

**SECOND QUARTER 2009 GROUNDWATER
MONITORING REPORT
ENERGY FUELS RESOURCES
CORPORATION
URANIUM MILL LICENSING SUPPORT
PIÑON RIDGE MILL
MONTROSE COUNTY, COLORADO**

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1.0 INTRODUCTION

The second quarter 2009 sampling event described in this report was conducted on April 28 through 30, 2009 by Energy Fuels Resources Corporation (EFR) personnel. Nine monitoring wells and three production wells are currently located on and near the mill site and are being monitored to characterize groundwater at the site. Refer to Table 1 for a record of groundwater wells sampled on and near the site.

Monitoring wells MW-1 through MW-6 were installed at the site in the summer and early fall 2007 to evaluate the presence and quality of groundwater throughout the site. Wells MW-1 through MW-4, which were installed in the north and central portions of the Site, did not encounter groundwater. Groundwater was encountered in wells MW-5 and MW-6 installed in the southern portion of the Site, although MW-5 exhibited limited recharge. Interpretation of the seismic reflection and refraction survey completed after the installation of these monitoring wells led to the conclusion that the Site has been block faulted in a roughly stair-step manner from south to north along normal faults that trend approximately N 80° W. This fault pattern is related to the salt dome beneath the Paradox Valley. The faults are believed to primarily explain the absence of groundwater in wells MW-1 through MW-4.

Supplemental groundwater monitoring wells were installed in some of these fault blocks to improve the understanding of groundwater movement and chemistry. Monitoring wells MW-7, MW-8B and MW-9 were installed in July 2008. MW-9 could not be fully developed due to extremely slow recharge. This well was sampled in September 2008, but the analytical data has been qualified based on the well development history and extremely slow recharge rate. MW-9 was not sampled in the 2nd Quarter 2009 sampling event due to extremely slow recharge (i.e. 0.38 feet over 2 days).

Production wells PW-1, PW-2, and PW-3 were installed on and near the site to evaluate water supply conditions in the area. The production wells have been added to the quarterly groundwater monitoring schedule to provide supplemental water level and water quality information. These wells were not installed as groundwater monitoring wells for environmental sampling purposes.

The 2nd Quarter 2009 groundwater sampling event included the following:

- Fluid level gauging: MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8B, MW-9, PW-1, PW-2, and PW-3;
- Hand bailing and sampling of MW-5 using a dedicated Teflon[®] bailer;
- Purging and sampling of MW-6 using a dedicated submersible pump;
- Micro-purging and sampling of MW-7 and MW-8B with dedicated submersible bladder pumps;
- Purging and monitoring of MW-9;
- Micro-purging and sampling of PW-1, PW-2, and PW-3 with a shared submersible bladder pump and dedicated tubing;

- The collection of groundwater field parameters and samples for laboratory analysis of selected metals, selected anions and cations, selected nitrogen constituents, total suspended solids, total dissolved solids, total organic carbon, gross alpha, gross beta, and radium-226;
- The collection of duplicate samples at MW-6 and PW-3 for laboratory analysis of dissolved metals and radionuclides;

2.0 FIELD ACTIVITIES

Sampling activities for the groundwater monitoring and production wells were conducted from April 28 through 30, 2009. The sampling activities were conducted in accordance with procedures described in “*Work Plan Groundwater Sampling, Energy Fuels Resources Corporation, Uranium Mill Licensing Support, Pinon Ridge Mill Site, Montrose County, Colorado, Kleinfelder Project No. 83088, Rev. 2*” dated May 21, 2008 (*Work Plan*). Copies of the well sampling field sheets are included in Appendix A.

2.1 Fluid Level Gauging

Fluid level gauging data were collected on April 28, 2009 using a properly decontaminated electronic water depth indicator. The fluid level gauging data are summarized in Table 2. Monitoring wells MW-1, MW-2, MW-3 and MW-4 were dry. Groundwater was detected in wells MW-6, MW-7, MW-8B, PW-1, PW-2 and PW-3 with saturated thickness ranging from 40 feet to nearly 120 feet. Wells MW-5 and MW-9 contained groundwater, but of limited saturated thickness (approximately 8-20 feet) and recharge rate (see Table 2).

2.2 Well Purging

Monitoring wells were purged to remove stagnant water and allow fresh formation water to be sampled. Well sampling field sheets are presented in Appendix A.

