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NEW MEXICO
ENVIRONMENT DEPARTMENT

DOE Oversight Bureau

Post Office Box 5400 MS 1396
Albuquerque, NM 87185-5400
Phone (505) 845-5823 Fax (505) 845-5853

BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

RON CURRY
Secretary
SARAH COTTRELL
Deputy Secretary

May 25, 2010

Karen Agogino
POC, DOE/SSO
P.O Box 5400 MS 0184
Albuquerque, New Mexico 87185-5400

Subject: **Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Conducted by NMED/DOE OB for FFY 2009 Q-4**

Dear Ms. Agogino:

This letter transmits the subject report as final.

The monitoring results are provided to DOE and to State of New Mexico and federal agencies, the Pueblos, 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 Chris Armijo at (505)845-5824 or contact me at (505)845-5933.

Sincerely,

Barry S. Birch
Program Manager
Sandia Oversight Section

BSB:ca

Enclosure: Data submittal titled: "Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Conducted by NMED/DOE OB for FFY 2009 Q-4" with the following enclosures:

(1) Table-1 Total TAL Metals Results
(2) Table-2 Major Anions/Nitrate Plus Nitrite Results
(3) Table-3 Gamma-Emitting Isotopes and Gross Alpha/Beta Results
(4) Table-4 Detected Volatile Organic Compounds Results
(5) Figure-1 Nitrate Plus Nitrite Concentrations, AVN-1
(6) Figure-2 Nitrate Plus Nitrite Concentrations, LWDS-MW1

(7) Figure-3 Nitrate Plus Nitrite Concentrations, TAV-MW6
(8) Figure-4 Nitrate Plus Nitrite Concentrations, TAV-MW10
(8) Figure-5 Trichloroethylene Concentrations, LWDS-MW1
(10) Figure-6 Trichloroethylene Concentrations, TAV-MW6
(11) Figure-7 Trichloroethylene Concentrations, TAV-MW10
(12) Map of TA-V Groundwater Monitoring Wells

cc: Gayle Dye, DOE/NNSA
John Gould, DOE/SSO
John Cochran, SNL
Franz Lauffer, SNL/GWPP
Michael Skelly, SNL Groundwater
John Pike, 377 MSG/CEV
James Bearzi, Chief, HWB
Thomas Skibitski, Chief, DOE OB
Barry Birch, Program Manager, DOE OB/SOS
Chris Armijo, Environmental Scientist, DOE OB/SOS

File: SGE42.Groundwater Monitoring.TAV FFY 2009 Q-4

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Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Conducted by NMED/DOE OB for FFY 2009 Q-4

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data from samples collected in August/September 2009. The Bureau collected groundwater samples from Technical Area-V (TAV) groundwater monitoring wells AVN-1, LWDS-MW1, LWDS-MW2, TAV-MW6, TAV-MW7, and TAV-MW10 (original and duplicate). Split samples were collected by Sandia personnel using standard Sandia sampling procedures and equipment. The samples provided to the Bureau were submitted to an independent analytical laboratory for metals, inorganics, radionuclides and organics analyses. Nitrate plus nitrite (NPN) and trichloroethylene (TCE) were detected above the EPA Maximum Contaminant Level (MCL) in several monitoring wells.

Data Assessment

Data results are compared to applicable Maximum Allowable Concentrations (MACs) from the New Mexico Water Quality Control Commission (WQCC) (20.6.2.3103A NMAC Human Health Standards) and Maximum Contaminant Levels (MCLs) from the EPA National Primary Drinking Water Regulations (40 CFR 141).

Results

Analytical results for total metals are listed in Table-1. Samples were analyzed for total (unfiltered) Target Analyte List (TAL) metals plus uranium. All metal concentrations were below established MACs/MCLs.

Analytical results for non-metallic inorganics are listed in Table-2. Samples were analyzed for major anions (bromide, chloride, fluoride, and sulfate) and NPN. All anion concentrations were below established MACs/MCLs. The NPN level was measured above the 10 mg/L EPA MCL at monitoring wells AVN-1 (11 mg/L and 12 mg/L), LWDS-MW1 (13 mg/L), TAV-MW6 (11 mg/L), TAV-MW10 (13 mg/L-original and 13 mg/L-duplicate).

Analytical results for radionuclides are listed in Table-3. Samples were analyzed for gamma-emitting isotopes and gross alpha/beta. Gamma spectroscopy did not detect any isotopes above their associated minimum detectable activity (MDA). All gross alpha activities were below the 15 pCi/L MCL.

Analytical results for volatile organic compounds (VOCs) detected above the method detection limits are listed in Table-4. The TCE level was measured above the 5 µg/L EPA MCL at LWDS-MW1 (17 µg/L), TAV-MW6 (14 µg/L), TAV-MW10 (16 µg/L) and in the TAV-MW10 (16 µg/L-duplicate).

Conclusions

Data results from Sandia for this sampling event have not been received at this time. Therefore, the Bureau can make no direct comparison of results.

Nitrate concentrations exceeded the MCL of 10 mg/L at four TAV monitoring wells during the FFY09 Q-4 sampling. Based on Sandia historical data, the NPN concentration at AVN-1 has been stable to slightly increasing, the NPN concentration at LWDS-MW1 has been stable to slightly decreasing, and the NPN concentration at TAV-MW6 has been slightly increasing over time (see Figures 1, 2 and 3). The groundwater monitoring well TAV-MW10 was installed in 2009 as a replacement for TAV-MW1 and in near proximity to it. Therefore, the data results from both wells can be used for trending purposes. Based on Sandia historical data, the NPN concentration at TAV-MW10 (and its predecessor, TAV-MW1) has been slightly increasing over time (see Figure 4).

Nitrate concentrations based on analytical results from the split samples provided to NMED from AVN-1 and TAV-MW6 during the 4th quarter showed concentrations above both the MCL and Sandia historical data. Therefore, the Bureau had both samples re-analyzed. The original environmental samples from AVN-1 and TAV-MW6 had NPN concentrations of 11 mg/L. The re-analysis for AVN-1 had an NPN concentration of 12 mg/L, which appears to replicate the original results. The re-analysis for TAV-MW6 had an NPN concentration of 8.5 mg/L, which had a relative percent difference (RPD) greater than 20% when compared to the original sample, implying the values are not considered within precision standards. NMED plans to re-sample both wells during FFY10 Q-2 (they have been re-sampled, and the results are pending).

The nitrate concentration based on the analytical result from the split sample provided to NMED from LWDS-MW1 compares well with historical Sandia data.

The nitrate concentration based on analytical result from the split sample provided to NMED from TAV-MW10 compares well to current Sandia data and historical TAV-MW1 data.

Trichloroethylene (TCE) concentrations exceeded the MCL of 5 µg/L at three TAV monitoring wells during the 4th quarter. Based on historical data, TCE results collected by NMED from LWDSW-MW1 compare well with previous Sandia groundwater data. Historical data from 2001-2008 indicate that TCE concentrations from LWDS-MW1 have been steady to slightly decreasing over time (see Figure 5). Sample results from TAV-MW6 were higher than past concentrations collected by Sandia. Historically, TCE concentrations at TAV-MW6 have been increasing over time (see Figure 6). Historically, TCE concentrations at TAV-MW10, replacing TAV-MW1, have been increasing over time, particularly in recent years (see Figure 7).

Response

Questions or comments should be addressed to Barry S. Birch by phone at (505)845-5933, by e-mail at barry.birch@state.nm.us, or to the address in the letterhead.

Enclosure:
(1) Table-1 Total TAL Metals Results
(2) Table-2 Major Anions/Nitrate plus Nitrite Results
(3) Table-3 Gamma-emitting isotopes & Gross Alpha/Beta Results
(4) Table-4 Detected Volatile Organic Compounds Results
(5) Figure-1 Nitrate Plus Nitrite Concentrations, AVN-1
(6) Figure-2 Nitrate Plus Nitrite Concentrations, LWDS-MW1
(7) Figure-3 Nitrate Plus Nitrite Concentrations, TAV-MW6
(8) Figure-4 Nitrate Plus Nitrite Concentrations, TAV-MW10
(9) Figure-5 Trichloroethylene Concentrations, TAV-MW1
(10) Figure-6 Trichloroethylene Concentrations, TAV-MW6
(11) Figure-7 Trichloroethylene Concentrations, TAV-MW10
(12) Map of TA-V Groundwater Monitoring Wells

Distribution:
Gayle Dye, DOE/NNSA
Karen Agogino, POC, DOE/SSO
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Chris Armijo, Environmental Scientist, DOE OB/SOS

