



NEW MEXICO ENVIRONMENT DEPARTMENT

DOE Oversight Bureau

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

121 Tijeras Ave., NE Suite 1000
Albuquerque, NM 87102
Phone (505) 383-2073 Fax (505) 222-9510
www.nmenv.state.nm.us



RYAN FLYNN
Cabinet Secretary
BUTCH TONGATE
Deputy Secretary

Groundwater Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by NMED DOE Oversight Bureau for FFY 2010 Q-3

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data from samples collected in April 2010. The Bureau collected groundwater samples from Mixed Waste Landfill (MWL) groundwater monitoring wells MWL-MW4, MWL-MW5, MWL-MW6, MWL-MW7, MWL-MW8 and MWL-MW9. Split samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM or Sandia) sampling procedures and equipment. Bureau samples were submitted to an independent contract laboratory for analysis of total and dissolved target analyte list (TAL) metals plus uranium, nitrate-nitrite as nitrogen, gamma-emitting isotopes, and gross alpha and beta. No anomalies were detected in the groundwater results from samples collected at MWL monitoring wells. All constituents were detected at concentrations below U.S. Environmental Protection Agency (EPA) standards.

Data Assessment

Data results are compared to applicable Maximum Contaminant Levels (MCLs) from the EPA National Primary Drinking Water Regulations (40 CFR 141).

Results

Analytical results for total TAL metals are listed in Table 1. All metal constituents were detected at concentrations below established EPA MCLs.

Analytical results for dissolved TAL metals are listed in Table 2. All metal constituents were detected at concentrations below established EPA MCLs.

Analytical results for nitrate-nitrite as nitrogen (NPN) are listed in Table 3. All nitrogen concentrations were below the EPA MCL of 10 mg/L. Concentrations of NPN ranged from 1.1 mg/L at MWL-MW8 to 3.1 mg/L at MWL-MW7.

Analytical results for gamma-emitting isotopes are listed in Table 4. Gamma spectroscopy analysis did not detect any isotopes above established MCLs.

Analytical results for gross alpha and beta are listed in Table 5. Uncorrected gross alpha values were below the EPA MCL of 15 pCi/L. Gross alpha activities ranged from 4.9 ± 1.2 pCi/L at MWL-MW4 to 9.5 ± 1.8 pCi/L at MWL-MW5.

Conclusions

Bureau and Sandia data results will be compared after the Sandia results are published.

No anomalies were detected in the groundwater results from samples collected at MWL monitoring wells. All sample constituents were detected below established concentration MCLs.

Response

Questions or comments should be addressed to Chris Armijo by phone at (505) 383-2070, by e-mail at chris.armijo1@state.nm.us, or to the address in the letterhead.

Enclosure: (1) Table 1 Total Unfiltered TAL Metals Results
 (2) Table 2 Dissolved Filtered TAL Metals Results
 (3) Table 3 Nitrate plus Nitrite Results
 (4) Table 4 Gamma Emitting Isotopes Results
 (5) Table 5 Gross Alpha and Beta Results

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

File: SGE42.Groundwater Monitoring. MWL. FFY 2010 Q-3

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Table 1- NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
TAL Total Recoverable Metals Results

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
MWL-MW4 29-Apr-10	Aluminum	0.028	NE	0.1	0.048	B	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000089	U	SW-846:6020
	Arsenic	0.0026	0.01	0.002	0.00012		SW-846:6020
	Barium	0.1	2	0.002	0.00088		SW-846:6010
	Beryllium	0.000042	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00023	0.005	0.0003	0.000075	B	SW-846:6020
	Calcium	61	NE	0.5	0.2		SW-846:6010
	Chromium	0.00093	0.1	0.005	0.0023	B	SW-846:6010
	Cobalt	0.00055	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.037	NE	0.05	0.058	B	SW-846:6010
	Lead	0.00013	0.015	0.0005	0.00014	B	SW-846:6020
	Magnesium	21	NE	0.5	0.2		SW-846:6010
	Manganese	0.007	NE	0.002	0.0013		SW-846:6010
	Mercury	0.000014	0.002	0.0001	0.000011	B	SW-846:7470
	Nickel	0.011	NE	0.005	0.0019		SW-846:6010
	Potassium	5.4	NE	0.5	0.41		SW-846:6010
	Selenium	0.00087	0.05	0.001	0.00037	B	SW-846:6020
	Silver	0.0001	NE	0.0001	0.000034	B	SW-846:6020
	Sodium	43	NE	0.5	0.22		SW-846:6010
	Thallium	0.00005	0.002	0.0002	0.000021	B	SW-846:6020
	Uranium	0.006	0.03	0.0001	0.000041		SW-846:6020
	Vanadium	0.01	NE	0.005	0.00076		SW-846:6010
	Zinc	0.12	NE	0.005	0.0056		SW-846:6010
MWL-MW5 20-Apr-10	Aluminum	0.026	NE	0.1	0.048	B	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000079	U	SW-846:6020
	Arsenic	0.00084	0.01	0.002	0.00016	B	SW-846:6020
	Barium	0.11	2	0.002	0.00088		SW-846:6010
	Beryllium	0.00018	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.00003	U	SW-846:6020
	Calcium	93	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00045	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.014	NE	0.05	0.058	B	SW-846:6010
	Lead	0.00009	0.015	0.0005	0.000024	B	SW-846:6020
	Magnesium	30	NE	0.5	0.2		SW-846:6010
	Manganese	0.0064	NE	0.002	0.0012		SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.00093	NE	0.005	0.0019	U	SW-846:6010
	Potassium	5.7	NE	0.5	0.41		SW-846:6010
	Selenium	0.002	0.05	0.001	0.00018		SW-846:6020
	Silver	0.00002	NE	0.0001	0.0000085	B	SW-846:6020
	Sodium	58	NE	0.5	0.22		SW-846:6010
	Thallium	0.000016	0.002	0.0002	0.000018	U	SW-846:6020
	Uranium	0.008	0.03	0.0001	0.0000041		SW-846:6020
	Vanadium	0.005	NE	0.005	0.00076	B	SW-846:6010
	Zinc	0.0017	NE	0.005	0.0056	B	SW-846:6010