The water level in monitoring well MW-5 was measured at 280.73 feet btoc and was subsequently bailed as close to dry as practical on April 28. Approximately 18 gallons of water were removed from the well by hand using a dedicated bailer. This well was allowed time to recharge and was sampled on April 30. The well had recharged from 297.64 feet btoc (measured immediately following bailing) to 291.12 ft btoc (measured at the time of sampling). This was approximately 11 feet below the static water level measured prior to bailing the well dry. Temperature, pH, specific conductance (SC), oxidation-reduction potential (ORP), and dissolved oxygen (DO) levels were measured using a water quality meter in a grab sample just prior to sample collection.

The water level in monitoring well MW-6 was measured at 407.77 feet btoc on April 28. The well was purged of approximately 447 gallons of water (9.0 well casing volumes) prior to sampling on April 28 with a dedicated Grundfos pump at a pumping rate of approximately 3 gallons per minute (gpm). Field parameters had stabilized prior to sample collection and remained stable during sample collection. Temperature, pH, SC, ORP, and DO levels were measured during purging at regular intervals using a water quality meter equipped with a flow-through cell.

The water level in monitoring well MW-7 was measured at 335.87 feet btoc on April 28. The well was micro-purged of 13 gallons of water for 34 minutes prior to sampling on April 29 with a dedicated bladder pump using low flow methods. Field Parameters had stabilized prior to sampling and remained stable during sampling. Temperature, pH, SC, ORP, and DO concentrations were measured during purging at regular intervals using a water quality meter equipped with a flow-through cell.

The water level in monitoring well MW-8B was measured at 381.46 feet btoc on April 28. The well was micro-purged of approximately 13 gallons of water for 45 minutes prior to sampling on April 29 with a dedicated bladder pump using low flow methods. Field Parameters had stabilized prior to sampling and remained stable during sampling. Temperature, pH, SC, ORP, and DO levels were measured during purging at regular intervals using a water quality meter equipped with a flow-through cell.

The water level in monitoring well MW-9 was measured at 416.47 feet btoc on April 28. The well was bailed as close to dry as practical on April 28 using a dedicated bailer. Approximately 9.5 gallons of water were removed from the well. The water level in the well recovered from 424.22 feet btoc (measured immediately after bailing on 4/28) to 423.84 ft btoc (measured on 4/30), less than 5 inches over a two day period. The well did not recharge sufficiently to sample by the conclusion of the sampling event.

The water level in production well PW-1 was measured at 280.69 feet btoc on April 28. The well was micro-purged of approximately 9 gallons of water for 45 minutes prior to sampling on April 30 with a bladder pump using low flow methods. Field parameters had stabilized prior to sampling and remained stable during sampling. Temperature, pH, SC, ORP, and DO levels were measured during purging at regular intervals using a water quality meter equipped with a flow-through cell.

The water level in production well PW-2 was measured at 332.43 feet btoc on April 28. The well was micro-purged of 13 gallons of water for 80 minutes prior to sampling on April 29 with a bladder pump using low flow methods. Field parameters had stabilized prior to sampling and remained stable during sampling. Temperature, pH, SC, ORP, and DO levels were measured during purging at regular intervals using a water quality meter equipped with a flow-through cell.

The water level in production well PW-3 was measured at 264.08 feet btoc on April 28. The well was micro-purged of 12 gallons of water for 84 minutes prior to sampling on April 30 with a bladder pump using low flow methods. Field parameters had stabilized prior to sampling and remained stable during sampling with the exception of ORP and DO. Temperature, pH, SC, ORP, and DO levels were measured during purging at regular intervals using a water quality meter equipped with a flow-through cell.

2.3 Groundwater Sampling

Groundwater samples were collected from MW-5 after the well had recharged enough to provide sufficient sample volume. Samples were collected from MW-6 after a minimum of 3 casing volumes had been purged and field parameters had stabilized. Samples were collected from MW-7, MW-8B, PW-1, PW-2, and PW-3 after field parameters had stabilized during purging. Stabilization of field parameters was achieved when measurements taken over three consecutive readings at three to five minute intervals were within the following limits:

- Temperature $\pm 3\%$
- pH ± 0.01 s.u.
- Specific Conductivity $\pm 3\%$
- Dissolved Oxygen $\pm 10\%$
- Oxidation-Reduction Potential ± 10 millivolts

These stabilization guidelines are recommended in “US EPA Region I, Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from monitoring Wells”, published July 30, 1996.