File: SGE42.Groundwater Monitoring.TAV FFY 2009 Q-4

Table 1- NMED DOE Oversight Bureau FFY 2009 Q-4 Techincal Area-V Groundwater Quality Results: Total TAL Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	WQCC MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
AVN-1 31-Aug-09	Aluminum	0.062	NE	NE	0.0086	0.1	B	SW-846:6010
	Antimony	0.000042	0.006	NE	0.000079	0.0003	B	SW-846:6020
	Arsenic	0.001	0.01	0.1	0.00016	0.002	B	SW-846:6020
	Barium	0.079	2	1	0.000069	0.002		SW-846:6010
	Beryllium	0.000074	0.004	NE	0.000048	0.001	U	SW-846:6010
	Cadmium	0.000072	0.005	NE	0.00003	0.0003	B	SW-846:6020
	Calcium	40	NE	NE	0.014	0.5		SW-846:6010
	Chromium	0.0029	0.1	0.05	0.00039	0.005	B	SW-846:6010
	Cobalt	0.00098	NE	NE	0.00078	0.002	U	SW-846:6010
	Copper	0.0029	1.3	NE	0.00066	0.002		SW-846:6010
	Iron	0.08	NE	NE	0.015	0.05		SW-846:6010
	Lead	0.000044	0.015	0.05	0.000024	0.0005	B	SW-846:6020
	Magnesium	8.8	NE	NE	0.005	0.5		SW-846:6010
	Manganese	0.0018	NE	NE	0.00023	0.002	B	SW-846:6010
	Mercury	0.0000089	0.002	0.002	0.0000081	0.0001	U	SW-846:7470
	Nickel	0.0014	NE	NE	0.00067	0.005	B	SW-846:6010
	Potassium	3.6	NE	NE	0.054	0.5		SW-846:6010
	Selenium	0.0028	0.05	0.05	0.00018	0.001		SW-846:6020
	Silver	0.000032	NE	0.05	0.0000085	0.0001	B	SW-846:6020
	Sodium	32	NE	NE	0.0081	0.5		SW-846:6010
	Thallium	0.000028	0.002	NE	0.000018	0.0002	B	SW-846:6020
	Uranium	0.0019	0.03	0.03	0.0000041	0.0001		SW-846:6020
	Vanadium	0.0071	NE	NE	0.0003	0.005		SW-846:6010
	Zinc	0.0063	NE	NE	0.0039	0.005		SW-846:6010

Note:

B	Result is an estimated value above MDL/IDL but less that reporting limit.
NE	Not Established
U	Analyte was analyzed for but was not detected

Table 1- NMED DOE Oversight Bureau FFY 2009 Q-4 Techincal Area-V Groundwater Quality Results: Total TAL Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	WQCC MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
LWDS-MW1 15-Sep-09	Aluminum	0.025	NE	NE	0.0082	0.1	B	SW-846:6010
	Antimony	0.00014	0.006	NE	0.000079	0.0003	B	SW-846:6020
	Arsenic	0.0024	0.01	0.1	0.00016	0.002		SW-846:6020
	Barium	0.08	2	1	0.00014	0.002		SW-846:6010
	Beryllium	0.00012	0.004	NE	0.0001	0.001	U	SW-846:6010
	Cadmium	0.000038	0.005	NE	0.00003	0.0003	B	SW-846:6020
	Calcium	66	NE	NE	0.014	0.5		SW-846:6010
	Chromium	0.00075	0.1	0.05	0.00073	0.005	B	SW-846:6010
	Cobalt	0.00064	NE	NE	0.00068	0.002	U	SW-846:6010
	Copper	0.00072	1.3	NE	0.00055	0.002	U	SW-846:6010
	Iron	0.0018	NE	NE	0.0036	0.05	B	SW-846:6010
	Lead	0.000014	0.015	0.05	0.000024	0.0005	U	SW-846:6020
	Magnesium	20	NE	NE	0.0052	0.5		SW-846:6010
	Manganese	0.0001	NE	NE	0.00013	0.002	U	SW-846:6010
	Mercury	0.0000089	0.002	0.002	0.0000081	0.0001	U	SW-846:7470
	Nickel	0.001	NE	NE	0.0009	0.005	U	SW-846:6010
	Potassium	3.6	NE	NE	0.03	0.5		SW-846:6010
	Selenium	0.0054	0.05	0.05	0.00018	0.001		SW-846:6020
	Silver	0.000012	NE	0.05	0.0000085	0.0001	U	SW-846:6020
	Sodium	53	NE	NE	0.006	0.5		SW-846:6010
	Thallium	0.0000079	0.002	NE	0.000018	0.0002	B	SW-846:6020
	Uranium	0.0033	0.03	0.03	0.0000041	0.0001		SW-846:6020
	Vanadium	0.0039	NE	NE	0.0006	0.005	B	SW-846:6010
	Zinc	0.00075	NE	NE	0.0039	0.005	U	SW-846:6010

Note:

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Table 1- NMED DOE Oversight Bureau FFY 2009 Q-4 Techincal Area-V Groundwater Quality Results: Total TAL Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	WQCC MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
LWDS-MW2 27-Aug-09	Aluminum	0.0052	NE	NE	0.0082	0.1	U	SW-846:6010
	Antimony	0.000084	0.006	NE	0.000079	0.0003	B	SW-846:6020
	Arsenic	0.00091	0.01	0.1	0.00016	0.002	B	SW-846:6020
	Barium	0.073	2	1	0.00014	0.002		SW-846:6010
	Beryllium	0.00012	0.004	NE	0.0001	0.001	U	SW-846:6010
	Cadmium	0.00013	0.005	NE	0.00003	0.0003	B	SW-846:6020
	Calcium	46	NE	NE	0.014	0.5		SW-846:6010
	Chromium	0.0053	0.1	0.05	0.00073	0.005		SW-846:6010
	Cobalt	0.00093	NE	NE	0.00068	0.002	B	SW-846:6010
	Copper	0.0046	1.3	NE	0.00055	0.002		SW-846:6010
	Iron	0.0016	NE	NE	0.0036	0.05	U	SW-846:6010
	Lead	0.000014	0.015	0.05	0.000024	0.0005	U	SW-846:6020
	Magnesium	13	NE	NE	0.0052	0.5		SW-846:6010
	Manganese	0.0012	NE	NE	0.00013	0.002	B	SW-846:6010
	Mercury	0.0000089	0.002	0.002	0.0000081	0.0001	U	SW-846:7470
	Nickel	0.0027	NE	NE	0.0009	0.005	B	SW-846:6010
	Potassium	3.3	NE	NE	0.03	0.5		SW-846:6010
	Selenium	0.0028	0.05	0.05	0.00018	0.001		SW-846:6020
	Silver	0.000019	NE	0.05	0.0000085	0.0001	B	SW-846:6020
	Sodium	38	NE	NE	0.006	0.5		SW-846:6010
	Thallium	0.000028	0.002	NE	0.000018	0.0002	B	SW-846:6020
	Uranium	0.0029	0.03	0.03	0.0000041	0.0001		SW-846:6020
	Vanadium	0.0079	NE	NE	0.0006	0.005		SW-846:6010
	Zinc	0.0084	NE	NE	0.0039	0.005		SW-846:6010

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Table 1- NMED DOE Oversight Bureau FFY 2009 Q-4 Techincal Area-V Groundwater Quality Results: Total TAL Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	WQCC MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW6 10-Sep-09	Aluminum	0.012	NE	NE	0.0082	0.1	B	SW-846:6010
	Antimony	0.00008	0.006	NE	0.000079	0.0003	B	SW-846:6020
	Arsenic	0.0015	0.01	0.1	0.00016	0.002	B	SW-846:6020
	Barium	0.06	2	1	0.00014	0.002		SW-846:6010
	Beryllium	0.00012	0.004	NE	0.0001	0.001	U	SW-846:6010
	Cadmium	0.000029	0.005	NE	0.00003	0.0003	B	SW-846:6020
	Calcium	59	NE	NE	0.014	0.5		SW-846:6010
	Chromium	0.00071	0.1	0.05	0.00073	0.005	U	SW-846:6010
	Cobalt	0.00064	NE	NE	0.00068	0.002	U	SW-846:6010
	Copper	0.00072	1.3	NE	0.00055	0.002	U	SW-846:6010
	Iron	0.003	NE	NE	0.0036	0.05	B	SW-846:6010
	Lead	0.000014	0.015	0.05	0.000024	0.0005	U	SW-846:6020
	Magnesium	18	NE	NE	0.0052	0.5		SW-846:6010
	Manganese	0.0001	NE	NE	0.00013	0.002	U	SW-846:6010
	Mercury	0.0000089	0.002	0.002	0.0000081	0.0001	U	SW-846:7470
	Nickel	0.001	NE	NE	0.0009	0.005	U	SW-846:6010
	Potassium	4.1	NE	NE	0.03	0.5		SW-846:6010
	Selenium	0.0032	0.05	0.05	0.00018	0.001		SW-846:6020
	Silver	0.000012	NE	0.05	0.0000085	0.0001	U	SW-846:6020
	Sodium	51	NE	NE	0.006	0.5		SW-846:6010
	Thallium	0.000022	0.002	NE	0.000018	0.0002	B	SW-846:6020
	Uranium	0.0037	0.03	0.03	0.0000041	0.0001		SW-846:6020
	Vanadium	0.0036	NE	NE	0.0006	0.005	B	SW-846:6010
	Zinc	0.00075	NE	NE	0.0039	0.005	U	SW-846:6010

