

**DOE Oversight Bureau, New Mexico Environment Department**

**Groundwater Monitoring at  
Sandia National Laboratories/New Mexico  
Tijeras Arroyo Groundwater**

**Conducted by the  
New Mexico Environment Department DOE Oversight Bureau  
for FFY 2013 Q-4**

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**Final Report**

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The purpose of this communication is to transmit groundwater data collected by New Mexico Environment Department DOE Oversight Bureau from Tijeras Arroyo groundwater monitoring wells during the fourth quarter of FFY 2013.

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### **Introductory remarks**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (Bureau) has compiled and assessed groundwater data collected during August and September 2013. The Bureau collected groundwater samples from Tijeras Arroyo Groundwater (TAG) monitoring wells TA1-W-02, TA1-W-03, TA1-W-04, TA1-W-06, TA2-SW1-320, TA2-W-19, TA2-W-26, TA2-W-27, TJA-2, TJA-4, TJA-7, and WYO-4. Split samples were collected using standard Sandia National Laboratories/New Mexico sampling procedures and equipment. Bureau samples were submitted to an independent analytical laboratory where they were analyzed for total metals, anions, nitrate-nitrite, volatile organic compounds (VOCs), gross alpha and beta, gamma-emitting isotopes, and tritium. Several samples analyzed for nitrate-nitrite were detected at or above the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL) of 10 mg/L. Trichloroethylene (TCE) was also detected above the U.S. EPA MCL of 5 µg/L at monitoring well WYO-4.

### **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 target analyte list (TAL) metals plus uranium are listed in Table-1. All metal concentrations were below established MCLs.

Analytical results for major anions (as bromide, chloride, fluoride, and sulfate) and nitrate-nitrite are listed in Table-2. All major anions were detected below established MCLs. Nitrate-nitrite levels were detected at or above the EPA MCL of 10 mg/L at monitoring wells TA2-SW1-320 (11 mg/L), TA2-W-19 (10 mg/L), TJA-2 (10 mg/L), TJA-4 (15 mg/L). and TJA-7 (12 mg/L).

VOCs detected above the method detection limit are presented in Table-3. All samples were detected below established MCLs, except trichloroethylene (TCE). Monitoring well WYO-4 measured a TCE concentration of 7.7 µg/L. The MDLs for the remaining VOCs analyzed from TAG monitoring wells are presented in Table-4.

Analytical results for radiochemistry samples are listed in Table-5. Samples were analyzed for gross alpha, gross beta, gamma emitting isotopes and tritium. No isotopes were detected above U.S. EPA MCLs.

### **Conclusion**

Samples were collected from Tijeras Arroyo Groundwater (TAG) monitoring wells TA1-W-02, TA1-W-03, TA1-W-04, TA1-W-06, TA2-SW1-320, TA2-W-19, TA2-W-26, TA2-W-27, TJA-2, TJA-4, TJA-7, and WYO-4. Samples were analyzed for total metals, anions, nitrate-nitrite, VOCs, gross alpha and beta, gamma-emitting isotopes, and tritium. Several samples analyzed for nitrate-nitrite were detected at or above the U.S. EPA MCL of 10 mg/L. TCE was also detected above the U.S. EPA MCL of 5 µg/L at monitoring well WYO-4.

### **References**

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 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA1-W-02 7-Aug-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.048	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	68	NE	0.05	0.03		SW-846:6020
	Chromium	0.0016	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.001	1.3	0.002	0.001	U	SW-846:6020
	Iron	0.025	NE	0.05	0.025	U	SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	13	NE	0.05	0.025		SW-846:6020
	Manganese	0.0013	NE	0.001	0.0004		SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0001	NE	0.002	0.0001	U	SW-846:6020
	Potassium	2.1	NE	0.05	0.025		SW-846:6020
	Selenium	0.0035	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	23	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.003	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0035	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA1-W-03 8-Aug-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.029	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	280	NE	0.25	0.15	D	SW-846:6020
	Chromium	0.0021	0.1	0.002	0.001		SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.0018	1.3	0.002	0.001	J	SW-846:6020
	Iron	0.025	NE	0.05	0.025	U	SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	29	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0001	NE	0.002	0.0001	U	SW-846:6020
	Potassium	2.6	NE	0.05	0.025		SW-846:6020
	Selenium	0.035	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	47	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0011	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.003	NE	0.01	0.003	U	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA1-W-04 12-Aug-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.053	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	58	NE	0.05	0.03		SW-846:6020
	Chromium	0.0016	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.002	1.3	0.002	0.001		SW-846:6020
	Iron	0.025	NE	0.05	0.025	U	SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	11	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0001	NE	0.002	0.0001	U	SW-846:6020
	Potassium	2.1	NE	0.05	0.025		SW-846:6020
	Selenium	0.0014	0.05	0.002	0.001	J	SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	23	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0028	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0038	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

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**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA1-W-06 14-Aug-13	Aluminum	0.077	NE	0.05	0.025		SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.026	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	120	NE	0.05	0.03		SW-846:6020
	Chromium	0.002	0.1	0.002	0.001		SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.001	1.3	0.002	0.001	U	SW-846:6020
	Iron	0.06	NE	0.05	0.025		SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	16	NE	0.05	0.025		SW-846:6020
	Manganese	0.0017	NE	0.001	0.0004		SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0001	NE	0.002	0.0001	U	SW-846:6020
	Potassium	2.1	NE	0.05	0.025		SW-846:6020
	Selenium	0.0085	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	30	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0011	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0031	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

