U	SW846: 6020
	Potassium	4.1	1	0.11	NE		SW846: 6020
	Selenium	0.0027	0.01	0.00018	0.05	J	SW846: 6020
	Silver	0.000023	0.0005	0.000023	NE	U	SW846: 6020
	Sodium	68	1	0.18	NE		SW846: 6020
Thallium	0.000015	0.0001	0.000015	0.002	U	SW846: 6020	
Uranium	0.0069	0.0001	0.000022	0.03		SW846: 6020	
Vanadium	0.0018	0.005	0.00023	NE	J	SW846: 6020	
Zinc	0.0035	0.1	0.0035	NE	U	SW846: 6020	

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-1

Groundwater Quality Results: Total Target Analyte List Metals plus Uranium
 Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring
 New Mexico Environment Department DOE Oversight Bureau
 February 2018

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	EPA MCL (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW16 2-Feb-18	Aluminum	0.016	0.1	0.0087	NE	J	SW846: 6020
	Antimony	0.000049	0.001	0.000049	0.006	U	SW846: 6020
	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Barium	0.067	0.005	0.0016	2		SW846: 6020
	Beryllium	0.000081	0.0005	0.000081	0.004	U	SW846: 6020
	Cadmium	0.000062	0.002	0.000062	0.005	U	SW846: 6020
	Calcium	80	1	0.077	NE		SW846: 6020
	Chromium	0.00082	0.01	0.00082	0.1	U	SW846: 6020
	Cobalt	0.00016	0.005	0.00016	NE	U	SW846: 6020
	Copper	0.0016	0.02	0.0016	NE	U	SW846: 6020
	Iron	0.014	0.1	0.0047	NE	J	SW846: 6020
	Lead	0.000096	0.002	0.000096	NE	U	SW846: 6020
	Magnesium	28	0.1	0.012	NE		SW846: 6020
	Manganese	0.00075	0.005	0.00032	NE	J	SW846: 6020
	Mercury	0.00006	0.0001	0.00006	0.002	U	SW846: 7470A
	Nickel	0.0044	0.02	0.00081	NE	J	SW846: 6020
	Potassium	4.5	1	0.11	NE		SW846: 6020
	Selenium	0.0024	0.01	0.00018	0.05	J	SW846: 6020
	Silver	0.000023	0.0005	0.000023	NE	U	SW846: 6020
	Sodium	73	1	0.18	NE		SW846: 6020
Thallium	0.000015	0.0001	0.000015	0.002	U	SW846: 6020	
Uranium	0.0066	0.0001	0.000022	0.03		SW846: 6020	
Vanadium	0.0043	0.005	0.00023	NE	J	SW846: 6020	
Zinc	0.0035	0.1	0.0035	NE	U	SW846: 6020	

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-1

Groundwater Quality Results: Total Target Analyte List Metals plus Uranium
 Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring
 New Mexico Environment Department DOE Oversight Bureau
 February 2018

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	EPA MCL (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW16 2-Feb-18 (Duplicate)	Aluminum	0.018	0.1	0.0087	NE	J	SW846: 6020
	Antimony	0.000049	0.001	0.000049	0.006	U	SW846: 6020
	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Barium	0.065	0.005	0.0016	2		SW846: 6020
	Beryllium	0.000081	0.0005	0.000081	0.004	U	SW846: 6020
	Cadmium	0.000062	0.002	0.000062	0.005	U	SW846: 6020
	Calcium	77	1	0.077	NE		SW846: 6020
	Chromium	0.00082	0.01	0.00082	0.1	U	SW846: 6020
	Cobalt	0.00016	0.005	0.00016	NE	U	SW846: 6020
	Copper	0.0016	0.02	0.0016	NE	U	SW846: 6020
	Iron	0.014	0.1	0.0047	NE	J	SW846: 6020
	Lead	0.000096	0.002	0.000096	NE	U	SW846: 6020
	Magnesium	27	0.1	0.012	NE		SW846: 6020
	Manganese	0.00084	0.005	0.00032	NE	J	SW846: 6020
	Mercury	0.00006	0.0001	0.00006	0.002	U	SW846: 7470A
	Nickel	0.0069	0.02	0.00081	NE	J	SW846: 6020
	Potassium	4.5	1	0.11	NE		SW846: 6020
	Selenium	0.0023	0.01	0.00018	0.05	J	SW846: 6020
	Silver	0.000023	0.0005	0.000023	NE	U	SW846: 6020
	Sodium	73	1	0.18	NE		SW846: 6020
Thallium	0.000015	0.0001	0.000015	0.002	U	SW846: 6020	
Uranium	0.0065	0.0001	0.000022	0.03		SW846: 6020	
Vanadium	0.0043	0.005	0.00023	NE	J	SW846: 6020	
Zinc	0.0035	0.1	0.0035	NE	U	SW846: 6020	

