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June 13, 2016

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Point of Contact
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Subject: Data Submittal for Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Groundwater Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2016 Q-1

Ms. Agogino:

This letter transmits the subject report as final. The report shows groundwater data results from Technical Area-V Groundwater Area of Concern monitoring wells collected by the New Mexico Environment Department DOE Oversight Bureau during the first quarter of FFY 2016.

The enclosed monitoring results were provided to the U.S Department of Energy in draft form on May 9, 2016, for 30-day comment and review. The final monitoring results are provided to DOE, the State of New Mexico and 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,

A handwritten signature in blue ink, appearing to read "Chris Armijo".

Chris Armijo
Geoscientist, Sandia Oversight Section
DOE Oversight Bureau

Enclosure: (1) Groundwater Monitoring at Sandia National Laboratories/New Mexico
Technical Area-V Groundwater Conducted by the NMED/DOE OB for FFY 2016
Q-1
(2) Table-1 Nitrate-Nitrite as Nitrogen Results
(3) Table-2 Detected Volatile Organic Compounds Results
(4) Table-3 Method Detection Limit for Volatile Organic Compounds

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File: SGE42.Groundwater Monitoring. TAV. FFY 2016 Q-1

DOE Oversight Bureau, New Mexico Environment Department

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

**Conducted by the
New Mexico Environment Department DOE Oversight Bureau
for FFY 2016 Q-1**

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Final Report

6/13/2016

The purpose of this communication is to transmit groundwater quality data collected by New Mexico Environment Department DOE Oversight Bureau from Technical Area-V Groundwater monitoring wells during first quarter FFY 2016.

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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 November and December 2015. The Bureau collected groundwater samples from Technical Area-V (TAV) Area of Concern (AOC) monitoring wells AVN-1, LWDS-MW1, LWDS-MW2, TAV-MW4, TAV-MW6, TAV-MW10, TAV-MW11 and TAV-MW12 (plus duplicate). Split samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM) sampling procedures and equipment. The samples were submitted to an independent analytical laboratory for analysis of nitrate-nitrite as nitrogen and volatile organic compounds (VOCs). 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 LWDS-MW1 and TAV-MW10. Trichloroethene (TCE) concentrations also exceeded the EPA MCL of 5 µg/L at TAV monitoring wells LWDS-MW1, TAV-MW6, TAV-MW10 and TAV-MW12.

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 nitrate-nitrite as nitrogen are presented in Table-1. Nitrate-nitrite levels exceeded the EPA MCL of 10 mg/L at monitoring wells LWDS-MW1 (12 mg/L) and TAV-MW10 (11 mg/L). All other samples analyzed for nitrate-nitrite were detected below the EPA MCL.

VOCs detected at concentrations above the method detection limits (MDLs) are presented in Table-2. No VOCs were detected above their associated MCL, except for TCE. TCE was detected above the EPA MCL of 5 µg/L at TAV monitoring wells LWDS-MW1 (19 µg/L), TAV-MW6 (15 µg/L), TAV-MW10 (13 µg/L), TAV-MW12 (9.3 µg/L) and TAV-MW12 duplicate sample (8.8 µg/L). Table-3 summarizes the laboratory MDLs for the remaining VOCs analyzed from samples collected at TAV monitoring wells.

Conclusion

The DOE-OB collected split samples from a total of eight (8) TAV groundwater monitoring wells during first quarter FFY 2016. Samples were analyzed by an independent laboratory for VOCs and nitrate. Nitrate concentrations exceeded the EPA MCL of 10 mg/L in samples from monitoring wells LWDS-MW1 and TAV-MW10. TCE results also exceeded the EPA MCL of 5 µg/L in samples from TAV monitoring wells LWDS-MW1, TAV-MW6, TAV-MW10 and TAV-MW12. Both TCE and nitrate have been identified as constituents of concern in groundwater from the TAV AOC. Historically, nitrate and TCE 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 TAV groundwater monitoring wells and continue to independently monitor TAV wells for nitrate and TCE.