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**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA2-SW1-320 11-Sep-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.0018	0.01	0.002	0.001	J	SW-846:6020
	Barium	0.21	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	60	NE	0.05	0.03		SW-846:6020
	Chromium	0.0013	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.001	1.3	0.002	0.001	U	SW-846:6020
	Iron	0.025	NE	0.05	0.025	U	SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	11	NE	0.05	0.025		SW-846:6020
	Manganese	0.0029	NE	0.001	0.0004		SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0001	NE	0.002	0.0001	U	SW-846:6020
	Potassium	1.8	NE	0.05	0.025		SW-846:6020
	Selenium	0.0049	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	18	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0013	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0045	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA2-W-19 3-Sep-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.049	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	75	NE	0.05	0.03		SW-846:6020
	Chromium	0.0014	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.001	1.3	0.002	0.001	U	SW-846:6020
	Iron	0.064	NE	0.05	0.025		SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	12	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.00086	NE	0.002	0.0001	J	SW-846:6020
	Potassium	1.9	NE	0.05	0.025		SW-846:6020
	Selenium	0.0047	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	23	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0012	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0042	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

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**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA2-W-26 29-Aug-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.065	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	220	NE	0.25	0.15	D,B	SW-846:6020
	Chromium	0.0024	0.1	0.002	0.001		SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.0035	1.3	0.002	0.001		SW-846:6020
	Iron	0.052	NE	0.05	0.025		SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	31	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0024	NE	0.002	0.0001		SW-846:6020
	Potassium	2.9	NE	0.05	0.025		SW-846:6020
	Selenium	0.021	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	46	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0012	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.003	NE	0.01	0.003	U	SW-846:6020	
Zinc	0.0067	NE	0.005	0.004		SW-846:6020	

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Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA2-W-27 28-Aug-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.056	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	110	NE	0.05	0.03	B	SW-846:6020
	Chromium	0.0018	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.0013	1.3	0.002	0.001	J	SW-846:6020
	Iron	0.025	NE	0.05	0.025	U	SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	17	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0011	NE	0.002	0.0001	J	SW-846:6020
	Potassium	2.2	NE	0.05	0.025		SW-846:6020
	Selenium	0.0091	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	30	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0012	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0031	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	J	SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA2-W-27 28-Aug-13 DUP	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.059	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	110	NE	0.05	0.03	B	SW-846:6020
	Chromium	0.0017	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.0012	1.3	0.002	0.001	J	SW-846:6020
	Iron	0.045	NE	0.05	0.025	J	SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	17	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0013	NE	0.002	0.0001	J	SW-846:6020
	Potassium	2.2	NE	0.05	0.025		SW-846:6020
	Selenium	0.0087	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	31	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0012	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.003	NE	0.01	0.003	U	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	J	SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TJA-2 5-Sep-13	Aluminum	0.026	NE	0.05	0.025	J	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.001	0.01	0.002	0.001	U	SW-846:6020
	Barium	0.043	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	73	NE	0.05	0.03		SW-846:6020
	Chromium	0.0016	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.0029	1.3	0.002	0.001	B	SW-846:6020
	Iron	0.066	NE	0.05	0.025		SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	12	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.00099	NE	0.002	0.0001	J	SW-846:6020
	Potassium	1.9	NE	0.05	0.025		SW-846:6020
	Selenium	0.005	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	23	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0013	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0041	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TJA-4 9-Sep-13	Aluminum	0.025	NE	0.05	0.025	U	SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.0012	0.01	0.002	0.001	J	SW-846:6020
	Barium	0.19	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	66	NE	0.05	0.03		SW-846:6020
	Chromium	0.0025	0.1	0.002	0.001		SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.001	1.3	0.002	0.001	U	SW-846:6020
	Iron	0.025	NE	0.05	0.025	U	SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	13	NE	0.05	0.025		SW-846:6020
	Manganese	0.0004	NE	0.001	0.0004	U	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0001	NE	0.002	0.0001	U	SW-846:6020
	Potassium	3.1	NE	0.05	0.025		SW-846:6020
	Selenium	0.004	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	25	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.003	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0045	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

**Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TJA-7 10-Sep-13	Aluminum	0.12	NE	0.05	0.025		SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.0015	0.01	0.002	0.001	J	SW-846:6020
	Barium	0.23	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	64	NE	0.05	0.03		SW-846:6020
	Chromium	0.0014	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.00083	NE	0.001	0.0006	J	SW-846:6020
	Copper	0.001	1.3	0.002	0.001	U	SW-846:6020
	Iron	0.06	NE	0.05	0.025		SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	12	NE	0.05	0.025		SW-846:6020
	Manganese	0.0028	NE	0.001	0.0004		SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0001	NE	0.002	0.0001	U	SW-846:6020
	Potassium	1.9	NE	0.05	0.025		SW-846:6020
	Selenium	0.0061	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	18	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0018	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0049	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.004	NE	0.005	0.004	U	SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL



Table-1 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Total TAL Metals + U

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
WYO-4 26-Aug-13	Aluminum	0.081	NE	0.05	0.025		SW-846:6020
	Antimony	0.0002	0.006	0.002	0.0002	U	SW-846:6020
	Arsenic	0.0022	0.01	0.002	0.001		SW-846:6020
	Barium	0.16	2	0.001	0.0005		SW-846:6020
	Beryllium	0.0001	0.004	0.001	0.0001	U	SW-846:6020
	Cadmium	0.0005	0.005	0.001	0.0005	U	SW-846:6020
	Calcium	79	NE	0.05	0.03	B	SW-846:6020
	Chromium	0.0019	0.1	0.002	0.001	J	SW-846:6020
	Cobalt	0.0006	NE	0.001	0.0006	U	SW-846:6020
	Copper	0.001	1.3	0.002	0.001	J	SW-846:6020
	Iron	0.096	NE	0.05	0.025		SW-846:6020
	Lead	0.0006	0.015	0.001	0.0006	U	SW-846:6020
	Magnesium	14	NE	0.05	0.025		SW-846:6020
	Manganese	0.002	NE	0.001	0.0004	B	SW-846:6020
	Mercury	0.0001	0.002	0.0002	0.0001	U	SW-846:7470A
	Nickel	0.0012	NE	0.002	0.0001	J	SW-846:6020
	Potassium	2	NE	0.05	0.025		SW-846:6020
	Selenium	0.0069	0.05	0.002	0.001		SW-846:6020
	Silver	0.0003	NE	0.001	0.0003	U	SW-846:6020
	Sodium	21	NE	0.05	0.025		SW-846:6020
	Thallium	0.0005	0.002	0.001	0.0005	U	SW-846:6020
	Tin	0.005	NE	0.02	0.005	U	SW-846:6010B
	Uranium	0.0014	0.03	0.001	0.0002		SW-846:6020
Vanadium	0.0044	NE	0.01	0.003	J	SW-846:6020	
Zinc	0.0051	NE	0.005	0.004		SW-846:6020	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

**Table-2 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Anions and Nitrate-Nitrite**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA1-W-02 7-Aug-13	Bromide	0.088	NE	0.5	0.088	U	EPA:300.0
	Chloride	15	NE	2	0.074	D	EPA:300.0
	Fluoride	0.4	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	1	10	0.05	0.0053		EPA:353.2
	Sulfate	83	NE	2	0.098	D	EPA:300.0
TA1-W-03 8-Aug-13	Bromide	3.3	NE	2.5	0.44	D	EPA:300.0
	Chloride	260	NE	20	0.74	D	EPA:300.0
	Fluoride	0.3	4	2.5	0.3	D,U	EPA:300.0
	Nitrate Nitrite as N	6.7	10	0.25	0.027	D	EPA:353.2
	Sulfate	500	NE	20	0.98	D	EPA:300.0
TA1-W-04 12-Aug-13	Bromide	0.16	NE	0.5	0.088	J	EPA:300.0
	Chloride	15	NE	1	0.037		EPA:300.0
	Fluoride	0.39	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	1.6	10	0.05	0.0053		EPA:353.2
	Sulfate	62	NE	2	0.098	D	EPA:300.0
TA1-W-06 14-Aug-13	Bromide	1.2	NE	0.5	0.088		EPA:300.0
	Chloride	100	NE	10	0.37	D	EPA:300.0
	Fluoride	0.31	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	3.2	10	0.1	0.011	D	EPA:353.2
	Sulfate	210	NE	10	0.49	D	EPA:300.0
TA2-SW1-320 11-Sep-13	Bromide	0.56	NE	0.5	0.088		EPA:300.0
	Chloride	35	NE	5	0.19	D	EPA:300.0
	Fluoride	0.43	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	11	10	1.3	0.13	D,B	EPA:353.2
	Sulfate	15	NE	1	0.049		EPA:300.0
TA2-W-19 3-Sep-13	Bromide	0.85	NE	0.5	0.088		EPA:300.0
	Chloride	67	NE	10	0.37	D	EPA:300.0
	Fluoride	0.37	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	10	10	0.5	0.053	D,B	EPA:353.2
	Sulfate	56	NE	10	0.49	D	EPA:300.0
TA2-W-26 29-Aug-13	Bromide	2.4	NE	0.5	0.088		EPA:300.0
	Chloride	190	NE	20	0.74	D	EPA:300.0
	Fluoride	0.26	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	5.5	10	0.5	0.053	D,B	EPA:353.2
	Sulfate	380	NE	20	0.98	D	EPA:300.0

B = Compound was found in the blank and sample.

D = Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

**Table-2 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Anions and Nitrate-Nitrite**

Monitoring Well/ Sample Date	Analyte	Result (mg/L)	EPA MCL (mg/L)	Quantitation Limit (mg/L)	MDL (mg/L)	Laboratory Qualifier	Analytical Method
TA2-W-27 28-Aug-13	Bromide	1.4	NE	0.5	0.088		EPA:300.0
	Chloride	110	NE	10	0.37	D	EPA:300.0
	Fluoride	0.29	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	4.2	10	0.5	0.053	D,B	EPA:353.2
	Sulfate	140	NE	10	0.49	D	EPA:300.0
TA2-W-27 28-Aug-13 DUP	Bromide	1.4	NE	0.5	0.088		EPA:300.0
	Chloride	110	NE	10	0.37	D	EPA:300.0
	Fluoride	0.3	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	4	10	0.5	0.053	D,B	EPA:353.2
	Sulfate	140	NE	10	0.49	D	EPA:300.0
TJA-2 5-Sep-13	Bromide	0.87	NE	0.5	0.088		EPA:300.0
	Chloride	67	NE	5	0.19	D	EPA:300.0
	Fluoride	0.36	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	<b>10</b>	10	0.5	0.053	D,B	EPA:353.2
	Sulfate	54	NE	5	0.25	D	EPA:300.0
TJA-4 9-Sep-13	Bromide	0.34	NE	0.5	0.088	J	EPA:300.0
	Chloride	21	NE	2	0.074	D	EPA:300.0
	Fluoride	0.37	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	<b>15</b>	10	1.3	0.13	D,B	EPA:353.2
	Sulfate	17	NE	1	0.049		EPA:300.0
TJA-7 10-Sep-13	Bromide	0.42	NE	0.5	0.088	J	EPA:300.0
	Chloride	24	NE	2	0.074	D	EPA:300.0
	Fluoride	0.37	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	<b>12</b>	10	1.3	0.13	D,B	EPA:353.2
	Sulfate	21	NE	1	0.049		EPA:300.0
WYO-4 26-Aug-13	Bromide	1.2	NE	0.5	0.088		EPA:300.0
	Chloride	110	NE	10	0.37	D	EPA:300.0
	Fluoride	0.36	4	0.5	0.059	J	EPA:300.0
	Nitrate Nitrite as N	3	10	0.5	0.053	D,B	EPA:353.2
	Sulfate	52	NE	10	0.49	D	EPA:300.0

B = Compound was found in the blank and sample.

D = Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

U = Analyte not detected at or above the reporting limit or MDL

Table-3 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo 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
TA1-W-03 8-Aug-13	Chloroform	0.59	NE	2	0.33	J	SW-846:8260B
TA1-W-06 14-Aug-13	Dichloroethene[1,1-]	0.63	7	5	0.42	J	SW-846:8260B
	Trichloroethene	0.31	5	2	0.26	J	SW-846:8260B
TA2-W-19 3-Sep-13	Dichloroethane[1,1-]	0.43	NE	1	0.1	J	SW-846:8260B
	Dichloroethene[cis-1,2-]	0.49	70	1	0.1	J	SW-846:8260B
	Tetrachloroethene	0.17	5	1	0.1	J	SW-846:8260B
	Trichloroethene	2.8	5	1	0.13		SW-846:8260B
TA2-W-26 29-Aug-13	Chloroform	0.31	NE	1	0.12	J	SW-846:8260B
	Dichloroethane[1,1-]	0.14	NE	1	0.1	J	SW-846:8260B
	Dichloroethene[1,1-]	0.3	7	1	0.14	J	SW-846:8260B
	Dichloroethene[cis-1,2-]	0.39	70	1	0.1	J	SW-846:8260B
	Tetrachloroethene	0.97	5	1	0.1	J	SW-846:8260B
	Trichloroethene	1.1	5	1	0.13		SW-846:8260B
TA2-W-27 28-Aug-13	Chloroform	0.24	NE	1	0.12	J	SW-846:8260B
	Dichloroethene[1,1-]	0.23	7	1	0.14	J	SW-846:8260B
	Tetrachloroethene	1.2	5	1	0.1		SW-846:8260B
	Trichloroethene	1.2	5	1	0.13		SW-846:8260B
TA2-W-27 28-Aug-13 DUP	Chloroform	0.24	NE	1	0.12	J	SW-846:8260B
	Dichloroethene[1,1-]	0.25	7	1	0.14	J	SW-846:8260B
	Tetrachloroethene	1.1	5	1	0.1		SW-846:8260B
	Trichloroethene	1.1	5	1	0.13		SW-846:8260B
TJA-2 5-Sep-13	Dichloroethane[1,1-]	0.46	NE	1	0.1	J	SW-846:8260B
	Dichloroethene[cis-1,2-]	0.51	70	1	0.1	J	SW-846:8260B
	Tetrachloroethene	0.14	5	1	0.1	J	SW-846:8260B
	Trichloroethene	3.2	5	1	0.13		SW-846:8260B
TJA-7 10-Sep-13	Trichloroethene	0.98	5	1	0.13	J	SW-846:8260B
WYO-4 26-Aug-13	Chloroform	0.18	NE	1	0.12	J	SW-846:8260B
	Dichloroethane[1,1-]	1.1	NE	1	0.1		SW-846:8260B
	Dichloroethene[cis-1,2-]	2.3	70	1	0.1		SW-846:8260B
	Tetrachloroethene	0.16	5	1	0.1	J	SW-846:8260B
	Trichloroethene	<b>7.7</b>	5	1	0.13		SW-846:8260B