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: Filtered Metals (Arsenic, Iron and Manganese)
 Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring
 New Mexico Environment Department DOE Oversight Bureau
 February 2018

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	EPA MCL (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW2 5-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0047	0.1	0.0047	NE	U	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW4 7-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0064	0.1	0.0047	NE	J	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW8 8-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.016	0.1	0.0047	NE	J	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW10 15-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0047	0.1	0.0047	NE	U	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW10 15-Feb-18 (Duplicate)	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.011	0.1	0.0047	NE	J	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW11 6-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0047	0.1	0.0047	NE	U	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW12 13-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0047	0.1	0.0047	NE	U	SW846: 6020
	Manganese	0.00033	0.005	0.00032	NE	J	SW846: 6020
TAV-MW14 14-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0047	0.1	0.0047	NE	U	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW15 1-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0048	0.1	0.0047	NE	J	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020
TAV-MW16 2-Feb-18	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0081	0.1	0.0047	NE	J	SW846: 6020
	Manganese	0.00042	0.005	0.00032	NE	J	SW846: 6020
TAV-MW16 2-Feb-18 (Duplicate)	Arsenic	0.0016	0.002	0.0016	0.01	U	SW846: 6020
	Iron	0.0047	0.1	0.0047	NE	U	SW846: 6020
	Manganese	0.00032	0.005	0.00032	NE	U	SW846: 6020

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-3

Groundwater Quality Results: Major Anions and Nitrate-Nitrite as Nitrogen
 Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring
 New Mexico Environment Department DOE Oversight Bureau
 February 2018

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	Laboratory Detection Limit (mg/L)	MDL (mg/L)	EPA MCL (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW2 5-Feb-18	Nitrate-Nitrite as Nitrogen	4.6	0.1	0.03	10		EPA: 353.2
TAV-MW4 7-Feb-18	Nitrate-Nitrite as Nitrogen	4.6	0.1	0.03	10		EPA: 353.2
TAV-MW8 8-Feb-18	Nitrate-Nitrite as Nitrogen	6.4	0.1	0.03	10		EPA: 353.2
TAV-MW10 15-Feb-18	Nitrate-Nitrite as Nitrogen	11	0.1	0.03	10		EPA: 353.2
TAV-MW10 15-Feb-18 (Duplicate)	Nitrate-Nitrite as Nitrogen	11	0.1	0.03	10		EPA: 353.2
TAV-MW11 6-Feb-18	Nitrate-Nitrite as Nitrogen	6.4	0.1	0.03	10		EPA: 353.2
TAV-MW12 13-Feb-18	Nitrate-Nitrite as Nitrogen	8.2	0.1	0.03	10		EPA: 353.2
TAV-MW14 14-Feb-18	Nitrate-Nitrite as Nitrogen	8.2	0.1	0.03	10		EPA: 353.2
TAV-MW15 1-Feb-18	Bromide	0.32	0.2	0.06	NE		EPA: 300
	Chloride	81	2	0.6	NE		EPA: 300
	Fluoride	0.82	0.1	0.03	4		EPA: 300
	Nitrate-Nitrite as Nitrogen	1.7	0.1	0.03	10		EPA: 353.2
	Sulfate	59	1	0.15	NE		EPA: 300
TAV-MW16 2-Feb-18	Bromide	0.34	0.2	0.06	NE		EPA: 300
	Chloride	91	2	0.6	NE		EPA: 300
	Fluoride	0.81	0.1	0.03	4		EPA: 300
	Nitrate-Nitrite as Nitrogen	2.3	0.1	0.03	10		EPA: 353.2
	Sulfate	60	1	0.15	NE		EPA: 300
TAV-MW16 2-Feb-18 (Duplicate)	Bromide	0.35	0.2	0.06	NE		EPA: 300
	Chloride	90	2	0.6	NE		EPA: 300
	Fluoride	0.81	0.1	0.03	4		EPA: 300
	Nitrate-Nitrite as Nitrogen	2.3	0.1	0.03	10		EPA: 353.2
	Sulfate	60	1	0.15	NE		EPA: 300

NE = Not Established

Bold = Data results exceed the established EPA MCL.