B = Estimated values above MDL/IDL but less than reporting limit

E = Reported value is estimated due to interferences

NE = Not Established

U = Analyzed for but not detected

Table 1- NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
TAL Total Recoverable Metals Results

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
MWL-MW6 19-Apr-10	Aluminum	0.015	NE	0.1	0.048	U	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000079	U	SW-846:6020
	Arsenic	0.0012	0.01	0.002	0.00016	B	SW-846:6020
	Barium	0.11	2	0.002	0.00088		SW-846:6010
	Beryllium	0.00018	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.00003	U	SW-846:6020
	Calcium	90	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00045	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.0049	NE	0.05	0.058	U	SW-846:6010
	Lead	0.000068	0.015	0.0005	0.000024	U	SW-846:6020
	Magnesium	29	NE	0.5	0.2		SW-846:6010
	Manganese	0.00011	NE	0.002	0.0012	U	SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.00093	NE	0.005	0.0019	U	SW-846:6010
	Potassium	6.1	NE	0.5	0.41		SW-846:6010
	Selenium	0.0019	0.05	0.001	0.00018		SW-846:6020
	Silver	0.000017	NE	0.0001	0.0000085	U	SW-846:6020
	Sodium	56	NE	0.5	0.22		SW-846:6010
	Thallium	0.000016	0.002	0.0002	0.000018	U	SW-846:6020
	Uranium	0.0082	0.03	0.0001	0.0000041		SW-846:6020
	Vanadium	0.0063	NE	0.005	0.00076		SW-846:6010
	Zinc	0.00072	NE	0.005	0.0056	U	SW-846:6010
MWL-MW7 22-Apr-10	Aluminum	0.02	NE	0.1	0.048	B	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000089	U	SW-846:6020
	Arsenic	0.0016	0.01	0.002	0.00012	B	SW-846:6020
	Barium	0.1	2	0.002	0.00088		SW-846:6010
	Beryllium	0.000042	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.000075	U	SW-846:6020
	Calcium	58	NE	0.5	0.2		SW-846:6010
	Chromium	0.0006	0.1	0.005	0.0023	B	SW-846:6010
	Cobalt	0.00055	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.05	NE	0.05	0.058	B	SW-846:6010
	Lead	0.00011	0.015	0.0005	0.00014	B	SW-846:6020
	Magnesium	20	NE	0.5	0.2		SW-846:6010
	Manganese	0.000054	NE	0.002	0.0013	U	SW-846:6010
	Mercury	0.00003	0.002	0.0001	0.000011	B	SW-846:7470
	Nickel	0.0009	NE	0.005	0.0019	B	SW-846:6010
	Potassium	5.3	NE	0.5	0.41	E	SW-846:6010
	Selenium	0.00032	0.05	0.001	0.00037	U	SW-846:6020
	Silver	0.000017	NE	0.0001	0.000034	U	SW-846:6020
	Sodium	42	NE	0.5	0.22		SW-846:6010
	Thallium	0.00007	0.002	0.0002	0.000021	B	SW-846:6020
	Uranium	0.0077	0.03	0.0001	0.000041		SW-846:6020
	Vanadium	0.0067	NE	0.005	0.00076		SW-846:6010
	Zinc	0.00085	NE	0.005	0.0056	U	SW-846:6010

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Table 1- NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
TAL Total Recoverable Metals Results