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not Established

**Table-4 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Method Detection Limits for Volatile Organic Compounds**

Analyte	MDL (µg/L)	Analytical Method
4-Methyl-2-pentanone (MIBK)	0.18-3.5	SW-846:8260B
Acetone	2.1-4.5	SW-846:8260B
Benzene	0.13-0.28	SW-846:8260B
Bromodichloromethane	0.14-0.3	SW-846:8260B
Bromoform	0.1-0.4	SW-846:8260B
Bromomethane	0.29-0.42	SW-846:8260B
Butanone[2-]	0.35-4.7	SW-846:8260B
Carbon Disulfide	0.16-0.48	SW-846:8260B
Carbon Tetrachloride	0.15-0.28	SW-846:8260B
Chlorobenzene	0.12-0.36	SW-846:8260B
Chloroethane	0.34-0.4	SW-846:8260B
Chloroform	0.12-0.33	SW-846:8260B
Chloromethane	0.25-0.4	SW-846:8260B
Dibromochloromethane	0.13-0.4	SW-846:8260B
Dichloroethane[1,1-]	0.1-0.4	SW-846:8260B
Dichloroethane[1,2-]	0.22-0.28	SW-846:8260B
Dichloroethene[1,1-]	0.14-0.42	SW-846:8260B
Dichloroethene[cis-1,2-]	0.1-0.32	SW-846:8260B
Dichloroethene[trans-1,2-]	0.11-0.3	SW-846:8260B
Dichloropropane[1,2-]	0.15-0.35	SW-846:8260B
Dichloropropene[cis-1,3-]	0.22	SW-846:8260B
Dichloropropene[cis-1,3-]	0.22	SW-846:8260B
Dichloropropene[trans-1,3-]	0.08-0.32	SW-846:8260B
Ethylbenzene	0.1-0.25	SW-846:8260B
Hexanone[2-]	0.17-2.6	SW-846:8260B
Methylene Chloride	0.35-0.95	SW-846:8260B
Styrene	0.15-0.2	SW-846:8260B
Tetrachloroethane[1,1,2,2-]	0.09-0.3	SW-846:8260B
Tetrachloroethene	0.1-0.32	SW-846:8260B
Toluene	0.25-0.36	SW-846:8260B
Trichloroethane[1,1,1-]	0.19-0.3	SW-846:8260B
Trichloroethane[1,1,2-]	0.3-0.31	SW-846:8260B
Trichloroethene	0.13-0.26	SW-846:8260B
Vinyl acetate	0.21-1	SW-846:8260B
Vinyl Chloride	0.22-0.4	SW-846:8260B
Xylenes, Total	0.18-0.9	SW-846:8260B

**Table-5 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Tritium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
TA1-W-02 7-Aug-13	Actinium-228	19.3 ± 15	15.2	U	EPA:901.1M
	Beryllium-7	0.144 ± 24	41.1	U	EPA:901.1M
	Bismuth-212	22.9 ± 23	40	U	EPA:901.1M
	Bismuth-214	-15.8 ± 22	31.9	U	EPA:901.1M
	Cesium-137	1.36 ± 1.7	2.94	U	EPA:901.1M
	Cobalt-60	0.282 ± 1.7	2.98	U	EPA:901.1M
	Gross Alpha	2.86 ± 2.3	3.62	U	EPA:900.0
	Gross Beta	5.70 ± 1.4	1.84		EPA:900.0
	Lead-212	-4.44 ± 4.8	4.62	U	EPA:901.1M
	Lead-212	-1.5 ± 6.8	6.2	U	EPA:901.1M
	Potassium-40	-152 ± 77	110	U	EPA:901.1M
	Protactinium-234m	193 ± 200	349	U	EPA:901.1M
	Sodium-22	-0.0438 ± 1.9	3.23	U	EPA:901.1M
	Tallium-208	-4.46 ± 2.8	3.26	U	EPA:901.1M
	Thorium-234	193 ± 200	349	U	EPA:901.1M
Tritium	-23.6 ± 130	291	U	EPA:906.0	
TA1-W-02 7-Aug-13	Actinium-228	-2.83 ± 12	14.3	U	EPA:901.1M
	Beryllium-7	7.87 ± 25	43.1	U	EPA:901.1M
	Bismuth-212	28.4 ± 23	41.2	U	EPA:901.1M
	Bismuth-214	-19.8 ± 22	31.7	U	EPA:901.1M
	Cesium-137	5.43 ± 1.9	3.27	U	EPA:901.1M
	Cobalt-60	0.58 ± 1.7	2.94	U	EPA:901.1M
	Gross Alpha	4.75 ± 8.9	15.8	U	EPA:900.0
	Gross Beta	3.76 ± 6.8	12.3	U	EPA:900.0
	Lead-212	-3.02 ± 4.8	4.70	U	EPA:901.1M
	Lead-212	1.29 ± 6.8	6.42	U	EPA:901.1M
	Potassium-40	-123 ± 77	112	U	EPA:901.1M
	Protactinium-234m	16.8 ± 200	336	U	EPA:901.1M
	Sodium-22	0.885 ± 1.9	3.37	U	EPA:901.1M
	Tallium-208	-3.44 ± 2.8	3.33	U	EPA:901.1M
	Thorium-234	16.8 ± 200	336	U	EPA:901.1M
Tritium	119 ± 130	291	U	EPA:906.0	