Table-4

Groundwater Quality Results: Detected Volatile Organic Compounds

Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring

New Mexico Environment Department DOE Oversight Bureau

February 2018

Monitoring Well/ Sample Date	Analyte	Result (µg/L)	Laboratory Detection Limit (µg/L)	MDL (µg/L)	EPA MCL (µg/L)	Laboratory Qualifier	Analytical Method
TAV-MW2 5-Feb-18	Trichloroethene	2.7	1	0.31	5		SW846: 8260B
TAV-MW4 7-Feb-18	Chloroform	0.86	1	0.3	NE	J	SW846: 8260B
	Dichloroethene[cis-1,2-]	0.43	1	0.33	70	J	SW846: 8260B
	Trichloroethene	4.1	1	0.31	5		SW846: 8260B
TAV-MW8 8-Feb-18	Dichloroethene[cis-1,2-]	0.45	1	0.33	70	J	SW846: 8260B
	Trichloroethene	4.2	1	0.31	5		SW846: 8260B
TAV-MW10 15-Feb-18	Acetone	7.9	10	3	NE	J	SW846: 8260B
	Chloromethane	2.2	1	0.3	NE		SW846: 8260B
	Dichloroethene[cis-1,2-]	1.8	1	0.33	70		SW846: 8260B
	Trichloroethene	9.6	1	0.31	5		SW846: 8260B
TAV-MW10 15-Feb-18 (Duplicate)	Acetone	9.5	10	3	NE	J	SW846: 8260B
	Chloromethane	1.8	1	0.3	NE		SW846: 8260B
	Dichloroethene[cis-1,2-]	1.8	1	0.33	70		SW846: 8260B
	Trichloroethene	10	1	0.31	5		SW846: 8260B
TAV-MW11 6-Feb-18	Dichloroethene[cis-1,2-]	0.42	1	0.33	70	J	SW846: 8260B
	Trichloroethene	2.9	1	0.31	5		SW846: 8260B
TAV-MW12 13-Feb-18	Dichloroethene[cis-1,2-]	0.61	1	0.33	70	J	SW846: 8260B
	Trichloroethene	7.1	1	0.31	5		SW846: 8260B
TAV-MW14 14-Feb-18	Acetone	5.5	10	3	NE	J	SW846: 8260B
	Chloromethane	1.3	1	0.3	NE		SW846: 8260B
	Dichloroethene[cis-1,2-]	0.64	1	0.33	70	J	SW846: 8260B
	Trichloroethene	5.7	1	0.31	5		SW846: 8260B
TAV-MW16 2-Feb-18	Trichloroethene	0.48	1	0.31	5	J	SW846: 8260B
TAV-MW16 2-Feb-18 (Duplicate)	Trichloroethene	0.49	1	0.31	5	J	SW846: 8260B

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

Bold = Data results exceed the established EPA MCL.

Table-5

Groundwater Quality Results: Method Detection Limits for Volatile Organic Compounds by Method SW846:8260B

Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring

New Mexico Environment Department DOE Oversight Bureau

February 2018

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-6

Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Emitting Isotopes and Tritium

Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring

New Mexico Environment Department DOE Oversight Bureau

February 2018

Monitoring Well/ Sample Date	Analyte	Activity ^a (pCi/L)	Minimum Detectable Activity (pCi/L)	EPA MCL	Laboratory Qualifier	Analytical Method
TAV-MW15 1-Feb-18	Actinium-228	1.8 ± 5.3	18	NE	U	EPA: 901.1
	Americium-241	13 ± 5.8	19	NE	U	EPA: 901.1
	Beryllium-7	2.8 ± 6.1	20	NE	U	EPA: 901.1
	Bismuth-212	29 ± 15	47	NE	U	EPA: 901.1
	Bismuth-214	6.5 ± 4.3	14	NE	U	EPA: 901.1
	Cesium-134	-2.4 ± 0.75	2.5	NE	U	EPA: 901.1
	Cesium-137	-2.2 ± 0.65	2.2	NE	U	EPA: 901.1
	Cobalt-60	1.3 ± 0.92	3	NE	U	EPA: 901.1
	Gross alpha	7 ± 0.86	1.6	15 pCi/L		EPA: 900
	Gross beta	6.5 ± 0.79	1.8	4 mrem/yr		EPA: 900
	Iodine-131	1.5 ± 3.2	11	NE	U	EPA: 901.1
	Lead-212	-0.8 ± 2.5	8.2	NE	U	EPA: 901.1
	Lead-214	7.7 ± 3.8	12	NE	U	EPA: 901.1
	Potassium-40	-12 ± 18	61	NE	U	EPA: 901.1
	Protactinium-234m	390 ± 100	330	NE		EPA: 901.1
	Sodium-22	-0.24 ± 0.62	2.1	NE	U	EPA: 901.1
	Thallium-208	0.19 ± 1.4	4.8	NE	U	EPA: 901.1
	Thorium-234	37 ± 30	98	NE	U	EPA: 901.1
Tritium	-97 ± 110	370	NE	U	EPA: 906	