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
MWL-MW8 26-Apr-10	Aluminum	0.11	NE	0.1	0.048		SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000089	U	SW-846:6020
	Arsenic	0.00047	0.01	0.002	0.00012	B	SW-846:6020
	Barium	0.15	2	0.002	0.00088		SW-846:6010
	Beryllium	0.00005	0.004	0.001	0.00027	B	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.000075	U	SW-846:6020
	Calcium	59	NE	0.5	0.2		SW-846:6010
	Chromium	0.0011	0.1	0.005	0.0023	B	SW-846:6010
	Cobalt	0.00055	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.14	NE	0.05	0.058		SW-846:6010
	Lead	0.000068	0.015	0.0005	0.00014	U	SW-846:6020
	Magnesium	20	NE	0.5	0.2		SW-846:6010
	Manganese	0.0069	NE	0.002	0.0013		SW-846:6010
	Mercury	0.00001	0.002	0.0001	0.000011	B	SW-846:7470
	Nickel	0.0016	NE	0.005	0.0019	B	SW-846:6010
	Potassium	5.6	NE	0.5	0.41		SW-846:6010
	Selenium	0.00042	0.05	0.001	0.00037	B	SW-846:6020
	Silver	0.000017	NE	0.0001	0.000034	U	SW-846:6020
	Sodium	43	NE	0.5	0.22		SW-846:6010
	Thallium	0.00007	0.002	0.0002	0.000021	B	SW-846:6020
	Uranium	0.0074	0.03	0.0001	0.000041		SW-846:6020
	Vanadium	0.0014	NE	0.005	0.00076	B	SW-846:6010
	Zinc	0.0028	NE	0.005	0.0056	B	SW-846:6010
MWL-MW9 21-Apr-10	Aluminum	0.1	NE	0.1	0.048		SW-846:6010
	Antimony	0.00031	0.006	0.0003	0.000079		SW-846:6020
	Arsenic	0.0032	0.01	0.002	0.00016		SW-846:6020
	Barium	0.093	2	0.002	0.00088		SW-846:6010
	Beryllium	0.00018	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.00003	U	SW-846:6020
	Calcium	59	NE	0.5	0.2		SW-846:6010
	Chromium	0.00084	0.1	0.005	0.0023	B	SW-846:6010
	Cobalt	0.00045	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.1	NE	0.05	0.058		SW-846:6010
	Lead	0.000068	0.015	0.0005	0.000024	U	SW-846:6020
	Magnesium	20	NE	0.5	0.2		SW-846:6010
	Manganese	0.0077	NE	0.002	0.0012		SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.001	NE	0.005	0.0019	B	SW-846:6010
	Potassium	4.7	NE	0.5	0.41		SW-846:6010
	Selenium	0.00098	0.05	0.001	0.00018	B	SW-846:6020
	Silver	0.000017	NE	0.0001	0.0000085	U	SW-846:6020
	Sodium	42	NE	0.5	0.22		SW-846:6010
	Thallium	0.00003	0.002	0.0002	0.000018	B	SW-846:6020
	Uranium	0.0079	0.03	0.0001	0.0000041		SW-846:6020
	Vanadium	0.0087	NE	0.005	0.00076		SW-846:6010
	Zinc	0.0021	NE	0.005	0.0056	B	SW-846:6010

B = Estimated values above MDL/IDL but less than reporting limit

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**Table 2- NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
TAL Dissolved Metals Results**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
MWL-MW4 29-Apr-10	Aluminum	0.02	NE	0.1	0.048	B	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000089	U	SW-846:6020
	Arsenic	0.0025	0.01	0.002	0.00012		SW-846:6020
	Barium	0.099	2	0.002	0.00088		SW-846:6010
	Beryllium	0.000042	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.000075	U	SW-846:6020
	Calcium	61	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00055	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.01	NE	0.05	0.058	B	SW-846:6010
	Lead	0.000068	0.015	0.0005	0.00014	U	SW-846:6020
	Magnesium	21	NE	0.5	0.2		SW-846:6010
	Manganese	0.0028	NE	0.002	0.0013		SW-846:6010
	Nickel	0.0098	NE	0.005	0.0019		SW-846:6010
	Potassium	5.4	NE	0.5	0.41		SW-846:6010
	Selenium	0.00088	0.05	0.001	0.00037	B	SW-846:6020
	Silver	0.000017	NE	0.0001	0.000034	U	SW-846:6020
	Sodium	43	NE	0.5	0.22		SW-846:6010
	Thallium	0.00004	0.002	0.0002	0.000021	B	SW-846:6020
	Uranium	0.006	0.03	0.0001	0.000041		SW-846:6020
	Vanadium	0.0098	NE	0.005	0.00076		SW-846:6010
	Zinc	0.1	NE	0.005	0.0056		SW-846:6010
MWL-MW5 20-Apr-10	Aluminum	0.035	NE	0.1	0.048	B	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000079	U	SW-846:6020
	Arsenic	0.00083	0.01	0.002	0.00016	B	SW-846:6020
	Barium	0.12	2	0.002	0.00088		SW-846:6010
	Beryllium	0.00018	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.00003	U	SW-846:6020
	Calcium	95	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00045	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.0049	NE	0.05	0.058	U	SW-846:6010
	Lead	0.000068	0.015	0.0005	0.000024	U	SW-846:6020
	Magnesium	31	NE	0.5	0.2		SW-846:6010
	Manganese	0.0025	NE	0.002	0.0012		SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.00093	NE	0.005	0.0019	U	SW-846:6010
	Potassium	6	NE	0.5	0.41		SW-846:6010
	Selenium	0.0018	0.05	0.001	0.00018		SW-846:6020
	Silver	0.000017	NE	0.0001	0.0000085	U	SW-846:6020
	Sodium	61	NE	0.5	0.22		SW-846:6010
	Thallium	0.000016	0.002	0.0002	0.000018	U	SW-846:6020
	Uranium	0.008	0.03	0.0001	0.0000041		SW-846:6020
	Vanadium	0.005	NE	0.005	0.00076		SW-846:6010
	Zinc	0.0028	NE	0.005	0.0056	B	SW-846:6010