J = No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U = Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

**Table-5 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Tritium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
TA1-W-04 12-Aug-13	Actinium-228	3.49 ± 5.2	8.37	U	EPA:901.1M
	Beryllium-7	1.83 ± 15	26.3	U	EPA:901.1M
	Bismuth-212	7.75 ± 15	26.5	U	EPA:901.1M
	Bismuth-214	31.3 ± 19	22.7	U	EPA:901.1M
	Cesium-137	0.142 ± 1.2	1.99	U	EPA:901.1M
	Cobalt-60	-0.424 ± 1.2	2.04	U	EPA:901.1M
	Gross Alpha	1.68 ± 2.2	3.69	U	EPA:900.0
	Gross Beta	3.73 ± 1.6	2.47		EPA:900.0
	Lead-212	-2.14 ± 2.2	2.44	U	EPA:901.1M
	Lead-212	-1.5 ± 3.7	4.37	U	EPA:901.1M
	Potassium-40	-39.9 ± 39	49.8	U	EPA:901.1M
	Protactinium-234m	85.3 ± 130	235	U	EPA:901.1M
	Sodium-22	-0.115 ± 1.2	2.12	U	EPA:901.1M
	Tallium-208	-0.368 ± 1.8	2.06	U	EPA:901.1M
	Thorium-234	85.3 ± 130	235	U	EPA:901.1M
Tritium	-63.5 ± 130	291	U	EPA:906.0	
TA1-W-06 14-Aug-13	Actinium-228	15.5 ± 11	10.3	U	EPA:901.1M
	Beryllium-7	0.073 ± 16	27.9	U	EPA:901.1M
	Bismuth-212	1.65 ± 17	28.8	U	EPA:901.1M
	Bismuth-214	30.8 ± 12	23.1	U	EPA:901.1M
	Cesium-137	0.703 ± 1.2	2.13	U	EPA:901.1M
	Cobalt-60	0.649 ± 1.3	2.27	U	EPA:901.1M
	Gross Alpha	3.30 ± 3.9	6.46	U	EPA:900.0
	Gross Beta	4.75 ± 3.5	5.97	U	EPA:900.0
	Lead-212	-0.628 ± 2.3	2.63	U	EPA:901.1M
	Lead-212	-7.03 ± 4.4	3.83	U	EPA:901.1M
	Potassium-40	-149 ± 53	70.6	U	EPA:901.1M
	Protactinium-234m	91.9 ± 150	268	U	EPA:901.1M
	Sodium-22	0.156 ± 1.4	2.42	U	EPA:901.1M
	Tallium-208	-3.48 ± 2.3	2.28	U	EPA:901.1M
	Thorium-234	91.9 ± 150	268	U	EPA:901.1M
Tritium	48.3 ± 130	290	U	EPA:906.0	

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U = Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

**Table-5 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Tritium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
TA2-SW1-320 11-Sep-13	Actinium-228	1.01 ± 4.3	7.57	U	EPA:901.1M
	Beryllium-7	-5.57 ± 11	17.6	U	EPA:901.1M
	Bismuth-212	-4 ± 15	25.1	U	EPA:901.1M
	Bismuth-214	14.7 ± 15	14.3	J	EPA:901.1M
	Cesium-137	-0.517 ± 1.1	1.86	U	EPA:901.1M
	Cobalt-60	-0.674 ± 1.2	2.08	U	EPA:901.1M
	Gross Alpha	0.0794 ± 1.7	3.27	U	EPA:900.0
	Gross Beta	3.02 ± 1.7	2.74		EPA:900.0
	Lead-212	-0.752 ± 2.2	2.50	U	EPA:901.1M
	Lead-212	2.37 ± 4.1	4.58	U	EPA:901.1M
	Potassium-40	-27.8 ± 39	51.9	U	EPA:901.1M
	Protactinium-234m	167 ± 140	259	U	EPA:901.1M
	Sodium-22	1.78 ± 1.2	2.30	U	EPA:901.1M
	Tallium-208	0.86 ± 2	2.08	U	EPA:901.1M
	Thorium-234	167 ± 140	259	U	EPA:901.1M
	Tritium	46.9 ± 130	290	U	EPA:906.0
TA2-W-19 3-Sep-13	Actinium-228	-11.8 ± 11	12.8	U	EPA:901.1M
	Beryllium-7	-1.58 ± 14	23.6	U	EPA:901.1M
	Bismuth-212	39.9 ± 21	37.1	U	EPA:901.1M
	Bismuth-214	-0.504 ± 21	29.3	U	EPA:901.1M
	Cesium-137	0.119 ± 1.4	2.34	U	EPA:901.1M
	Cobalt-60	-0.464 ± 1.4	2.33	U	EPA:901.1M
	Gross Alpha	1.23 ± 2.4	4.31	U	EPA:900.0
	Gross Beta	1.53 ± 2.2	4.04	U	EPA:900.0
	Lead-212	-5.05 ± 3.3	3.52	U	EPA:901.1M
	Lead-212	-6.68 ± 4.9	5.08	U	EPA:901.1M
	Potassium-40	-207 ± 66	93.8	U	EPA:901.1M
	Protactinium-234m	124 ± 170	302	U	EPA:901.1M
	Sodium-22	-0.203 ± 1.5	2.59	U	EPA:901.1M
	Tallium-208	-4.34 ± 2.6	2.94	U	EPA:901.1M
	Thorium-234	124 ± 170	302	U	EPA:901.1M
	Tritium	-48.9 ± 130	289	U	EPA:906.0

J = No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U = Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.