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Table 1- NMED DOE Oversight Bureau FFY 2009 Q-4 Techincal Area-V Groundwater Quality Results: Total TAL Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	WQCC MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW7 26-Aug-09	Aluminum	0.028	NE	NE	0.0082	0.1	B	SW-846:6010
	Antimony	0.000081	0.006	NE	0.000079	0.0003	B	SW-846:6020
	Arsenic	0.0006	0.01	0.1	0.00016	0.002	B	SW-846:6020
	Barium	0.057	2	1	0.00014	0.002		SW-846:6010
	Beryllium	0.00015	0.004	NE	0.0001	0.001	B	SW-846:6010
	Cadmium	0.000025	0.005	NE	0.00003	0.0003	B	SW-846:6020
	Calcium	62	NE	NE	0.014	0.5		SW-846:6010
	Chromium	0.0022	0.1	0.05	0.00073	0.005	B	SW-846:6010
	Cobalt	0.00076	NE	NE	0.00068	0.002	B	SW-846:6010
	Copper	0.00084	1.3	NE	0.00055	0.002	B	SW-846:6010
	Iron	0.047	NE	NE	0.0036	0.05	B	SW-846:6010
	Lead	0.000061	0.015	0.05	0.000024	0.0005	B	SW-846:6020
	Magnesium	19	NE	NE	0.0052	0.5		SW-846:6010
	Manganese	0.0028	NE	NE	0.00013	0.002		SW-846:6010
	Mercury	0.0000089	0.002	0.002	0.0000081	0.0001	U	SW-846:7470
	Nickel	0.0032	NE	NE	0.0009	0.005	B	SW-846:6010
	Potassium	4.9	NE	NE	0.03	0.5		SW-846:6010
	Selenium	0.0025	0.05	0.05	0.00018	0.001		SW-846:6020
	Silver	0.000017	NE	0.05	0.0000085	0.0001	B	SW-846:6020
	Sodium	48	NE	NE	0.006	0.5		SW-846:6010
	Thallium	0.00006	0.002	NE	0.000018	0.0002	B	SW-846:6020
	Uranium	0.0048	0.03	0.03	0.0000041	0.0001		SW-846:6020
	Vanadium	0.0076	NE	NE	0.0006	0.005		SW-846:6010
	Zinc	0.017	NE	NE	0.0039	0.005		SW-846:6010

Note:

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	WQCC MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW10 11-Sep-09	Aluminum	0.026	NE	NE	0.0082	0.1	B	SW-846:6010
	Antimony	0.000058	0.006	NE	0.000079	0.0003	B	SW-846:6020
	Arsenic	0.0014	0.01	0.1	0.00016	0.002	B	SW-846:6020
	Barium	0.059	2	1	0.00014	0.002		SW-846:6010
	Beryllium	0.00012	0.004	NE	0.0001	0.001	U	SW-846:6010
	Cadmium	0.000014	0.005	NE	0.00003	0.0003	B	SW-846:6020
	Calcium	61	NE	NE	0.014	0.5		SW-846:6010
	Chromium	0.00071	0.1	0.05	0.00073	0.005	U	SW-846:6010
	Cobalt	0.00064	NE	NE	0.00068	0.002	U	SW-846:6010
	Copper	0.00072	1.3	NE	0.00055	0.002	U	SW-846:6010
	Iron	0.0016	NE	NE	0.0036	0.05	U	SW-846:6010
	Lead	0.000014	0.015	0.05	0.000024	0.0005	U	SW-846:6020
	Magnesium	17	NE	NE	0.0052	0.5		SW-846:6010
	Manganese	0.0001	NE	NE	0.00013	0.002	U	SW-846:6010
	Mercury	0.0000089	0.002	0.002	0.0000081	0.0001	U	SW-846:7470
	Nickel	0.001	NE	NE	0.0009	0.005	U	SW-846:6010
	Potassium	4.8	NE	NE	0.03	0.5		SW-846:6010
	Selenium	0.0031	0.05	0.05	0.00018	0.001		SW-846:6020
	Silver	0.000012	NE	0.05	0.0000085	0.0001	U	SW-846:6020
	Sodium	49	NE	NE	0.006	0.5		SW-846:6010
	Thallium	0.00001	0.002	NE	0.000018	0.0002	B	SW-846:6020
	Uranium	0.0035	0.03	0.03	0.0000041	0.0001		SW-846:6020
	Vanadium	0.0046	NE	NE	0.0006	0.005	B	SW-846:6010
	Zinc	0.00075	NE	NE	0.0039	0.005	U	SW-846:6010

Note:

B	Result is an estimated value above MDL/IDL but less that reporting limit.
NE	Not Established
U	Analyte was analyzed for but was not detected

Table 1- NMED DOE Oversight Bureau FFY 2009 Q-4 Techincal Area-V Groundwater Quality Results: Total TAL Metals

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	WQCC MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW10 11-Sep-09 DUP	Aluminum	0.048	NE	NE	0.0082	0.1	B	SW-846:6010
	Antimony	0.000074	0.006	NE	0.000079	0.0003	B	SW-846:6020
	Arsenic	0.0014	0.01	0.1	0.00016	0.002	B	SW-846:6020
	Barium	0.059	2	1	0.00014	0.002		SW-846:6010
	Beryllium	0.00012	0.004	NE	0.0001	0.001	U	SW-846:6010
	Cadmium	0.000017	0.005	NE	0.00003	0.0003	B	SW-846:6020
	Calcium	63	NE	NE	0.014	0.5		SW-846:6010
	Chromium	0.00071	0.1	0.05	0.00073	0.005	U	SW-846:6010
	Cobalt	0.00064	NE	NE	0.00068	0.002	U	SW-846:6010
	Copper	0.00072	1.3	NE	0.00055	0.002	U	SW-846:6010
	Iron	0.0016	NE	NE	0.0036	0.05	U	SW-846:6010
	Lead	0.000014	0.015	0.05	0.000024	0.0005	U	SW-846:6020
	Magnesium	17	NE	NE	0.0052	0.5		SW-846:6010
	Manganese	0.0001	NE	NE	0.00013	0.002	U	SW-846:6010
	Mercury	0.0000089	0.002	0.002	0.0000081	0.0001	U	SW-846:7470
	Nickel	0.001	NE	NE	0.0009	0.005	U	SW-846:6010
	Potassium	4.8	NE	NE	0.03	0.5		SW-846:6010
	Selenium	0.0026	0.05	0.05	0.00018	0.001		SW-846:6020
	Silver	0.000012	NE	0.05	0.0000085	0.0001	U	SW-846:6020
	Sodium	49	NE	NE	0.006	0.5		SW-846:6010
	Thallium	0.0000091	0.002	NE	0.000018	0.0002	B	SW-846:6020
	Uranium	0.0035	0.03	0.03	0.0000041	0.0001		SW-846:6020
	Vanadium	0.0045	NE	NE	0.0006	0.005	B	SW-846:6010
	Zinc	0.01	NE	NE	0.0039	0.005		SW-846:6010

Note:

B	Result is an estimated value above MDL/IDL but less that reporting limit.
NE	Not Established
U	Analyte was analyzed for but was not detected

Table 2- NMED DOE OB FFY 2009 Q-4 Technical Area -V Groundwater Quality Results: Major Anions/ Nitrate plus Nitrite

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	NMED MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
AVN-1 31-Aug-09	Bromide	0.2	NE	NE	0.095	0.2	U	SW-846:9056
	Chloride	11	NE	NE	0.091	0.2		SW-846:9056
	Fluoride	1	4	1.6	0.022	0.1		SW-846:9056
	Nitrate-Nitrite as N	**11**	10	10	0.036	0.1		EPA:353.2
	Nitrate-Nitrite as N	**12***	10	10	0.18	0.5		EPA:353.2
	Sulfate	31	NE	NE	0.23	1		SW-846:9056
LWDS-MW1 15-Sep-09	Bromide	0.68	NE	NE	0.095	0.2		SW-846:9056
	Chloride	80	NE	NE	0.46	1		SW-846:9056
	Fluoride	0.58	4	1.6	0.022	0.1		SW-846:9056
	Nitrate-Nitrite as N	**13**	10	10	0.036	0.1		EPA:353.2
	Sulfate	42	NE	NE	0.23	1		SW-846:9056
LWDS-MW2 27-Aug-09	Bromide	0.2	NE	NE	0.095	0.2	U	SW-846:9056
	Chloride	15	NE	NE	0.091	0.2		SW-846:9056
	Fluoride	1.1	4	1.6	0.022	0.1		SW-846:9056
	Nitrate-Nitrite as N	8.1	10	10	0.073	0.2		EPA:353.2
	Sulfate	41	NE	NE	0.23	1		SW-846:9056
TAV-MW6 10-Sep-09	Bromide	0.59	NE	NE	0.095	0.2		SW-846:9056
	Chloride	69	NE	NE	0.46	1		SW-846:9056
	Fluoride	0.97	4	1.6	0.022	0.1		SW-846:9056
	Nitrate-Nitrite as N	**11**	10	10	0.036	0.1		EPA:353.2
	Nitrate-Nitrite as N	8.5*	10	10	0.036	0.1	N	EPA:353.2
	Sulfate	49	NE	NE	0.23	1		SW-846:9056
TAV-MW7 26-Aug-09	Bromide	0.2	NE	NE	0.095	0.2	U	SW-846:9056
	Chloride	34	NE	NE	0.91	2		SW-846:9056
	Fluoride	0.96	4	1.6	0.022	0.1		SW-846:9056
	Nitrate-Nitrite as N	4.3	10	10	0.073	0.2		EPA:353.2
	Sulfate	68	NE	NE	0.23	1		SW-846:9056

Notes:

Values in Bold have exceed the EPA MCL and/or NMED MAC

N =Spiked sample recovery not within control limits.