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**Table 2- NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
TAL Dissolved Metals Results**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
MWL-MW6 19-Apr-10	Aluminum	0.015	NE	0.1	0.048	U	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000079	U	SW-846:6020
	Arsenic	0.0012	0.01	0.002	0.00016	B	SW-846:6020
	Barium	0.11	2	0.002	0.00088		SW-846:6010
	Beryllium	0.00018	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.00003	U	SW-846:6020
	Calcium	89	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00045	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.008	NE	0.05	0.058	B	SW-846:6010
	Lead	0.000068	0.015	0.0005	0.000024	U	SW-846:6020
	Magnesium	29	NE	0.5	0.2		SW-846:6010
	Manganese	0.00011	NE	0.002	0.0012	U	SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.00093	NE	0.005	0.0019	U	SW-846:6010
	Potassium	6.1	NE	0.5	0.41		SW-846:6010
	Selenium	0.0017	0.05	0.001	0.00018		SW-846:6020
	Silver	0.000017	NE	0.0001	0.0000085	U	SW-846:6020
	Sodium	55	NE	0.5	0.22		SW-846:6010
	Thallium	0.000016	0.002	0.0002	0.000018	U	SW-846:6020
	Uranium	0.0082	0.03	0.0001	0.0000041		SW-846:6020
	Vanadium	0.0061	NE	0.005	0.00076		SW-846:6010
	Zinc	0.004	NE	0.005	0.0056	B	SW-846:6010
MWL-MW7 22-Apr-10	Aluminum	0.016	NE	0.1	0.048	U	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000089	U	SW-846:6020
	Arsenic	0.0015	0.01	0.002	0.00012	B	SW-846:6020
	Barium	0.1	2	0.002	0.00088		SW-846:6010
	Beryllium	0.000042	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.000075	U	SW-846:6020
	Calcium	58	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00071	NE	0.002	0.00077	B	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.17	NE	0.05	0.058		SW-846:6010
	Lead	0.000068	0.015	0.0005	0.00014	U	SW-846:6020
	Magnesium	20	NE	0.5	0.2		SW-846:6010
	Manganese	0.000054	NE	0.002	0.0013	U	SW-846:6010
	Nickel	0.0011	NE	0.005	0.0019	B	SW-846:6010
	Potassium	5.3	NE	0.5	0.41		SW-846:6010
	Selenium	0.00032	0.05	0.001	0.00037	U	SW-846:6020
	Silver	0.000017	NE	0.0001	0.000034	U	SW-846:6020
	Sodium	42	NE	0.5	0.22		SW-846:6010
	Thallium	0.00006	0.002	0.0002	0.000021	B	SW-846:6020
	Uranium	0.0075	0.03	0.0001	0.000041		SW-846:6020
	Vanadium	0.0071	NE	0.005	0.00076		SW-846:6010
	Zinc	0.00085	NE	0.005	0.0056	U	SW-846:6010

B = Estimated values above MDL/IDL but less than reporting limit

E = Reported value is estimated due to interferences

NE = Not Established

U = Analyzed for but not detected

**Table 2- NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
TAL Dissolved Metals Results**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
MWL-MW8 26-Apr-10	Aluminum	0.023	NE	0.1	0.048	B	SW-846:6010
	Antimony	0.00012	0.006	0.0003	0.000089	U	SW-846:6020
	Arsenic	0.00044	0.01	0.002	0.00012	B	SW-846:6020
	Barium	0.14	2	0.002	0.00088		SW-846:6010
	Beryllium	0.000042	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.000075	U	SW-846:6020
	Calcium	60	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00055	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.0038	1.3	0.002	0.0015		SW-846:6010
	Iron	0.0072	NE	0.05	0.058	U	SW-846:6010
	Lead	0.000068	0.015	0.0005	0.00014	U	SW-846:6020
	Magnesium	20	NE	0.5	0.2		SW-846:6010
	Manganese	0.0014	NE	0.002	0.0013	B	SW-846:6010
	Nickel	0.0008	NE	0.005	0.0019	U	SW-846:6010
	Potassium	5.6	NE	0.5	0.41		SW-846:6010
	Selenium	0.00062	0.05	0.001	0.00037	B	SW-846:6020
	Silver	0.000017	NE	0.0001	0.000034	U	SW-846:6020
	Sodium	43	NE	0.5	0.22		SW-846:6010
	Thallium	0.00006	0.002	0.0002	0.000021	B	SW-846:6020
	Uranium	0.0073	0.03	0.0001	0.000041		SW-846:6020
	Vanadium	0.00098	NE	0.005	0.00076	B	SW-846:6010
	Zinc	0.0016	NE	0.005	0.0056	B	SW-846:6010
MWL-MW9 21-Apr-10	Aluminum	0.035	NE	0.1	0.048	B	SW-846:6010
	Antimony	0.00032	0.006	0.0003	0.000079		SW-846:6020
	Arsenic	0.003	0.01	0.002	0.00016		SW-846:6020
	Barium	0.092	2	0.002	0.00088		SW-846:6010
	Beryllium	0.00018	0.004	0.001	0.00027	U	SW-846:6010
	Cadmium	0.00012	0.005	0.0003	0.00003	U	SW-846:6020
	Calcium	59	NE	0.5	0.2		SW-846:6010
	Chromium	0.00051	0.1	0.005	0.0023	U	SW-846:6010
	Cobalt	0.00045	NE	0.002	0.00077	U	SW-846:6010
	Copper	0.00097	1.3	0.002	0.0015	U	SW-846:6010
	Iron	0.0049	NE	0.05	0.058	U	SW-846:6010
	Lead	0.000068	0.015	0.0005	0.000024	U	SW-846:6020
	Magnesium	20	NE	0.5	0.2		SW-846:6010
	Manganese	0.0021	NE	0.002	0.0012		SW-846:6010
	Mercury	0.0000097	0.002	0.0001	0.000011	U	SW-846:7470
	Nickel	0.00093	NE	0.005	0.0019	U	SW-846:6010
	Potassium	4.7	NE	0.5	0.41		SW-846:6010
	Selenium	0.00092	0.05	0.001	0.00018	B	SW-846:6020
	Silver	0.000017	NE	0.0001	0.0000085	U	SW-846:6020
	Sodium	41	NE	0.5	0.22		SW-846:6010
	Thallium	0.00002	0.002	0.0002	0.000018	B	SW-846:6020
	Uranium	0.0079	0.03	0.0001	0.0000041		SW-846:6020
	Vanadium	0.008	NE	0.005	0.00076		SW-846:6010
	Zinc	0.0018	NE	0.005	0.0056	B	SW-846:6010