**Table-5 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Tritium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
TA2-W-26 29-Aug-13	Actinium-228	12.5 ± 5.4	10	U	EPA:901.1M
	Beryllium-7	-0.876 ± 13	22.6	U	EPA:901.1M
	Bismuth-212	25.2 ± 17	30.5	U	EPA:901.1M
	Bismuth-214	35 ± 12	23.9	U	EPA:901.1M
	Cesium-137	-1.06 ± 1.2	2.01	U	EPA:901.1M
	Cobalt-60	-0.405 ± 1.5	2.51	U	EPA:901.1M
	Gross Alpha	1.09 ± 5.3	9.91	U	EPA:900.0
	Gross Beta	5.86 ± 4.1	7.07	U	EPA:900.0
	Lead-212	-2.05 ± 2.4	2.65	U	EPA:901.1M
	Lead-212	-4.74 ± 4.4	4.12	U	EPA:901.1M
	Potassium-40	-148 ± 53	70.3	U	EPA:901.1M
	Protactinium-234m	-39.6 ± 150	258	U	EPA:901.1M
	Sodium-22	-1.18 ± 1.4	2.24	U	EPA:901.1M
	Tallium-208	-3.69 ± 2.4	2.41	U	EPA:901.1M
	Thorium-234	-39.6 ± 150	258	U	EPA:901.1M
Tritium	99.2 ± 130	290	U	EPA:906.0	
TA2-W-27 28-Aug-13	Actinium-228	7.24 ± 5.1	8.21	U	EPA:901.1M
	Beryllium-7	-6.18 ± 13	20.8	U	EPA:901.1M
	Bismuth-212	2.58 ± 15	26.2	U	EPA:901.1M
	Bismuth-214	5.75 ± 16	20.4	U	EPA:901.1M
	Cesium-137	0.18 ± 1.1	1.91	U	EPA:901.1M
	Cobalt-60	-0.384 ± 1.3	2.13	U	EPA:901.1M
	Gross Alpha	-0.623 ± 3.3	6.53	U	EPA:900.0
	Gross Beta	3.28 ± 2.8	4.82	U	EPA:900.0
	Lead-212	-2 ± 2.2	2.41	U	EPA:901.1M
	Lead-212	0.276 ± 4.2	4.43	U	EPA:901.1M
	Potassium-40	-40.4 ± 39	49.8	U	EPA:901.1M
	Protactinium-234m	-54.7 ± 130	219	U	EPA:901.1M
	Sodium-22	0.588 ± 1.3	2.33	U	EPA:901.1M
	Tallium-208	-0.564 ± 1.7	1.91	U	EPA:901.1M
	Thorium-234	-54.7 ± 130	219	U	EPA:901.1M
Tritium	86.5 ± 130	290	U	EPA:906.0	

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**Table-5 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Tritium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
TA2-W-27 28-Aug-13 Dup	Actinium-228	2.36 ± 14	14.3	U	EPA:901.1M
	Beryllium-7	-9.4 ± 20	32.7	U	EPA:901.1M
	Bismuth-212	34.1 ± 24	41.2	U	EPA:901.1M
	Bismuth-214	1.40 ± 24	33	U	EPA:901.1M
	Cesium-137	2.17 ± 1.8	3.07	U	EPA:901.1M
	Cobalt-60	0.241 ± 1.7	3.01	U	EPA:901.1M
	Gross Alpha	-3.25 ± 3.4	7.10	U	EPA:900.0
	Gross Beta	4.66 ± 2.6	4.37		EPA:900.0
	Lead-212	-5.43 ± 4.9	4.70	U	EPA:901.1M
	Lead-212	1.22 ± 7.7	6.33	U	EPA:901.1M
	Potassium-40	-130 ± 77	112	U	EPA:901.1M
	Protactinium-234m	102 ± 190	341	U	EPA:901.1M
	Sodium-22	-0.466 ± 1.9	3.21	U	EPA:901.1M
	Tallium-208	-4.26 ± 2.9	3.36	U	EPA:901.1M
	Thorium-234	102 ± 190	341	U	EPA:901.1M
	Tritium	245 ± 140	290	U	EPA:906.0
TJA-2 5-Sep-13	Actinium-228	-20.4 ± 14	12.9	U	EPA:901.1M
	Beryllium-7	-3.27 ± 18	30.1	U	EPA:901.1M
	Bismuth-212	10.4 ± 22	39.4	U	EPA:901.1M
	Bismuth-214	-17.9 ± 21	27.3	U	EPA:901.1M
	Cesium-137	1.59 ± 1.7	2.93	U	EPA:901.1M
	Cobalt-60	0.586 ± 1.7	3.01	U	EPA:901.1M
	Gross Alpha	0.903 ± 2.6	4.81	U	EPA:900.0
	Gross Beta	1.33 ± 2.5	4.45	U	EPA:900.0
	Lead-212	-7.35 ± 4.7	4.42	U	EPA:901.1M
	Lead-212	-5.11 ± 6.1	6.11	U	EPA:901.1M
	Potassium-40	-139 ± 61	85.8	U	EPA:901.1M
	Protactinium-234m	110 ± 180	322	U	EPA:901.1M
	Sodium-22	0.593 ± 1.8	3.16	U	EPA:901.1M
	Tallium-208	-4.19 ± 3.5	3.17	U	EPA:901.1M
	Thorium-234	110 ± 180	322	U	EPA:901.1M
	Tritium	5.84 ± 130	288	U	EPA:906.0