NE = Not established

* =Re-analysis

Table 2- NMED DOE OB FFY 2009 Q-4 Technical Area -V Groundwater Quality Results: Major Anions/ Nitrate plus Nitrite

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	NMED MAC (mg/L)	MDL (mg/L)	Quantitation Limit (mg/L)	Laboratory Qualifier	Analytical Method
TAV-MW10 11-Sep-09	Bromide	0.29	NE	NE	0.095	0.2		SW-846:9056
	Chloride	56	NE	NE	0.46	1		SW-846:9056
	Fluoride	1.1	4	1.6	0.022	0.1		SW-846:9056
	Nitrate-Nitrite as N	**13**	10	10	0.036	0.1		EPA:353.2
	Sulfate	47	NE	NE	0.23	1		SW-846:9056
TAV-MW10 11-Sep-09 DUP	Bromide	0.26	NE	NE	0.095	0.2		SW-846:9056
	Chloride	54	NE	NE	0.46	1		SW-846:9056
	Fluoride	1.1	4	1.6	0.022	0.1		SW-846:9056
	Nitrate-Nitrite as N	**13**	10	10	0.036	0.1		EPA:353.2
	Sulfate	47	NE	NE	0.23	1		SW-846:9056

Notes:

Values in Bold have exceed the EPA MCL and/or NMED MAC

N =Spiked sample recovery not within control limits.

NE = Not established

* =Re-analysis

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
AVN-1 31-Aug-09	Actinium-228	20 ± 12	18	TI	713R10	
	Aluminum-26	2.4 ± 4	6.6	U	713R10	
	Americium-241	15 ± 12	19	U	713R10	
	Antimony-124	7.4 ± 3.4	5.1	TI	713R10	
	Antimony-125	4.2 ± 6.5	12	U	713R10	
	Beryllium-7	-2.5 ± 24	41	U	713R10	
	Bismuth-212	3 ± 41	69	U	713R10	
	Bismuth-214	-7.2 ± 14	24	U,J	713R10	
	Cadmium-109	38 ± 50	82	U	713R10	
	Cerium-139	-0.25 ± 1.8	3	U	713R10	
	Cerium-144	2 ± 12	20	U	713R10	
	Cesium-134	-1.4 ± 4	7	U	713R10	
	Cesium-137	-2.5 ± 2.9	5	U,M	713R10	
	Chromium-51	-35 ± 30	51	U	713R10	
	Cobalt-56	-3.9 ± 6.3	11	U	713R10	
	Cobalt-57	-0.49 ± 1.6	2.7	U	713R10	
	Cobalt-58	1 ± 3.2	5.3	U	713R10	
	Cobalt-60	-0.69 ± 3.5	6	U	713R10	
	Europium-152	-20 ± 18	31	U	713R10	
	Europium-154	15 ± 17	27	U	713R10	
	Europium-155	2.1 ± 6.8	11	U	713R10	
	Gross Alpha	2 ± 0.56	0.56		724R10	
	Gross Alpha	2.7 ± 0.64	0.54		724R10	DUP
	Gross Beta	3.8 ± 0.93	1.1		724R10	
	Gross Beta	3.3 ± 0.89	1.1		724R10	DUP
	Iodine-131	11 ± 13	22	U	713R10	
	Iron-59	6.2 ± 7.8	13	U	713R10	
	Lead-212	1.2 ± 8.1	13	U	713R10	
	Lead-214	2.2 ± 10	17	U,J	713R10	
	Manganese-54	0.35 ± 3.1	5.3	U	713R10	
	Niobium-94	0.89 ± 3	5	U	713R10	
	Niobium-95	-1.4 ± 3.3	5.7	U	713R10	
	Potassium-40	59 ± 82	140	U	713R10	
	Protactinium-234m	630 ± 520	830	U	713R10	
	Ruthenium-106	-19 ± 28	47	U	713R10	
	Scandium-46	0.51 ± 3.2	5.4	U	713R10	
	Silver-110m	1.1 ± 2.8	4.7	U	713R10	
	Sodium-22	-0.29 ± 3.3	5.6	U	713R10	
	Strontium-85	1.8 ± 4.3	7	U	713R10	
	Thallium-208	-0.26 ± 6.3	10	U	713R10	
	Thorium-227	-7 ± 21	35	U	713R10	
	Thorium-234	48 ± 71	120	U	713R10	
	Uranium-235	14 ± 16	31	U	713R10	
	Zinc-65	-1.5 ± 7.4	13	U	713R10	

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
LWDS-MW1 15-Sep-09	Actinium-228	19 ± 11	17	TI	713R10	
	Aluminum-26	-0.77 ± 2.9	5.2	U	713R10	
	Americium-241	2 ± 3.6	6	U	713R10	
	Antimony-124	3.9 ± 3.3	5.3	U	713R10	
	Antimony-125	1 ± 5.8	10	U	713R10	
	Beryllium-7	-21 ± 28	49	U	713R10	
	Bismuth-212	5.6 ± 38	64	U	713R10	
	Bismuth-214	9.3 ± 11	17	U,J	713R10	
	Cadmium-109	27 ± 23	37	U	713R10	
	Cerium-139	-1.3 ± 1.8	3	U	713R10	
	Cerium-144	4.9 ± 12	20	U	713R10	
	Cesium-134	-1.3 ± 3.9	6.5	U	713R10	
	Cesium-137	-1.1 ± 2.7	4.7	U	713R10	
	Chromium-51	-39 ± 35	60	U	713R10	
	Cobalt-56	3.3 ± 5.6	9.2	U	713R10	
	Cobalt-57	-0.92 ± 1.5	2.6	U	713R10	
	Cobalt-58	-1.6 ± 3.2	5.6	U	713R10	
	Cobalt-60	-1.2 ± 2.8	4.9	U	713R10	
	Europium-152	-1.2 ± 14	24	U	713R10	
	Europium-154	-11 ± 15	26	U	713R10	
	Europium-155	2.1 ± 5.8	9.6	U	713R10	
	Gross Alpha	3.7 ± 0.99	0.98		724R10	
	Gross Beta	4.4 ± 1.4	1.9	M3	724R10	
	Iodine-131	-16 ± 25	43	U	713R10	
	Iron-59	11 ± 8	13	U	713R10	
	Lead-212	1.2 ± 6.9	11	U	713R10	
	Lead-214	-0.74 ± 7.8	13	U,J	713R10	
	Manganese-54	-0.7 ± 2.7	4.7	U	713R10	
	Niobium-94	1 ± 2.7	4.4	U	713R10	
	Niobium-95	-0.7 ± 3.3	5.6	U	713R10	
	Potassium-40	14 ± 65	110	U	713R10	
	Protactinium-234m	260 ± 470	780	U	713R10	
	Ruthenium-106	-15 ± 23	40	U	713R10	
	Scandium-46	-1.8 ± 3.4	5.9	U	713R10	
	Silver-110m	1.1 ± 2.6	4.4	U	713R10	
	Sodium-22	2.2 ± 2.9	4.7	U	713R10	
	Strontium-85	8.3 ± 4.7	7.1	TI	713R10	
	Thallium-208	4.6 ± 2.7	4.2	TI	713R10	
	Thorium-227	-3.2 ± 20	33	U	713R10	
	Thorium-234	29 ± 62	100	U	713R10	
	Uranium-235	6.5 ± 15	31	U	713R10	
	Zinc-65	-5.3 ± 6.3	11	U	713R10	

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
LWDS-MW2 27Aug-09	Actinium-228	9.5 ± 9.5	17	U	713R10	
	Aluminum-26	0.17 ± 4	6.8	U	713R10	
	Americium-241	6.2 ± 16	27	U	713R10	
	Antimony-124	7.5 ± 2.9	4.3	TI	713R10	
	Antimony-125	2.7 ± 6.3	12	U	713R10	
	Beryllium-7	20 ± 21	34	U	713R10	
	Bismuth-212	9.4 ± 66	110	U	713R10	
	Bismuth-214	35 ± 12	22	J	713R10	
	Cadmium-109	31 ± 49	80	U	713R10	
	Cerium-139	-0.77 ± 1.7	2.8	U	713R10	
	Cerium-144	8 ± 12	19	U	713R10	
	Cesium-134	3.5 ± 19	31	U	713R10	
	Cesium-137	0.32 ± 2.8	4.7	U	713R10	
	Chromium-51	-1.8 ± 22	36	U	713R10	
	Cobalt-56	2.7 ± 5.5	9.1	U	713R10	
	Cobalt-57	-0.38 ± 1.5	2.6	U	713R10	
	Cobalt-58	0.65 ± 2.7	4.5	U	713R10	
	Cobalt-60	2.2 ± 3.3	5.4	U	713R10	
	Europium-152	-11 ± 17	30	U	713R10	
	Europium-154	-1.7 ± 16	28	U	713R10	
	Europium-155	4.1 ± 6.8	11	U	713R10	
	Gross Alpha	3.1 ± 0.71	0.54		724R10	
	Gross Beta	2.3 ± 0.92	1.3		724R10	
	Iodine-131	0.88 ± 4.3	7.1	U	713R10	
	Iron-59	3.6 ± 6.2	10	U	713R10	
	Lead-212	2.1 ± 7.4	12	U	713R10	
	Lead-214	34 ± 9.8	17	J	713R10	
	Manganese-54	0.75 ± 3	5	U	713R10	
	Niobium-94	-1.3 ± 2.8	4.8	U	713R10	
	Niobium-95	-0.68 ± 3.9	6.7	U	713R10	
	Potassium-40	54 ± 76	120	U	713R10	
	Protactinium-234m	220 ± 490	820	U	713R10	
	Ruthenium-106	7.5 ± 26	44	U	713R10	
	Scandium-46	-0.55 ± 2.9	5	U	713R10	
	Silver-110m	0.89 ± 2.6	4.3	U	713R10	
	Sodium-22	0.66 ± 3.4	5.8	U	713R10	
	Strontium-85	2.8 ± 3.6	5.7	U	713R10	
	Thallium-208	-0.69 ± 4.9	8.2	U	713R10	
	Thorium-227	-0.53 ± 20	34	U	713R10	
	Thorium-234	-12 ± 73	120	U	713R10	
	Uranium-235	11 ± 9.9	19	U	713R10	
	Zinc-65	-1.9 ± 13	21	U	713R10	