NE = Not Established

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

^a Activity = 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 Emitting Isotopes and Tritium

Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring

New Mexico Environment Department DOE Oversight Bureau

February 2018

Monitoring Well/ Sample Date	Analyte	Activity ^a (pCi/L)	Minimum Detectable Activity (pCi/L)	EPA MCL	Laboratory Qualifier	Analytical Method
TAV-MW16 2-Feb-18	Actinium-228	14 ± 7.2	23	NE	U	EPA: 901.1
	Americium-241	-3.6 ± 20	66	NE	U	EPA: 901.1
	Beryllium-7	-10 ± 26	87	NE	U	EPA: 901.1
	Bismuth-212	45 ± 24	77	NE	U	EPA: 901.1
	Bismuth-214	9 ± 7.8	26	NE	U	EPA: 901.1
	Cesium-134	-2.2 ± 1.7	5.9	NE	U	EPA: 901.1
	Cesium-137	3.8 ± 1.7	5.4	NE	U	EPA: 901.1
	Cobalt-60	-2.8 ± 2.2	7.7	NE	U	EPA: 901.1
	Gross alpha	7.8 ± 0.95	1.8	15 pCi/L		EPA: 900
	Gross beta	6.4 ± 0.83	2	4 mrem/yr		EPA: 900
	Iodine-131	2.2 ± 7.7	26	NE	U	EPA: 901.1
	Lead-212	-0.17 ± 4.1	14	NE	U	EPA: 901.1
	Lead-214	8.2 ± 6	20	NE	U	EPA: 901.1
	Potassium-40	-66 ± 53	180	NE	U	EPA: 901.1
	Protactinium-234m	530 ± 300	980	NE	U	EPA: 901.1
	Sodium-22	0.055 ± 2	7	NE	U	EPA: 901.1
	Thallium-208	6.2 ± 1.8	5.6	NE		EPA: 901.1
	Thorium-234	-44 ± 43	140	NE	U	EPA: 901.1
Tritium	23 ± 110	370	NE	U	EPA: 906	

NE = Not Established

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

^a Activity = 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 Emitting Isotopes and Tritium

Sandia National Laboratories/New Mexico: Technical Area-V Groundwater Monitoring

New Mexico Environment Department DOE Oversight Bureau

February 2018

Monitoring Well/ Sample Date	Analyte	Activity ^a (pCi/L)	Minimum Detectable Activity (pCi/L)	EPA MCL	Laboratory Qualifier	Analytical Method
TAV-MW16 2-Feb-18 (Duplicate)	Actinium-228	15 ± 6	19	NE	U	EPA: 901.1
	Americium-241	-2 ± 24	78	NE	U	EPA: 901.1
	Beryllium-7	12 ± 12	41	NE	U	EPA: 901.1
	Bismuth-212	25 ± 22	72	NE	U	EPA: 901.1
	Bismuth-214	14 ± 6.5	21	NE	U	EPA: 901.1
	Cesium-134	0.35 ± 2	6.8	NE	U	EPA: 901.1
	Cesium-137	0.17 ± 1.6	5.3	NE	U	EPA: 901.1
	Cobalt-60	0.38 ± 1.5	5.3	NE	U	EPA: 901.1
	Gross alpha	8.1 ± 1	1.9	15 pCi/L		EPA: 900
	Gross beta	6 ± 0.76	1.8	4 mrem/yr		EPA: 900
	Iodine-131	1.7 ± 6.7	23	NE	U	EPA: 901.1
	Lead-212	0.2 ± 4.1	14	NE	U	EPA: 901.1
	Lead-214	5.4 ± 6.1	20	NE	U	EPA: 901.1
	Potassium-40	-14 ± 53	180	NE	U	EPA: 901.1
	Protactinium-234m	290 ± 250	820	NE	U	EPA: 901.1
	Sodium-22	0.36 ± 1.5	5.2	NE	U	EPA: 901.1
	Thallium-208	2.4 ± 1.5	4.7	NE	U	EPA: 901.1
	Thorium-234	82 ± 19	61	NE		EPA: 901.1
Tritium	46 ± 110	370	NE	U	EPA: 906	

NE = Not Established

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

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