B = Estimated values above MDL/IDL but less than reporting limit

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NE = Not Established

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Table 3- NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
Nitrate plus Nitrite Results

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Lab Qualifier	Analytical Method
MWL-MW4 29-Apr-10	Nitrate-Nitrite as N	2.1	10	0.05	0.018		EPA:353.2
MWL-MW5 20-Apr-10	Nitrate-Nitrite as N	1.3	10	0.01	0.0036		EPA:353.2
MWL-MW6 19-Apr-10	Nitrate-Nitrite as N	1.6	10	0.01	0.0036		EPA:353.2
MWL-MW7 22-Apr-10	Nitrate-Nitrite as N	3.1	10	0.05	0.018		EPA:353.2
MWL-MW8 26-Apr-10	Nitrate-Nitrite as N	1.1	10	0.01	0.0036		EPA:353.2
MWL-MW9 21-Apr-10	Nitrate-Nitrite as N	2.3	10	0.05	0.018		EPA:353.2

**Table 4- NMED DOE OB FFY MWL Groundwater Quality Results, FFY 2010 Q-3
Gamma Emitting Isotopes Results**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
MWL-MW4 29-Apr-10	Actinium-228	11 ± 11	22	U	713R11
	Aluminum-26	-0.29 ± 3.6	6.1	U	713R11
	Americium-241	30 ± 23	36	U	713R11
	Antimony-124	13 ± 3.9	5.4	TI	713R11
	Antimony-125	2.9 ± 6.1	11	U	713R11
	Beryllium-7	26 ± 28	46	U	713R11
	Bismuth-212	34 ± 37	61	U	713R11
	Bismuth-214	2.8 ± 13	22	U,J	713R11
	Cadmium-109	-24 ± 92	150	U	713R11
	Cerium-139	2.2 ± 2	3.2	U	713R11
	Cerium-144	12 ± 12	19	U	713R11
	Cesium-134	1.5 ± 4.4	7.3	U	713R11
	Cesium-137	-0.13 ± 2.7	4.6	U	713R11
	Chromium-51	-15 ± 40	68	U	713R11
	Cobalt-56	7.1 ± 6.3	10	U	713R11
	Cobalt-57	-0.16 ± 1.5	2.6	U	713R11
	Cobalt-58	0.32 ± 3.3	5.6	U	713R11
	Cobalt-60	-1.3 ± 3.1	5.3	U	713R11
	Europium-152	-15 ± 16	28	U	713R11
	Europium-154	-0.25 ± 16	28	U	713R11
	Europium-155	5 ± 6.8	11	U	713R11
	Iodine-131	22 ± 44	73	U	713R11
	Iron-59	4.1 ± 9	15	U	713R11
	Lead-212	2.3 ± 7.4	12	U	713R11
	Lead-214	2 ± 10	17	U,J	713R11
	Manganese-54	2.3 ± 2.8	4.6	U	713R11
	Niobium-94	0.44 ± 2.7	4.6	U	713R11
	Niobium-95	-0.19 ± 3.5	5.9	U	713R11
	Potassium-40	56 ± 71	120	U	713R11
	Protactinium-234m	740 ± 490	770	U	713R11
	Ruthenium-106	-17 ± 27	46	U	713R11
	Scandium-46	1.5 ± 3.4	5.6	U	713R11
	Silver-110m	-1.2 ± 2.7	4.6	U	713R11
	Sodium-22	0.067 ± 3.2	5.4	U	713R11
	Strontium-85	2.9 ± 4.5	7.4	U	713R11
	Thallium-208	1.8 ± 4.1	6.8	U	713R11
	Thorium-227	-8.5 ± 18	30	U	713R11
	Thorium-234	-0.49 ± 86	140	U	713R11
	Uranium-235	-4.5 ± 23	37	U	713R11
	Zinc-65	8.3 ± 6.5	10	U	713R11