Monitoring well samples for dissolved constituents were field-filtered to 0.45 microns. All samples were placed into laboratory-prepared containers with appropriate preservatives. Duplicate samples were also collected from MW-6 and PW-3. The containers were placed under ice in coolers and prepared for transport under chain-of-custody via FedEx to ACZ Laboratories, Inc. (ACZ) in Steamboat Springs, Colorado. The samples arrived at the laboratory the day following shipment.

2.4 Waste Disposal

Purged groundwater was discharged onto the ground surface approximately 100 to 200 ft from each well.

3.0 DATA SUMMARY

Groundwater was not detected in monitoring wells MW-1, MW-2, MW-3 or MW-4. MW-9 contained 8.03 feet of water, but did not recharge sufficiently to sample following purging. Groundwater was measured and sampled in MW-5, MW-6, MW-7, MW-8B, PW-1, PW-2 and PW-3. MW-5 has limited recharge and has not been fully developed. In addition, production wells PW-1, PW-2 and PW-3 were installed for the purposes of evaluating groundwater supply in the area and providing water to the future mill. They were not installed for the purpose of collecting environmental data. Accordingly, the data collected from wells MW-5, PW-1, PW-2 and PW-3 must be evaluated within that context.

3.1 Groundwater Quality Field Parameters

Groundwater quality field parameters were recorded with a WTW 3400i water quality meter on grab samples during bailing of MW-5, and with a flow-through cell during purging of MW-6, MW-7, MW-8B, PW-1, PW-2 and PW-3. The field parameters are listed on Table 3.

3.2 Groundwater Analytical Results

Groundwater monitoring and production well samples were analyzed for:

- Dissolved metals (aluminum, arsenic, boron, copper, iron, lead, manganese, molybdenum, selenium, uranium, vanadium, and zinc by Methods E200.7 or 200.8);
- Major dissolved ions (alkalinity, carbonate, bicarbonate, calcium, chloride, fluoride, magnesium, ammonia as nitrogen, nitrate/nitrite, potassium, silica, sodium, sulfate, sulfide) by applicable methods;
- Physical properties (total dissolved solids [TDS] by Method A2540C and total suspended solids [TSS] by Method A2540B); and
- Dissolved radionuclides (gross alpha, gross beta by Method E900.0, and radium 226 by Method E903.0).

The duplicate samples from MW-6 and PW-3 were analyzed only for the dissolved metals and radionuclides above. A summary of the laboratory analytical results relative to CDPHE and US EPA standards is presented in Table 3. Copies of the laboratory analytical reports for the monitoring wells are provided in Appendix B.

A review of the ACZ Level 3 quality control indicates the instruments appear to be functioning properly because method blanks, spike, and duplicate concentrations were within the acceptable ranges per the specified methods. Where quality control samples were outside of acceptable ranges, the laboratory provided case narratives that indicated or resolved the discrepancies.

4.0 DISCUSSION

Following additional quarterly sample collection and analysis events, a detailed hydrogeologic evaluation will be completed for the Site including an analysis of the water quality and establishment of a groundwater classification for the Site. Therefore, only a limited discussion of water quality will take place in this document. Analytical results for this sampling event indicate:

- Groundwater samples from MW-5 and MW-7 continue to exhibit similar chemistry relative to previous sampling events, exhibit characteristics of oxidized water, do not have a hydrogen sulfide (H₂S) odor, contain sulfate, and do not contain sulfide;
- Groundwater samples from MW-6 and MW-8B exhibit similar chemistry, exhibit characteristics of reduced and oxidized water, and have an H₂S odor as well as sulfide and sulfate;
- Dissolved iron and manganese in PW-1 and PW-2 samples were elevated relative to the initial sampling events. It is likely that the steel casing used for the production wells is responsible for the elevated iron and manganese content in the groundwater collected from the wells. This was not observed in the initial sampling event because those samples were collected during pump tests when the flow rate from the wells was much higher.
- With the exceptions noted above, dissolved metals, radiochemistry, and major anion/cation concentrations in all of the wells are generally consistent with those measured in previous sampling events;
- Sulfate concentrations (1,460 to 1,680 milligrams per liter [mg/L]) and TDS concentrations (2,800 to 2,980 mg/L) are consistent in monitoring wells MW-6 and MW-8B;
- Sulfate concentrations (360 to 470 mg/L) and TDS concentrations (770 to 940 mg/L) are consistent in monitoring wells MW-5 and MW-7 and production wells PW-1, PW-2 and PW-3.