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**Table-5 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Tritium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
TJA-4 9-Sep-13	Actinium-228	0.564 ± 15	14.4	U	EPA:901.1M
	Beryllium-7	4.31 ± 17	29.1	U	EPA:901.1M
	Bismuth-212	34.6 ± 23	40.1	U	EPA:901.1M
	Bismuth-214	-18.1 ± 23	32.6	U	EPA:901.1M
	Cesium-137	2.12 ± 1.7	3.01	U	EPA:901.1M
	Cobalt-60	0.532 ± 1.8	3.13	U	EPA:901.1M
	Gross Alpha	1.45 ± 2	3.34	U	EPA:900.0
	Gross Beta	3.99 ± 1.9	2.97		EPA:900.0
	Lead-212	-2.91 ± 4.7	4.72	U	EPA:901.1M
	Lead-212	-1.77 ± 6.9	6.41	U	EPA:901.1M
	Potassium-40	-137 ± 77	112	U	EPA:901.1M
	Protactinium-234m	14.6 ± 200	342	U	EPA:901.1M
	Sodium-22	0.843 ± 1.9	3.38	U	EPA:901.1M
	Tallium-208	-3.80 ± 2.8	3.36	U	EPA:901.1M
	Thorium-234	14.6 ± 200	342	U	EPA:901.1M
Tritium	56.9 ± 130	290	U	EPA:906.0	
TJA-7 10-Sep-13	Actinium-228	4.43 ± 4	7.43	U	EPA:901.1M
	Beryllium-7	3.11 ± 9.7	17	U	EPA:901.1M
	Bismuth-212	6.82 ± 14	24.7	U	EPA:901.1M
	Bismuth-214	12.9 ± 9.4	18.5	U	EPA:901.1M
	Cesium-137	-0.0102 ± 1	1.79	U	EPA:901.1M
	Cobalt-60	0.0504 ± 1.2	2.16	U	EPA:901.1M
	Gross Alpha	2.21 ± 2	3.05	U	EPA:900.0
	Gross Beta	4.27 ± 1.9	2.93		EPA:900.0
	Lead-212	-0.595 ± 2.2	2.36	U	EPA:901.1M
	Lead-212	3.48 ± 2.9	3.46	U	EPA:901.1M
	Potassium-40	11.3 ± 27	35.6	U	EPA:901.1M
	Protactinium-234m	-35.4 ± 140	229	U	EPA:901.1M
	Sodium-22	0.493 ± 1.2	2.27	U	EPA:901.1M
	Tallium-208	1.19 ± 1	1.85	U	EPA:901.1M
	Thorium-234	-35.4 ± 140	229	U	EPA:901.1M
Tritium	106 ± 130	289	U	EPA:906.0	

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**Table-5 NMED DOE OB FFY 2013 Q-4 Tijeras Arroyo Groundwater Quality Results: Gross Alpha, Gross Beta, Gamma Spectroscopy, and Tritium**

Monitoring Well/ Sample Date	Analyte	Activity (pCi/L)	MDA (pCi/L)	Laboratory Qualifier	Analytical Method
WYO-4 26-Aug-13	Actinium-228	-14.6 ± 11	12.4	U	EPA:901.1M
	Beryllium-7	-3.06 ± 15	26.4	U	EPA:901.1M
	Bismuth-212	23.4 ± 20	35.6	U	EPA:901.1M
	Bismuth-214	-11.2 ± 21	27.3	U	EPA:901.1M
	Cesium-137	0.0736 ± 1.5	2.45	U	EPA:901.1M
	Cobalt-60	-0.461 ± 1.4	2.48	U	EPA:901.1M
	Gross Alpha	1.14 ± 3.3	5.92	U	EPA:900.0
	Gross Beta	1.48 ± 3	5.49	U	EPA:900.0
	Lead-212	-2.79 ± 3.3	3.70	U	EPA:901.1M
	Lead-212	-6.15 ± 4.9	5.14	U	EPA:901.1M
	Potassium-40	-178 ± 65	95.8	U	EPA:901.1M
	Protactinium-234m	60.7 ± 160	291	U	EPA:901.1M
	Sodium-22	0.784 ± 1.6	2.89	U	EPA:901.1M
	Tallium-208	-4.58 ± 2.7	2.94	U	EPA:901.1M
	Thorium-234	60.7 ± 160	291	U	EPA:901.1M
Tritium	128 ± 130	290	U	EPA:906.0	

J = No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U = Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.