J = Estimated Value

M = Requested MDA was not met

M3 = Reported activity is greater than the reported MDA

NE = Not Established

TI = Nuclide identification is tentative

U = Analyzed for but not detected

**Table 4- NMED DOE OB FFY MWL Groundwater Quality Results, FFY 2010 Q-3
Gamma Emitting Isotopes Results**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
MWL-MW5 20-Apr-10	Actinium-228	27 ± 13	20	TI	713R11
	Aluminum-26	-1.3 ± 4.2	7.5	U	713R11
	Americium-241	2.4 ± 2.9	4.8	U	713R11
	Antimony-124	-0.69 ± 3.3	5.6	U	713R11
	Antimony-125	4.1 ± 6.4	12	U	713R11
	Beryllium-7	12 ± 23	38	U	713R11
	Bismuth-212	32 ± 45	74	U	713R11
	Bismuth-214	2.3 ± 15	25	U,J	713R11
	Cadmium-109	-16 ± 38	64	U	713R11
	Cerium-139	0.44 ± 1.5	2.5	U	713R11
	Cerium-144	-2.2 ± 10	17	U	713R11
	Cesium-134	1 ± 2.9	4.9	U	713R11
	Cesium-137	-0.58 ± 3	5.1	U,M	713R11
	Chromium-51	0.37 ± 23	39	U	713R11
	Cobalt-56	0.58 ± 5.9	10	U	713R11
	Cobalt-57	-0.29 ± 1.3	2.1	U	713R11
	Cobalt-58	-0.27 ± 3.3	5.6	U	713R11
	Cobalt-60	0.32 ± 3.7	6.3	U	713R11
	Europium-152	-4.8 ± 18	31	U	713R11
	Europium-154	4 ± 18	30	U	713R11
	Europium-155	-1.9 ± 4.8	8.2	U	713R11
	Iodine-131	-1.4 ± 6.3	11	U	713R11
	Iron-59	1.1 ± 7	12	U	713R11
	Lead-212	0.47 ± 7.4	12	U	713R11
	Lead-214	8.1 ± 5.3	9.4	U,J	713R11
	Manganese-54	-2.4 ± 3.2	5.6	U	713R11
	Niobium-94	0 ± 3	5.1	U	713R11
	Niobium-95	-0.053 ± 3.2	5.5	U	713R11
	Potassium-40	-31 ± 86	150	U	713R11
	Protactinium-234m	-310 ± 570	990	U	713R11
	Ruthenium-106	-2.1 ± 27	46	U	713R11
	Scandium-46	-1.3 ± 3	5.3	U	713R11
	Silver-110m	-0.48 ± 2.7	4.6	U	713R11
	Sodium-22	-1.1 ± 3.4	6	U	713R11
	Strontium-85	2.4 ± 3.8	6.2	U	713R11
	Thallium-208	3.1 ± 3.2	5.2	U	713R11
	Thorium-227	4.2 ± 12	21	U	713R11
	Thorium-234	-25 ± 48	80	U	713R11
	Uranium-235	18 ± 9.4	17	TI	713R11
	Zinc-65	-5.6 ± 7.5	13	U	713R11

J = Estimated Value

M = Requested MDA was not met

M3 = Reported activity is greater than the reported MDA

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U = Analyzed for but not detected

**Table 4- NMED DOE OB FFY MWL Groundwater Quality Results, FFY 2010 Q-3
Gamma Emitting Isotopes Results**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
MWL-MW6 19-Apr-10	Actinium-228	0.8 ± 14	24	U	713R11
	Aluminum-26	0.72 ± 2.7	4.6	U	713R11
	Americium-241	-19 ± 22	37	U	713R11
	Antimony-124	-2.7 ± 2.9	4.9	U	713R11
	Antimony-125	1.2 ± 5.8	9.7	U	713R11
	Beryllium-7	-11 ± 18	31	U	713R11
	Bismuth-212	10 ± 31	51	U	713R11
	Bismuth-214	53 ± 21	35	J	713R11
	Cadmium-109	79 ± 60	96	U	713R11
	Cerium-139	2.2 ± 2.1	3.5	U	713R11
	Cerium-144	-2.1 ± 15	25	U	713R11
	Cesium-134	-0.94 ± 4.1	6.9	U	713R11
	Cesium-137	-1.9 ± 2.4	4.2	U	713R11
	Chromium-51	5.7 ± 21	36	U	713R11
	Cobalt-56	5.3 ± 7.3	12	U	713R11
	Cobalt-57	-0.012 ± 1.8	3	U	713R11
	Cobalt-58	0.045 ± 2.3	3.9	U	713R11
	Cobalt-60	-0.11 ± 2.7	4.7	U	713R11
	Europium-152	1.2 ± 14	23	U	713R11
	Europium-154	-4.8 ± 13	23	U	713R11
	Europium-155	-3.4 ± 8.3	14	U	713R11
	Iodine-131	0.15 ± 3.2	5.4	U	713R11
	Iron-59	2.2 ± 4.9	8.2	U	713R11
	Lead-212	0.28 ± 6.8	11	U	713R11
	Lead-214	77 ± 12	15	J	713R11
	Manganese-54	-3.3 ± 2.3	4.1	U	713R11
	Niobium-94	-1.9 ± 2.3	4	U	713R11
	Niobium-95	1.2 ± 2.3	3.9	U	713R11
	Potassium-40	-48 ± 53	89	U	713R11
	Protactinium-234m	350 ± 410	670	U	713R11
	Ruthenium-106	-8.1 ± 23	39	U	713R11
	Scandium-46	-1.4 ± 2.3	4	U	713R11
	Silver-110m	0.81 ± 2.2	3.6	U	713R11
	Sodium-22	-1.2 ± 2.5	4.4	U	713R11
	Strontium-85	4.1 ± 3.1	4.8	U	713R11
	Thallium-208	0.44 ± 3.1	5.2	U	713R11
	Thorium-227	-3.3 ± 25	42	U	713R11
	Thorium-234	25 ± 74	120	U	713R11
	Uranium-235	2.2 ± 20	33	U	713R11
	Zinc-65	2 ± 7.6	13	U	713R11