Following purging, the water in monitoring well MW-9 did not recharge sufficiently during this groundwater monitoring event. Water in this well appears to be connate water or residual pore moisture that has accumulated over time and it is not expected to fully recharge in less than 60 days. The water level will be measured again in this well during the next sampling event and an attempt will be made to purge and sample the well. However, if the well does not recharge sufficiently during the sampling event, water samples will not be collected.

TABLES

**Table 1
Groundwater Sampling Record**

Period	Groundwater Well ID							
	MW-5	MW-6	MW-7	MW-8B	MW-9	PW-1	PW-2	PW-3
4Q 2007	NS	X	NI	NI	NI	NI	NI	NI
1Q 2008	X	X	NI	NI	NI	NI	NI	NI
2Q 2008	X	X	X	NI	NI	NI	NI	NI
3Q 2008	X	X	X	X	X*	X	X	X
4Q 2008	X	X	X	X	NS	X	X	X
1Q 2009	X	X	X	X	NS	X	X	X
2Q 2009	X	X	X	X	NS	X	X	X

NI Well not installed

NS Insufficient water or recharge rate to sample

* Well required 33 days to recharge sufficiently to sample

**Table 2
Static Groundwater Levels**

Well ID	Date Measured	Top of Casing Elevation (feet amsl)	Total Depth (feet BTOC)	Water Level (feet BTOC)	Saturated Thickness (feet)	Water Elevation (feet amsl)
MW-1	04/28/09	5423.76	32.49	Dry	NA	NA
MW-2	04/28/09	5432.65	27.42	Dry	NA	NA
MW-3	04/28/09	5452.29	102.65	Dry	NA	NA
MW-4	04/28/09	5475.55	67.67	Dry	NA	NA
MW-5	04/28/09	5572.89	301	280.73	20.27	5292.16
MW-6	04/28/09	5554.47	484.49	407.77	76.72	5146.70
MW-7	04/28/09	5624.93	425	335.87	89.13	5289.06
MW-8B	04/28/09	5530.19	421.93	381.46	40.54	5148.73
MW-9	04/28/09	5527.72	424.5	416.47 ⁽¹⁾	8.03	5111.25
PW-1	04/28/09	5570.66	380	280.69	99.31	5289.97
PW-2	04/28/09	5622.46	420	332.43	87.57	5290.03
PW-3	04/28/09	5557.88	380	264.08	115.92	5293.80