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
TAV-MW6 10-Sep-09	Actinium-228	16 ± 12	19	U	713R10	
	Aluminum-26	0.69 ± 3.9	6.8	U	713R10	
	Americium-241	2.5 ± 2.9	4.8	U	713R10	
	Antimony-124	4.9 ± 4.2	6.8	U	713R10	
	Antimony-125	3.2 ± 6.5	12	U	713R10	
	Beryllium-7	-9.9 ± 28	48	U	713R10	
	Bismuth-212	64 ± 46	73	U	713R10	
	Bismuth-214	2.5 ± 13	22	U,J	713R10	
	Cadmium-109	30 ± 21	34	U	713R10	
	Cerium-139	-0.87 ± 1.6	2.8	U	713R10	
	Cerium-144	-6.9 ± 10	18	U	713R10	
	Cesium-134	-3.6 ± 3	5.2	U	713R10	
	Cesium-137	-2.4 ± 3	5.3	U,M	713R10	
	Chromium-51	23 ± 39	65	U	713R10	
	Cobalt-56	4.4 ± 6.7	11	U	713R10	
	Cobalt-57	-0.4 ± 1.3	2.1	U	713R10	
	Cobalt-58	0.67 ± 3.8	6.5	U	713R10	
	Cobalt-60	-1.9 ± 3.5	6.2	U	713R10	
	Europium-152	-9.9 ± 17	30	U	713R10	
	Europium-154	-10 ± 17	30	U	713R10	
	Europium-155	-1.3 ± 4.6	7.8	U	713R10	
	Gross Alpha	5.1 ± 1.2	0.98		724R10	
	Gross Beta	4.9 ± 1.5	2.1	M3	724R10	
	Iodine-131	13 ± 42	70	U	713R10	
	Iron-59	-7.6 ± 14	24	U	713R10	
	Lead-212	-1.3 ± 7.4	12	U	713R10	
	Lead-214	7.5 ± 4	8.6	U,J	713R10	
	Manganese-54	-2.3 ± 3.1	5.4	U	713R10	
	Niobium-94	1.3 ± 3.2	5.3	U	713R10	
	Niobium-95	-4 ± 4.2	7.4	U	713R10	
	Potassium-40	-15 ± 74	130	U	713R10	
	Protactinium-234m	230 ± 510	860	U	713R10	
	Ruthenium-106	-13 ± 27	47	U	713R10	
	Scandium-46	-1.8 ± 3.8	6.6	U	713R10	
	Silver-110m	0.62 ± 2.8	4.7	U	713R10	
	Sodium-22	-2.2 ± 3.3	5.8	U	713R10	
	Strontium-85	3.3 ± 4.5	7.2	U	713R10	
	Thallium-208	3.4 ± 5.6	9.3	U	713R10	
	Thorium-227	-3.8 ± 12	21	U	713R10	
	Thorium-234	-46 ± 47	78	U	713R10	
	Uranium-235	11 ± 9	16	U	713R10	
	Zinc-65	2 ± 7.2	12	U	713R10	

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
TAV-MW6 10-Sep-09	Actinium-228	24 ± 10	18	TI	713R10	DUP
	Aluminum-26	0.12 ± 3.5	6	U	713R10	DUP
	Americium-241	-8.3 ± 27	45	U	713R10	DUP
	Antimony-124	-2.3 ± 5	8.6	U	713R10	DUP
	Antimony-125	-2.8 ± 6.8	13	U	713R10	DUP
	Beryllium-7	5 ± 35	59	U	713R10	DUP
	Bismuth-212	35 ± 44	72	U	713R10	DUP
	Bismuth-214	10 ± 6.8	11	U,J	713R10	DUP
	Cadmium-109	53 ± 82	130	U	713R10	DUP
	Cerium-139	-0.67 ± 2.4	4	U	713R10	DUP
	Cerium-144	-1.1 ± 15	26	U	713R10	DUP
	Cesium-134	-2.2 ± 3.3	5.6	U	713R10	DUP
	Cesium-137	-1.2 ± 3.1	5.3	U,M	713R10	DUP
	Chromium-51	20 ± 56	93	U	713R10	DUP
	Cobalt-56	1.1 ± 6.6	11	U	713R10	DUP
	Cobalt-57	-0.77 ± 2.1	3.6	U	713R10	DUP
	Cobalt-58	-3.7 ± 4.2	7.3	U	713R10	DUP
	Cobalt-60	-0.18 ± 2.9	5	U	713R10	DUP
	Europium-152	-3.1 ± 15	27	U	713R10	DUP
	Europium-154	-18 ± 17	30	U	713R10	DUP
	Europium-155	-2.1 ± 9.1	15	U	713R10	DUP
	Iodine-131	28 ± 78	130	U	713R10	DUP
	Iron-59	0.15 ± 10	17	U	713R10	DUP
	Lead-212	0.98 ± 7.5	12	U	713R10	DUP
	Lead-214	6.2 ± 5.5	8.8	U,J	713R10	DUP
	Manganese-54	2.9 ± 3.2	5.2	U	713R10	DUP
	Niobium-94	-0.92 ± 3	5.2	U	713R10	DUP
	Niobium-95	0.33 ± 3.9	6.7	U	713R10	DUP
	Potassium-40	26 ± 92	150	U	713R10	DUP
	Protactinium-234m	2.4 ± 500	860	U	713R10	DUP
	Ruthenium-106	-21 ± 30	53	U	713R10	DUP
	Scandium-46	-3.5 ± 3.8	6.7	U	713R10	DUP
	Silver-110m	-1.4 ± 3.2	5.5	U	713R10	DUP
	Sodium-22	0.27 ± 3.3	5.6	U	713R10	DUP
	Strontium-85	2.7 ± 5.3	8.7	U	713R10	DUP
	Thallium-208	8 ± 3.1	4.7	TI	713R10	DUP
	Thorium-227	-4.9 ± 15	25	U	713R10	DUP
	Thorium-234	24 ± 72	120	U	713R10	DUP
	Uranium-235	14 ± 14	23	U	713R10	DUP
	Zinc-65	5.5 ± 7	11	U	713R10	DUP

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
TAV-MW7 26-Aug-09	Actinium-228	13 ± 7.2	16	U	713R10	
	Aluminum-26	-1.7 ± 3.2	5.6	U	713R10	
	Americium-241	6 ± 22	37	U	713R10	
	Antimony-124	5.9 ± 2.7	4.1	TI	713R10	
	Antimony-125	3.2 ± 5.8	11	U	713R10	
	Beryllium-7	-3.6 ± 20	33	U	713R10	
	Bismuth-212	4.7 ± 35	60	U	713R10	
	Bismuth-214	23 ± 11	19	J	713R10	
	Cadmium-109	-71 ± 110	180	U	713R10	
	Cerium-139	-0.35 ± 1.7	2.9	U	713R10	
	Cerium-144	-17 ± 13	22	U	713R10	
	Cesium-134	-3 ± 2.7	4.6	U	713R10	
	Cesium-137	0.6 ± 2.7	4.5	U	713R10	
	Chromium-51	-3 ± 21	35	U	713R10	
	Cobalt-56	6.2 ± 4.5	7.2	U	713R10	
	Cobalt-57	0.4 ± 1.5	2.5	U	713R10	
	Cobalt-58	0.79 ± 2.5	4.2	U	713R10	
	Cobalt-60	-0.82 ± 3	5.2	U	713R10	
	Europium-152	-11 ± 15	26	U	713R10	
	Europium-154	-12 ± 14	24	U	713R10	
	Europium-155	-1.3 ± 6.5	11	U	713R10	
	Gross Alpha	5.1 ± 1.1	0.78		724R10	
	Gross Beta	4.5 ± 1.2	1.6	M3	724R10	
	Iodine-131	-2.7 ± 4.9	8.3	U	713R10	
	Iron-59	6.4 ± 5.9	9.5	U	713R10	
	Lead-212	-0.62 ± 7	12	U	713R10	
	Lead-214	21 ± 9	18	J	713R10	
	Manganese-54	-2.1 ± 2.7	4.7	U	713R10	
	Niobium-94	2 ± 2.7	4.5	U	713R10	
	Niobium-95	-1.4 ± 2.6	4.4	U	713R10	
	Potassium-40	75 ± 71	120	U	713R10	
	Protactinium-234m	350 ± 410	680	U	713R10	
	Ruthenium-106	-3.1 ± 23	39	U	713R10	
	Scandium-46	-0.63 ± 2.6	4.4	U	713R10	
	Silver-110m	-0.27 ± 2.5	4.2	U	713R10	
	Sodium-22	-2.2 ± 2.9	5	U	713R10	
	Strontium-85	4.2 ± 3.5	5.4	U	713R10	
	Thallium-208	-0.55 ± 5.2	8.6	U	713R10	
	Thorium-227	-6.7 ± 18	31	U	713R10	
	Thorium-234	-20 ± 75	120	U	713R10	
	Uranium-235	12 ± 12	20	U	713R10	
	Zinc-65	6.1 ± 11	19	U	713R10	