References

Sandia National Laboratories/New Mexico, Annual Groundwater Monitoring Report, Calendar Year 2014

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

Table-1 NMED DOE OB FFY 2016 Q-1 Technical Area-V Groundwater Quality Results: Nitrate-Nitrite as Nitrogen

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
AVN-1 1-Dec-15	Nitrate-Nitrite as Nitrogen	8.9	10	0.5	0.15		EPA:353.2
LWDS-MW1 7-Dec-15	Nitrate-Nitrite as Nitrogen	12	10	0.5	0.15		EPA:353.2
LWDS-MW2 30-Nov-15	Nitrate-Nitrite as Nitrogen	7.6	10	0.5	0.15		EPA:353.2
TAV-MW4 19-Nov-15	Nitrate-Nitrite as Nitrogen	4.6	10	0.2	0.06		EPA:353.2
TAV-MW6 9-Dec-15	Nitrate-Nitrite as Nitrogen	6.9	10	0.1	0.03		EPA:353.2
TAV-MW10 10-Dec-15	Nitrate-Nitrite as Nitrogen	11	10	0.2	0.06		EPA:353.2
TAV-MW11 2-Dec-15	Nitrate-Nitrite as Nitrogen	6.3	10	0.5	0.15		EPA:353.2
TAV-MW12 8-Dec-15	Nitrate-Nitrite as Nitrogen	6.4	10	0.1	0.03		EPA:353.2
TAV-MW12 8-Dec-15 DUP	Nitrate-Nitrite as Nitrogen	6.4	10	0.1	0.03		EPA:353.2

Table-2 NMED DOE OB FFY 2016 Q-1 Technical Area-V 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
AVN-1 1-Dec-15	Chloromethane	0.31	NE	1	0.3	J	SW-846:8260B_25
LWDS-MW1 7-Dec-15	Dichloroethene[cis-1,2-]	4.4	70	1	0.3		SW-846:8260B_25
	Trichloroethene	19	5	1	0.3		SW-846:8260B_25
TAV-MW4 19-Nov-15	Chloroform	0.89	NE	1	0.3	J	SW-846:8260B_25
	Dichloroethene[cis-1,2-]	0.36	70	1	0.3	J	SW-846:8260B_25
	Trichloroethene	3.8	5	1	0.3		SW-846:8260B_25
TAV-MW6 9-Dec-15	Dichloroethene[cis-1,2-]	3.3	70	1	0.3		SW-846:8260B_25
	Trichloroethene	15	5	1	0.3		SW-846:8260B_25
TAV-MW10 10-Dec-15	Dichloroethene[cis-1,2-]	2.9	70	1	0.3		SW-846:8260B_25
	Trichloroethene	13	5	1	0.3		SW-846:8260B_25
TAV-MW11 2-Dec-15	Dichloroethene[cis-1,2-]	0.48	70	1	0.3	J	SW-846:8260B_25
	Trichloroethene	3.4	5	1	0.3		SW-846:8260B_25
TAV-MW12 8-Dec-15	Dichloroethene[cis-1,2-]	0.74	70	1	0.3	J	SW-846:8260B_25
	Trichloroethene	9.3	5	1	0.3		SW-846:8260B_25
TAV-MW12 8-Dec-15 DUP	Dichloroethene[cis-1,2-]	0.72	70	1	0.3	J	SW-846:8260B_25
	Trichloroethene	8.8	5	1	0.3		SW-846:8260B_25

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

Table-3 NMED DOE OB FFY 2016 Q-1 Technical Area-V Groundwater Quality Results: Method Detection Limits for Volatile Organic Compounds by Method SW-846:8260B_25

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

Analyte	MDL (µg/L)
Hexanone[2-]	3
Iodomethane	0.3
Isopropylbenzene	0.3
Isopropyltoluene[4-]	0.3
Methyl tert-Butyl Ether	0.3
Methyl-2-pentanone[4-]	3
Methylene Chloride	0.44
Naphthalene	0.3
Propylbenzene[1-]	0.3
Styrene	0.3
Tetrachloroethane[1,1,1,2-]	0.3
Tetrachloroethane[1,1,2,2-]	0.3
Tetrachloroethene	0.2
Toluene	0.3
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	0.3
Trichlorofluoromethane	0.3
Trichloropropane[1,2,3-]	0.3
Trimethylbenzene[1,2,4-]	0.3
Trimethylbenzene[1,3,5-]	0.3
Vinyl acetate	0.52
Vinyl Chloride	0.3
Xylene[1,2-]	0.3
Xylene[1,3-]+Xylene[1,4-]	0.3