1 MW-9 recharges very slowly and has never fully recharged.

NA Not Applicable

Table 3
Groundwater Analytical Results

Well Number		MW-5						MW-6						
Sample Date		1/31/2008	4/30/2008	8/7/2008	11/14/2008	2/19/2009	4/30/2009	10/16/2007	1/29/2008	4/29/2008	8/7/2008	11/14/2008	2/18/2009	4/28/2009
Field Parameters	Unit													
Temperature	°C	12.4	17.7	16.3	15.8	14.5	18.8	17.9	18.0	18.8	19.0	18.8	17.9	18.7
pH	s.u.	10.25	7.54	7.50	7.87	7.96	7.82	7.69	5.27	7.01	6.86	6.95	7.07	6.85
Conductivity	µS/cm	2,338	1,194	1,225	1,101	1,043	1093	3,170	5,319	3,140	3,430	3,290	3,510	3,290
Dissolved Oxygen	mg/L	6.02	2.06	5.93	5.76	6.82	12.18	2.62	1.47	0.02	0.06	0.14	0.11	0.24
ORP	mV	NR	NR	203	150	86	72	NR	-310	-373	-361	-331	-330	-355
General Chemistry														
Alkalinity as CaCO ₃	mg/L	240	234	203	207	205	203	392	394	386	387	397	399	388
Carbonate as CaCO ₃	mg/L	NA	<2	5	<2	13	<2	<1	<2	<2	<2	<2	<2	<2
Bicarbonate as CaCO ₃	mg/L	240	234	203	207	192	203	478	394	386	387	397	399	388
Chloride	mg/L	21	22	33	24	24	21	142	170	160	170	160	170	160
Fluoride	mg/L	0.4	0.5	0.6	0.6	0.5	0.7	0.3	0.3	0.4	0.4	0.4	0.3	0.4
Ammonia as N	mg/L	0.08	0.23	0.06	0.10	<0.05	<0.05	1.01	0.8	0.95	1.05	1.06	0.91	1.01
Nitrate/Nitrite as N	mg/L	1.09	1.20	2.51	2.17	1.96	2.26	<0.1	<0.02	<0.02	0.06	<0.02	0.03	0.02
Silica	mg/L	17.7	17.4	17.5	14.4	16.1	14.2	10.3	10.7	10.7	11.4	9.8	10.0	9.5
Sulfate	mg/L	390	370	390	370	370	360	1330	1400	1070	1490	1460	1490	1460
Sulfide as S	mg/L	0.04	<0.02	<0.02	<0.02	<0.08	<3	NA	13.4	10.3	11.9	11.5	12.4	13.2
TOC	mg/L	12	8	NA	NA	NA	NA	<1	NA	12	NA	NA	NA	NA
TDS	mg/L	840	820	820	770	790	770	2400	2740	1140	2670	2750	2760	2800
TSS	mg/L	120	780	NA	78	350	337	13.3	<5	<5	NA	13	<5	<5
Dissolved Metals														
Aluminum	mg/L	0.23	<0.03	0.04	0.04	0.32	0.05	<0.1	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Arsenic	mg/L	0.0015	0.0021	0.0025	0.0028	0.0027	0.0032	<0.001	<0.001	0.0006	0.001	<0.01	0.002	<0.03
Barium	mg/L	0.034	0.021	NA	NA	NA	NA	<0.1	NA	0.024	NA	NA	NA	NA
Boron	mg/L	0.59	0.53	0.47	0.46	0.45	0.42	2.20	2.30	2.27	2.5	2.36	2.39	2.36
Cadmium	mg/L	0.0002	<0.0001	NA	NA	NA	NA	<0.005	NA	0.0001	NA	NA	NA	NA
Calcium	mg/L	69.8	76.6	69.1	69.5	70.2	72.0	109	123	121	133	132	137	131
Cesium	mg/L	<0.0002	<0.0002	NA	NA	NA	NA	<0.1	NA	<0.0002	NA	NA	NA	NA
Chromium	mg/L	<0.01	<0.01	NA	NA	NA	NA	<0.005	NA	<0.01	NA	NA	NA	NA
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Iron	mg/L	0.19	<0.02	<0.02	0.04	0.22	<0.02	1.46	<0.04	<0.04	<0.04	<0.04	0.12	<0.04
Lead	mg/L	0.0020	<0.0001	<0.0001	<0.0001	0.0006	<0.0001	<0.001	<0.0004	<0.0001	<0.0002	<0.002	<0.0002	<0.0002
Magnesium	mg/L	54.5	61.2	60	57.4	58.7	59.3	261	284	288	309	295	304	299
Manganese	mg/L	0.042	0.012	0.028	0.025	0.053	0.015	0.060	0.010	0.01	<0.01	0.020	<0.01	<0.01
Mercury	mg/L	<0.0002	<0.0002	NA	NA	NA	NA	<0.001	NA	<0.0002	NA	NA	NA	NA
Molybdenum	mg/L	0.03	0.03	0.02	0.01	<0.01	0.02	<0.1	<0.02	0.030	<0.02	<0.02	<0.02	<0.02
Nickel	mg/L	<0.01	<0.01	NA	NA	NA	NA	0.05	NA	<0.01	NA	NA	NA	NA
Potassium	mg/L	17.6	18.1	19.0	16.9	16.9	16.3	91.0	98.4	95.4	105	99.7	97.2	93.0
Selenium	mg/L	0.0170	0.0358	0.0200	0.0231	0.0206	0.0231	0.003	0.027	0.1660	0.0321	0.236	0.0478	0.0413
Sodium	mg/L	136	127	109	95.0	89.9	88.2	172	205	190	219	208	206	190
Uranium	mg/L	0.0760	0.0896	0.106	0.1100	0.1030	0.1070	<0.0003	<0.0002	<0.0001	<0.003	<0.002	0.0003	<0.0002
Vanadium	mg/L	0.007	0.006	0.012	0.009	0.013	0.008	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02
Dissolved Radionuclides														
Gross Alpha	µCi/L	50	65	49	49	41	44	11.1	17.0	12	9.7	<7.6	12	<6.8
Gross Beta	µCi/L	32	41	32	30	27	24	92.8	140.0	91	110	99	96	81
Radium 226	µCi/L	0.53	0.33	0.42	<0.35	0.3	0.37	1.6	2.2	1.9	3.3	1.9	2.1	2