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
TAV-MW10 11-Sep-09	Actinium-228	11 ± 9.9	16	U	713R10	
	Aluminum-26	-0.84 ± 3.3	5.7	U	713R10	
	Americium-241	6.2 ± 22	36	U	713R10	
	Antimony-124	8.4 ± 3.8	5.7	TI	713R10	
	Antimony-125	4.2 ± 6	11	U	713R10	
	Beryllium-7	-7.2 ± 26	45	U	713R10	
	Bismuth-212	37 ± 37	60	U	713R10	
	Bismuth-214	-0.69 ± 12	20	U,J	713R10	
	Cadmium-109	-8.4 ± 57	96	U	713R10	
	Cerium-139	-0.43 ± 2	3.3	U	713R10	
	Cerium-144	-4.4 ± 13	21	U	713R10	
	Cesium-134	-4 ± 2.7	4.7	U	713R10	
	Cesium-137	-1.1 ± 2.6	4.5	U	713R10	
	Chromium-51	-5.3 ± 40	68	U	713R10	
	Cobalt-56	1.8 ± 5.5	9.2	U	713R10	
	Cobalt-57	0.62 ± 1.5	2.5	U	713R10	
	Cobalt-58	1.5 ± 3.3	5.5	U	713R10	
	Cobalt-60	-0.067 ± 2.8	4.8	U	713R10	
	Europium-152	8.3 ± 14	24	U	713R10	
	Europium-154	-10 ± 14	24	U	713R10	
	Europium-155	1.7 ± 6.5	11	U	713R10	
	Gross Alpha	3.3 ± 0.83	0.72		724R10	
	Gross Beta	4.7 ± 1.4	1.8	M3	724R10	
	Iodine-131	25 ± 51	85	U	713R10	
	Iron-59	8.5 ± 8.4	14	U	713R10	
	Lead-212	-0.71 ± 8.1	13	U	713R10	
	Lead-214	-5.2 ± 9.6	16	U,J	713R10	
	Manganese-54	0.099 ± 2.6	4.5	U	713R10	
	Niobium-94	-4.4 ± 2.7	4.7	U	713R10	
	Niobium-95	-4.5 ± 3.1	5.6	U	713R10	
	Potassium-40	26 ± 65	110	U	713R10	
	Protactinium-234m	-280 ± 430	750	U	713R10	
	Ruthenium-106	-0.79 ± 24	41	U	713R10	
	Scandium-46	0.19 ± 3.1	5.3	U	713R10	
	Silver-110m	1 ± 2.6	4.4	U	713R10	
	Sodium-22	2.2 ± 2.8	4.7	U	713R10	
	Strontium-85	-0.59 ± 4.4	7.5	U	713R10	
	Thallium-208	0.5 ± 5.8	9.6	U	713R10	
	Thorium-227	6 ± 18	29	U	713R10	
	Thorium-234	-4.8 ± 85	140	U	713R10	
	Uranium-235	6.2 ± 12	19	U	713R10	
	Zinc-65	-7.4 ± 6.2	11	U	713R10	

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 3- NMED DOE Oversight Bureau FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Gamma-Emitting Isotopes & Gross Alpha/Beta

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method	Comments
TAV-MW10 11-Sep-09	Actinium-228	16 ± 12	19	U	713R10	DUP
	Aluminum-26	0.9 ± 3.6	6.1	U	713R10	DUP
	Americium-241	-5.6 ± 27	45	U	713R10	DUP
	Antimony-124	-6.4 ± 4.6	7.9	U	713R10	DUP
	Antimony-125	5.2 ± 7.5	12	U	713R10	DUP
	Beryllium-7	-10 ± 32	54	U	713R10	DUP
	Bismuth-212	7.6 ± 44	73	U	713R10	DUP
	Bismuth-214	1.1 ± 13	22	U,J	713R10	DUP
	Cadmium-109	29 ± 81	130	U	713R10	DUP
	Cerium-139	0.26 ± 2.2	3.7	U	713R10	DUP
	Cerium-144	-2.8 ± 15	25	U	713R10	DUP
	Cesium-134	0.32 ± 4.8	7.9	U	713R10	DUP
	Cesium-137	1.8 ± 3	5	U	713R10	DUP
	Chromium-51	-2.3 ± 43	73	U	713R10	DUP
	Cobalt-56	7.8 ± 6.3	9.9	U	713R10	DUP
	Cobalt-57	-0.024 ± 2	3.4	U	713R10	DUP
	Cobalt-58	-0.64 ± 3.6	6.3	U	713R10	DUP
	Cobalt-60	-1.3 ± 3	5.3	U	713R10	DUP
	Europium-152	-1.4 ± 16	27	U	713R10	DUP
	Europium-154	-5.1 ± 17	29	U	713R10	DUP
	Europium-155	3.8 ± 9	15	U	713R10	DUP
	Gross Alpha	3.7 ± 0.97	0.93		724R10	DUP
	Gross Beta	4.3 ± 1.4	1.9	M3	724R10	DUP
	Iodine-131	16 ± 30	50	U	713R10	DUP
	Iron-59	2.7 ± 8.7	15	U	713R10	DUP
	Lead-212	2.3 ± 8	13	U	713R10	DUP
	Lead-214	10 ± 5.7	8.8	J,TI	713R10	DUP
	Manganese-54	0.13 ± 3	5.1	U	713R10	DUP
	Niobium-94	0.31 ± 3	5.1	U	713R10	DUP
	Niobium-95	2.5 ± 3.5	5.7	U	713R10	DUP
	Potassium-40	14 ± 92	150	U	713R10	DUP
	Protactinium-234m	680 ± 500	800	U	713R10	DUP
	Ruthenium-106	-17 ± 28	49	U	713R10	DUP
	Scandium-46	-1.6 ± 3.5	6.1	U	713R10	DUP
	Silver-110m	-0.83 ± 2.9	5.1	U	713R10	DUP
	Sodium-22	1.1 ± 3.2	5.4	U	713R10	DUP
	Strontium-85	1.1 ± 4.5	7.4	U	713R10	DUP
	Thallium-208	2.3 ± 5.3	8.8	U	713R10	DUP
	Thorium-227	-13 ± 25	42	U	713R10	DUP
	Thorium-234	100 ± 48	73	TI	713R10	DUP
	Uranium-235	1.1 ± 14	24	U	713R10	DUP
	Zinc-65	3.3 ± 6.8	11	U	713R10	DUP

Notes:

J	Activity is an estimated value
LT	Result is less than requested MDC but greater than sample specific MDC.
M	The requested MDC not met.
M3	The requested MDC was not met, but the reported activity is greater than the reported MDC.
TI	Gamma: Nuclide identification is tentative.
U	Result is less than the sample specific MDC.

Table 4- NMED DOE OB FFY 2009 Q-4 Technical Area-V Groundwater Quality Results: Detected Volatile Organic Compounds

Monitoring Well/ Sample Date	Analyte	Result (µg/L)	EPA MCL (µg/L)	NMED MAC (µg/L)	MDL (µg/L)	Quantitation Limit (µg/L)	Laboratory Qualifier	Analytical Method
AVN-1 31-Aug-09	Toluene	0.25	1000	750	0.17	1	J	SW8260_25
LWDS-MW1 15-Sep-09	Chloroform	0.17	NE	100	0.17	1	J	SW8260_25
	Dichloroethene[cis-1,2-]	3.7	70	NE	0.17	1		SW8260_25
	Toluene	0.81	1000	750	0.17	1	J	SW8260_25
	Trichloroethylene	**17**	5	100	0.17	1		SW8260_25
LWDS-MW2 27-Aug-09	Toluene	1	1000	750	0.17	1		SW8260_25
TAV-MW6 10-Sep-09	Dichloroethene[cis-1,2-]	2.6	70	NE	0.17	1		SW8260_25
	Trichloroethylene	**14**	5	100	0.17	1		SW8260_25
TAV-MW7 26-Aug-09	Toluene	0.18	1000	750	0.17	1	J	SW8260_25
TAV-MW10 11-Sep-09	Dichloroethene[cis-1,2-]	2.9	70	NE	0.17	1		SW8260_25
	Trichloroethylene	**16**	5	100	0.17	1		SW8260_25
TAV-MW10 11-Sep-09 DUP	Dichloroethene[cis-1,2-]	2.9	70	NE	0.17	1		SW8260_25
	Trichloroethylene	**16**	5	100	0.17	1		SW8260_25