J = Estimated Value

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U = Analyzed for but not detected

**Table 4- NMED DOE OB FFY MWL Groundwater Quality Results, FFY 2010 Q-3
Gamma Emitting Isotopes Results**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
MWL-MW7 22-Apr-10	Actinium-228	2.2 ± 9.8	16	U	713R11
	Aluminum-26	1.5 ± 1.8	3	U	713R11
	Americium-241	6.8 ± 22	37	U	713R11
	Antimony-124	11 ± 3	4	TI	713R11
	Antimony-125	0.13 ± 3.8	6.5	U	713R11
	Beryllium-7	8.7 ± 20	33	U	713R11
	Bismuth-212	33 ± 22	36	U	713R11
	Bismuth-214	-0.84 ± 7.6	13	U,J	713R11
	Cadmium-109	-39 ± 48	80	U	713R11
	Cerium-139	0.31 ± 1.7	2.9	U	713R11
	Cerium-144	-5.9 ± 11	19	U	713R11
	Cesium-134	1.8 ± 2.9	4.7	U	713R11
	Cesium-137	-0.11 ± 1.7	2.8	U	713R11
	Chromium-51	-7.4 ± 36	61	U	713R11
	Cobalt-56	3 ± 4	6.6	U	713R11
	Cobalt-57	-0.92 ± 1.3	2.2	U	713R11
	Cobalt-58	1.7 ± 2.2	3.6	U	713R11
	Cobalt-60	-0.99 ± 1.8	3.1	U	713R11
	Europium-152	0.84 ± 8.8	15	U	713R11
	Europium-154	-4.7 ± 8.9	15	U	713R11
	Europium-155	-0.24 ± 5.8	9.7	U	713R11
	Iodine-131	-5.6 ± 53	89	U	713R11
	Iron-59	3.9 ± 6	9.8	U	713R11
	Lead-212	2 ± 5.8	9.5	U	713R11
	Lead-214	-2.4 ± 5.6	9.4	U,J	713R11
	Manganese-54	-0.97 ± 1.7	3	U	713R11
	Niobium-94	-1.6 ± 1.6	2.8	U	713R11
	Niobium-95	1.8 ± 2.3	3.7	U	713R11
	Potassium-40	-32 ± 45	75	U	713R11
	Protactinium-234m	240 ± 270	430	U	713R11
	Ruthenium-106	-16 ± 17	29	U	713R11
	Scandium-46	-1.7 ± 2.1	3.6	U	713R11
	Silver-110m	0.55 ± 1.7	2.8	U	713R11
	Sodium-22	-0.65 ± 1.9	3.2	U	713R11
	Strontium-85	4.9 ± 2.9	4.4	TI	713R11
	Thallium-208	-1.9 ± 3.1	5.1	U	713R11
	Thorium-227	-1.1 ± 16	27	U	713R11
	Thorium-234	15 ± 53	87	U	713R11
	Uranium-235	-3.4 ± 15	25	U	713R11
	Zinc-65	-4.4 ± 4.1	7.2	U	713R11

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**Table 4- NMED DOE OB FFY MWL Groundwater Quality Results, FFY 2010 Q-3
Gamma Emitting Isotopes Results**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
MWL-MW8 26-Apr-10	Actinium-228	21 ± 12	18	TI	713R11
	Aluminum-26	-0.57 ± 3.8	6.7	U	713R11
	Americium-241	-0.95 ± 2.8	4.8	U	713R11
	Antimony-124	-1.7 ± 4.3	7.3	U	713R11
	Antimony-125	5.7 ± 6.3	11	U	713R11
	Beryllium-7	5.4 ± 31	52	U	713R11
	Bismuth-212	52 ± 47	76	U	713R11
	Bismuth-214	8.1 ± 14	22	U,J	713R11
	Cadmium-109	3.2 ± 25	42	U	713R11
	Cerium-139	-0.28 ± 1.7	2.9	U	713R11
	Cerium-144	-3.4 ± 19	32	U	713R11
	Cesium-134	-3.7 ± 2.9	5.1	U	713R11
	Cesium-137	-2.5 ± 3.1	5.4	U,M	713R11
	Chromium-51	31 ± 44	72	U	713R11
	Cobalt-56	2.6 ± 7.3	12	U	713R11
	Cobalt-57	0 ± 1.3	2.3	U	713R11
	Cobalt-58	-1.1 ± 4.2	7.3	U	713R11
	Cobalt-60	-0.64 ± 3.6	6.3	U	713R11
	Europium-152	1.1 ± 17	29	U	713R11
	Europium-154	2.3 ± 17	30	U	713R11
	Europium-155	0.56 ± 4.8	8	U	713R11
	Iodine-131	-11 ± 61	100	U	713R11
	Iron-59	0 ± 10	18	U	713R11
	Lead-212	2.8 ± 7.7	13	U	713R11
	Lead-214	9.9 ± 5.1	7.8	J,TI	713R11
	Manganese-54	-1.4 ± 3.3	5.7	U	713R11
	Niobium-94	0.47 ± 3	5.1	U	713R11
	Niobium-95	-1.8 ± 4.3	7.4	U	713R11
	Potassium-40	5.2 ± 75	130	U	713R11
	Protactinium-234m	14 ± 520	890	U	713R11
	Ruthenium-106	-6.8 ± 27	46	U	713R11
	Scandium-46	-2.1 ± 3.8	6.7	U	713R11
	Silver-110m	2 ± 3	5	U	713R11
	Sodium-22	-1.7 ± 3.4	6	U	713R11
	Strontium-85	7.4 ± 5.3	8.2	U	713R11
	Thallium-208	4.8 ± 3.2	5	U	713R11
	Thorium-227	-14 ± 12	22	U	713R11
	Thorium-234	-17 ± 45	75	U	713R11
	Uranium-235	5.5 ± 13	27	U	713R11
	Zinc-65	6.9 ± 7.8	13	U	713R11