Table 3
Groundwater Analytical Results

Well Number		MW-7					MW-8B				MW-9	PW-1				
Sample Date		6/7/2008	9/9/2008	11/13/2008	2/18/2009	4/29/2009	7/21/2008	11/13/2008	2/18/2009	4/29/2009	9/10/2008	8/12/2008	8/13/2008	11/14/2008	2/24/2009	4/30/2009
Field Parameters	Unit															
Temperature	°C	18.7	15.8	15.6	14.6	15.7	18.4	15.3	14.6	16.0	17.6	18.0	17.5	15.4	15.0	15.8
pH	s.u.	8.02	7.84	7.58	7.58	7.43	6.36	6.83	6.83	6.70	8.23	7.50	7.02	7.53	7.52	7.43
Conductivity	µS/cm	1,064	1,276	1,253	1,338	1,289	3,060	3,000	2,810	2,940	993	1,151	1,132	1,161	1,247	1,184
Dissolved Oxygen	mg/L	2.15	3.97	3.80	4.77	5.59	6.10	0.29	0.25	0.70	2.12	7.35	7.20	0.81	0.09	3.29
ORP	mV	28.8	161	138	88	62	-122.8	-154	-199	-203	154	31	142	-154	-144	-162
General Chemistry																
Alkalinity as CaCO ₃	mg/L	154	198	218	223	222	426	436	389	449	243	225	228	225	217	224
Carbonate as CaCO ₃	mg/L	<2	<2	<2	4	4	<2	<2	<2	<2	11	<2	5	<2	<2	<2
Bicarbonate as CaCO ₃	mg/L	154	198	218	218	218	426	436	389	449	232	225	223	225	217	224
Chloride	mg/L	25	28	30	32	31	48	37	40	42	19	36	36	36	38	36
Fluoride	mg/L	0.7	0.6	0.6	0.5	0.5	0.7	0.6	0.5	0.6	1.0	0.5	0.5	0.5	0.5	0.5
Ammonia as N	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.12	<0.05	0.09	<0.5	<0.05	31.2	0.3	0.16	0.19
Nitrate/Nitrite as N	mg/L	0.61	0.85	0.72	0.77	0.75	0.04	<0.02	0.03	0.04	10.2	1.80	1.47	0.36	0.37	0.42
Silica	mg/L	15.8	19.7	17.5	19.3	17.4	11.7	17.3	18.5	20.2	11.8	19.2	19.4	10.2	11.1	11.5
Sulfate	mg/L	460	460	460	480	470	1810	1370	1450	1680	190	380	360	380	380	410
Sulfide as S	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	1.9	0.61	0.19	0.05	0.10	<0.02	<0.02	<0.02	<0.2	<0.2
TOC	mg/L	9	NA	NA	NA	NA	29	NA	NA	NA	18	10	9	NA	NA	NA
TDS	mg/L	850	930	970	940	930	3040	2520	2560	2980	610	810	810	820	810	820
TSS	mg/L	<5	5	9	<5	<5	833	18	<5	<5	168	<5	<5	106	24	18
Dissolved Metals																
Aluminum	mg/L	0.05	<0.03	<0.03	<0.03	<0.03	<0.06	<0.06	0.09	<0.03	0.07	<0.03	<0.03	<0.03	<0.03	<0.03
Arsenic	mg/L	0.0073	0.0046	0.0059	0.0062	<0.03	0.002	<0.01	0.003	0.007	0.0111	0.0169	0.0177	0.0009	0.0007	0.0009
Barium	mg/L	0.016	NA	NA	NA	NA	0.038	NA	NA	NA	0.044	0.013	0.027	NA	NA	NA
Boron	mg/L	0.21	0.31	0.31	0.36	0.34	0.36	0.48	0.52	0.47	2.63	0.30	0.30	0.29	0.29	0.31
Cadmium	mg/L	<0.0001	NA	NA	NA	NA	<0.0002	NA	NA	NA	<0.0001	<0.0001	<0.0001	NA	NA	NA
Calcium	mg/L	92.6	101.0	100	103	104	495	368	385	500	8.8	69.1	66.7	68.9	68.4	71.4
Cesium	mg/L	<0.0002	NA	NA	NA	NA	<0.0004	NA	NA	NA	<0.0002	<0.0002	<0.0002	NA	NA	NA
Chromium	mg/L	0.03	NA	NA	NA	NA	<0.02	NA	NA	NA	<0.01	<0.01	<0.01	NA	NA	NA
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	0.91	<0.04	1.48	0.03	0.02	0.02	2.88	3.42	4.04
Lead	mg/L	0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.002	<0.0002	<0.0002	<0.0001	0.0002	0.0001	<0.0001	<0.0001	<0.0001
Magnesium	mg/L	61.0	75.0	72.9	77.0	76.0	230	217	228	254	4.8	85.8	88.0	84.3	83.6	84.5
Manganese	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.33	1.43	0.81	0.937	0.019	<0.005	<0.005	0.179	0.182	0.169
Mercury	mg/L	<0.0002	NA	NA	NA	NA	<0.0002	NA	NA	NA	<0.0002	<0.0002	<0.0002	NA	NA	NA
Molybdenum	mg/L	0.03	0.01	0.01	<0.01	0.02	0.04	<0.02	<0.02	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	<0.01	NA	NA	NA	NA	<0.02	NA	NA	NA	<0.01	<0.01	0.01	NA	NA	NA
Potassium	mg/L	18.1	16.8	16.9	16.4	15.5	16.7	20.8	19.7	20.3	12.0	9.80	10.0	10.7	10.7	10.1
Selenium	mg/L	0.0273	0.0279	0.0309	0.0280	0.0270	0.079	0.010	0.0007	0.0002	0.0017	0.0181	0.0168	0.0089	0.0078	0.0081
Sodium	mg/L	79.2	82.7	82.2	83.1	80.2	34.1	29.7	29.4	32.8	202	72.3	72.4	73.9	74.7	73.4
Uranium	mg/L	0.0775	0.1030	0.1080	0.0986	0.0952	0.0578	0.033	0.0861	0.0164	0.0245	0.1070	0.0963	0.0250	0.0198	0.0253
Vanadium	mg/L	0.018	0.014	0.016	0.010	0.015	<0.01	<0.01	<0.01	<0.005	0.025	0.035	0.041	<0.005	<0.005	<0.005
Zinc	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Dissolved Radionuclides																
Gross Alpha	pCi/L	36	56	42	45	51	42	23	7	11	26	46	40	7.8	11	11
Gross Beta	pCi/L	34	33	40	29	33	23.0	24.0	23	20	20	26	23	15	11	13
Radium 226	pCi/L	<0.35	<0.25	<0.4	<0.28	<0.17	12.0	0.54	0.49	0.89	<0.45	<0.23	<0.25	<0.27	0.04	<0.25