Note:

NE Not established

J Result is an estimated value

Values in bold exceed the established MCL

Figure 1
Nitrate plus Nitrite Concentrations, AVN-1

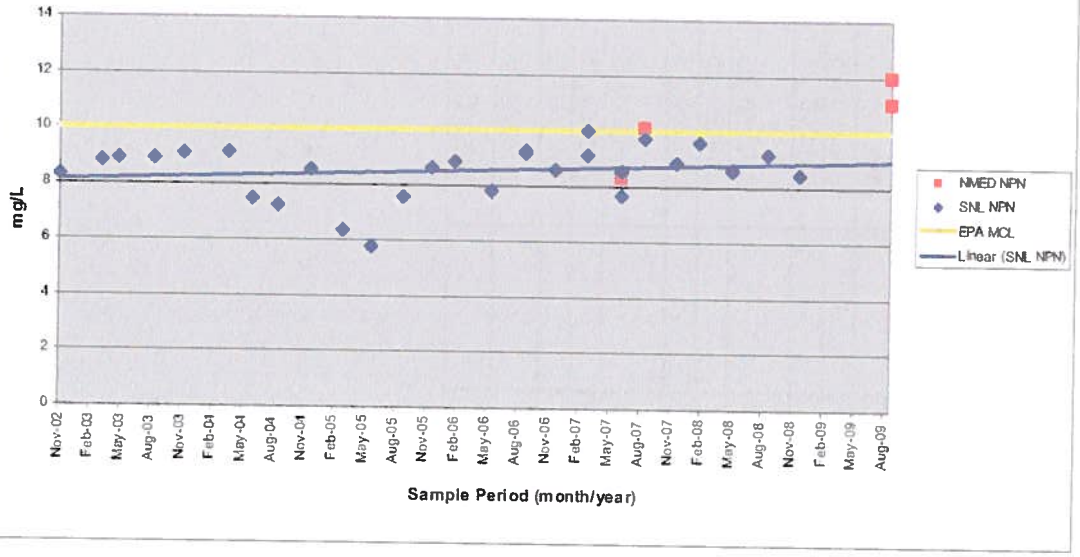


Figure 2
Nitrate plus Nitrite Concentration, LWDS-MW1

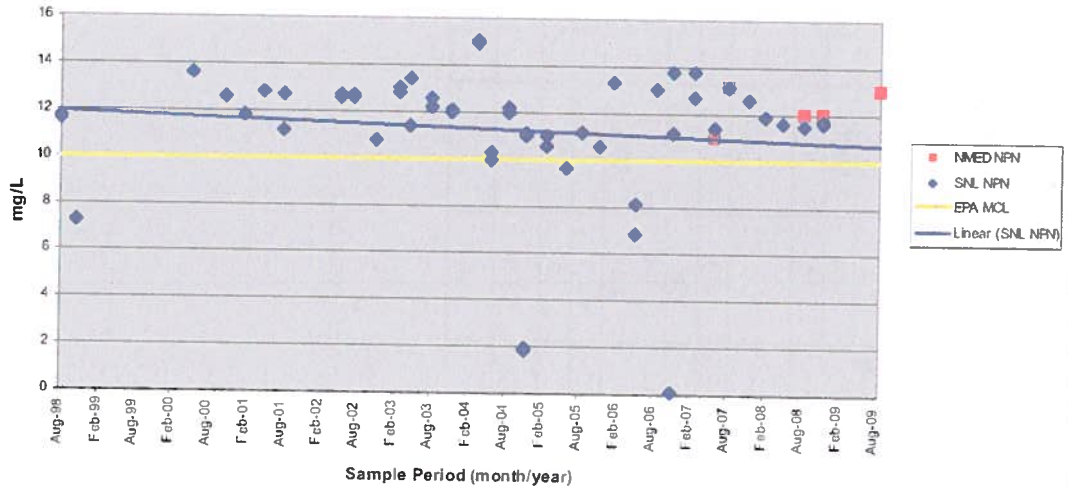


Figure 3
Nitrate plus Nitrite Concentration, TAV-MW6

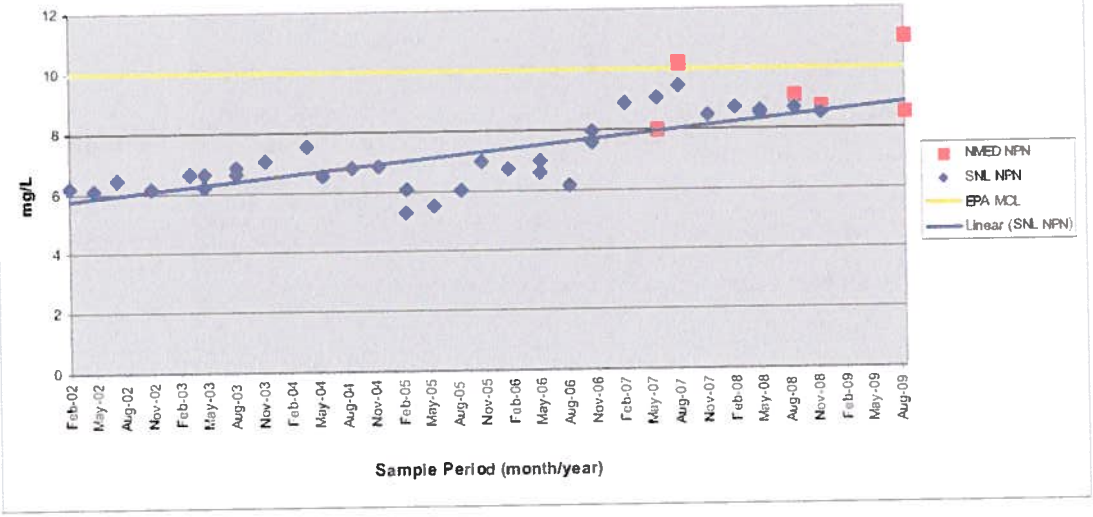


Figure 4
Nitrate plus Nitrite Concentrations, TAV-MW10

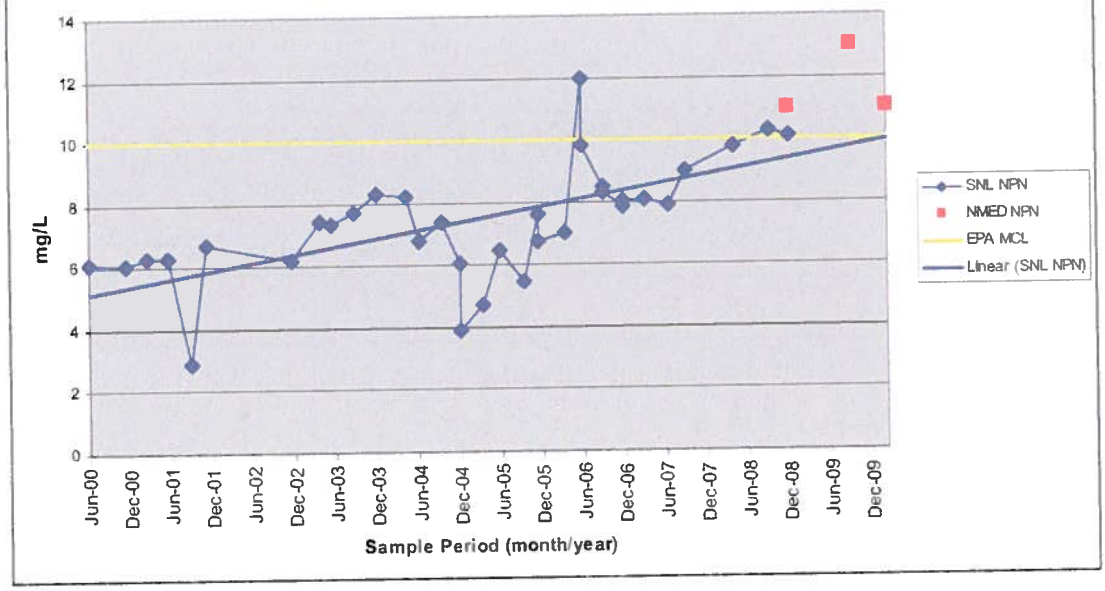