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NE = Not Established

TI = Nuclide identification is tentative

U = Analyzed for but not detected

**Table 4- NMED DOE OB FFY MWL Groundwater Quality Results, FFY 2010 Q-3
Gamma Emitting Isotopes Results**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
MWL-MW9 21-Apr-10	Actinium-228	-3.4 ± 12	20	U	713R11
	Aluminum-26	0.063 ± 2.3	4	U	713R11
	Americium-241	-14 ± 19	33	U	713R11
	Antimony-124	9.9 ± 2.7	3.7	TI	713R11
	Antimony-125	4.3 ± 5.1	8.3	U	713R11
	Beryllium-7	-4.3 ± 18	30	U	713R11
	Bismuth-212	22 ± 29	47	U	713R11
	Bismuth-214	7.8 ± 8	13	U,J	713R11
	Cadmium-109	9.3 ± 59	99	U	713R11
	Cerium-139	0.066 ± 1.9	3.2	U	713R11
	Cerium-144	0.59 ± 13	22	U	713R11
	Cesium-134	-3.3 ± 3.8	6.4	U	713R11
	Cesium-137	-0.97 ± 2.2	3.7	U	713R11
	Chromium-51	-3 ± 22	37	U	713R11
	Cobalt-56	5.5 ± 4	6.4	U	713R11
	Cobalt-57	-1.3 ± 1.6	2.8	U	713R11
	Cobalt-58	2.1 ± 2.1	3.4	U	713R11
	Cobalt-60	-0.85 ± 2.5	4.3	U	713R11
	Europium-152	14 ± 11	18	U	713R11
	Europium-154	-5.6 ± 12	20	U	713R11
	Europium-155	-7 ± 7.5	13	U	713R11
	Iodine-131	-0.1 ± 5.2	8.7	U	713R11
	Iron-59	5.6 ± 4.7	7.6	U	713R11
	Lead-212	2.3 ± 6.3	10	U	713R11
	Lead-214	14 ± 7.3	11	J, TI	713R11
	Manganese-54	0.53 ± 2.2	3.6	U	713R11
	Niobium-94	-0.5 ± 2.2	3.7	U	713R11
	Niobium-95	-1.3 ± 2.2	3.8	U	713R11
	Potassium-40	-33 ± 50	85	U	713R11
	Protactinium-234m	100 ± 590	990	U	713R11
	Ruthenium-106	-10 ± 21	36	U	713R11
	Scandium-46	-0.51 ± 2.1	3.6	U	713R11
	Silver-110m	0.61 ± 2	3.3	U	713R11
	Sodium-22	-0.93 ± 2.3	4	U	713R11
	Strontium-85	3.1 ± 2.7	4.2	U	713R11
	Thallium-208	0.35 ± 3.4	5.6	U	713R11
	Thorium-227	-10 ± 21	36	U	713R11
	Thorium-234	1.7 ± 60	100	U	713R11
	Uranium-235	20 ± 13	21	U	713R11
	Zinc-65	-6.1 ± 7	15	U	713R11

J = Estimated Value

M = Requested MDA was not met

M3 = Reported activity is greater than the reported MDA

NE = Not Established

TI = Nuclide identification is tentative

U = Analyzed for but not detected

Table 5: NMED DOE OB MWL Groundwater Quality Results, FFY 2010 Q-3
Gross Alpha/Beta Results

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)			EPA MCL	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
MWL-MW4 29-Apr-10	Gross Alpha	4.9	±	1.2	15 pCi/L	0.97		724R10
	Gross Beta	7.1	±	1.6	4 mRem/yr	1.7	M3	724R10
MWL-MW5 20-Apr-10	Gross Alpha	9.5	±	1.8	15 pCi/L	0.79		724R10
	Gross Beta	5.7	±	1.4	4 mRem/yr	1.5	M3	724R10
MWL-MW6 19-Apr-10	Gross Alpha	7.9	±	1.7	15 pCi/L	1.2		724R10
	Gross Beta	6	±	1.6	4 mRem/yr	2	M3	724R10
MWL-MW7 22-Apr-10	Gross Alpha	5.7	±	1.3	15 pCi/L	1.2		724R10
	Gross Beta	7.9	±	1.8	4 mRem/yr	2	M3	724R10
MWL-MW8 26-Apr-10	Gross Alpha	6.6	±	1.4	15 pCi/L	0.85		724R10
	Gross Beta	6.9	±	1.7	4 mRem/yr	1.9	M3	724R10
MWL-MW9 21-Apr-10	Gross Alpha	7.3	±	1.4	15 pCi/L	0.66		724R10
	Gross Beta	6.4	±	1.4	4 mRem/yr	1.5		724R10

M3 = Reported activity is greater than the reported MDA