Figure 5
TCE Concentration, LWDS-MW1

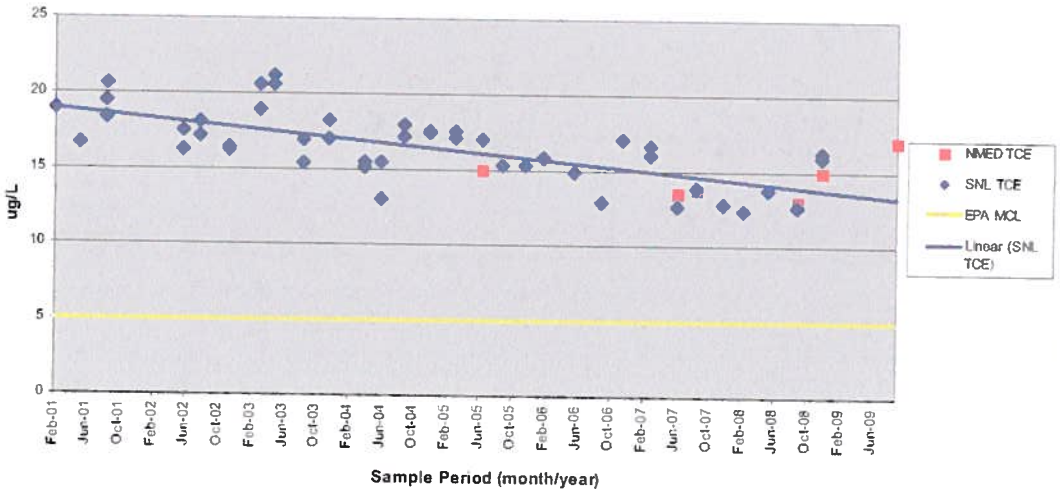


Figure 6
TCE Concentration, TAV-MW6

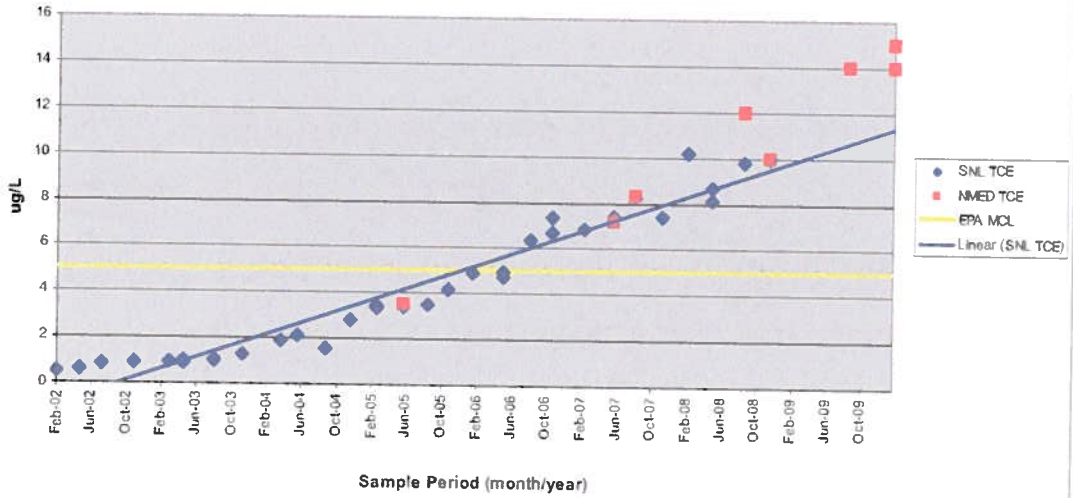
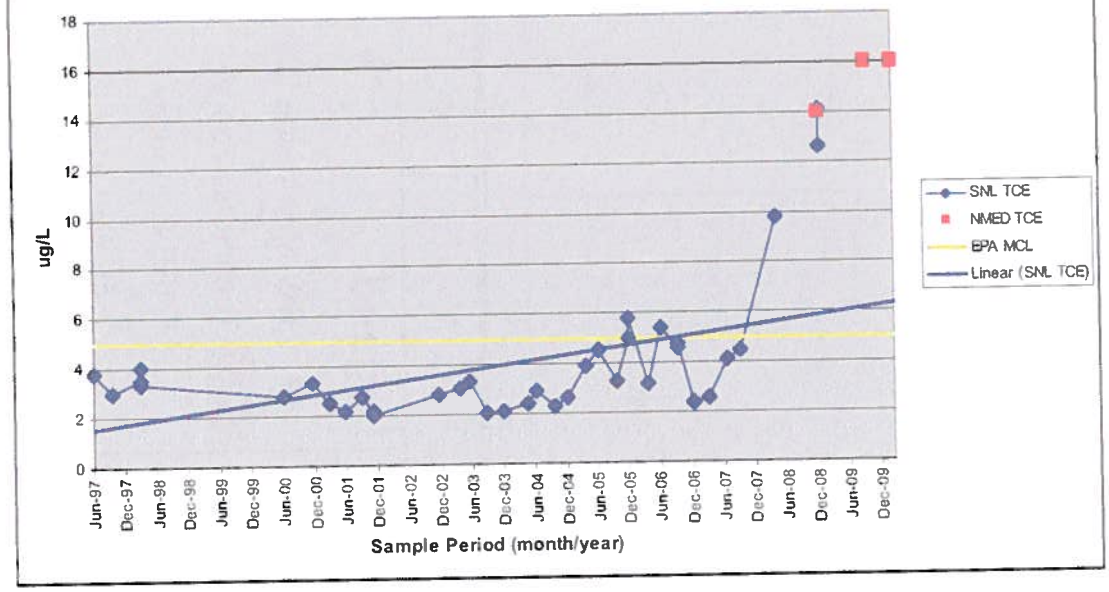
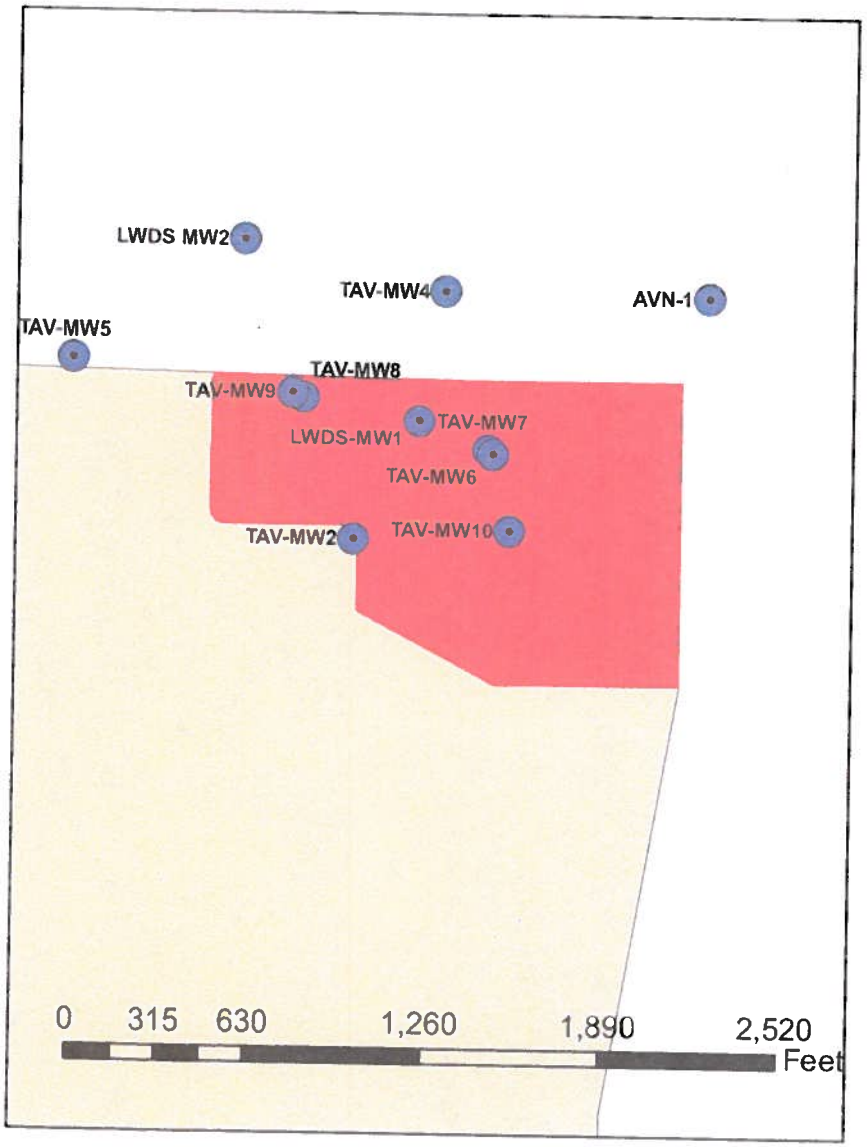
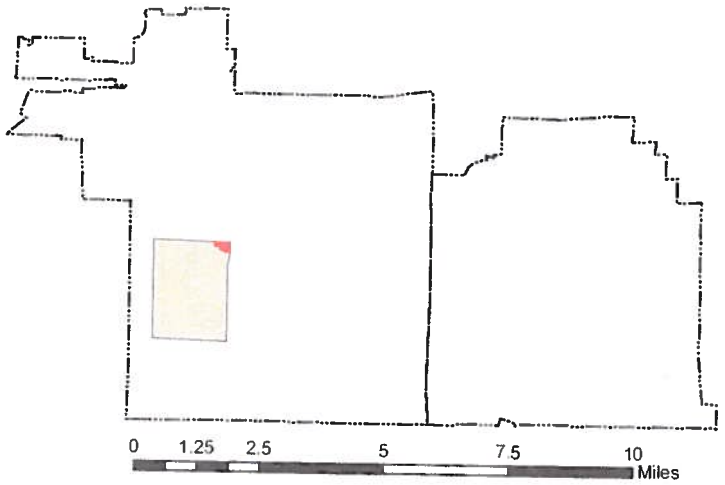


Figure 7
TCE Concentrations, TAV-MW10



TAV Groundwater Monitoring Wells





Legend

- TAV Monitoring Well
- Technical Area V
- KAFB Boundary
- Technical Area III

NMED New Mexico Environment Department