Table 3
Groundwater Analytical Results

Well Number		PW-2					PW-3					CDPHE Domestic Water Supply Standards	CDPHE Agricultural Standards	EPA Drinking Water Standards
Sample Date		8/8/2008	8/11/2008	11/13/2008	2/24/2009	4/29/2009	8/6/2008	8/7/2008	11/13/2008	2/26/2009	4/30/2009			
Field Parameters	Unit													
Temperature	°C	18.8	20.0	14.6	15.0	16.2	15.7	16.0	13.7	14.7	15.1	None	None	None
pH	s.u.	7.52	7.49	7.31	7.40	7.39	7.59	7.56	7.58	7.66	7.42	6.5-8.5	6.5-8.5	6.5-8.5
Conductivity	µS/cm	1,294	1,317	1,275	1,391	1,318	1,256	1,245	1,218	1,306	1240	None	None	None
Dissolved Oxygen	mg/L	6.13	5.47	1.52	0.22	0.50	7.68	7.70	7.18	7.39	10.33	None	None	None
ORP	mV	100	90	-124	-210	-204	61	105	95	34	-20	None	None	None
General Chemistry														
Alkalinity as CaCO ₃	mg/L	249	241	246	214	222	243	241	252	242	252	None	None	None
Carbonate as CaCO ₃	mg/L	<2	<2	<2	<2	<2	3	<2	<2	<2	<2	None	None	None
Bicarbonate as CaCO ₃	mg/L	249	241	246	214	222	240	241	252	242	252	None	None	None
Chloride	mg/L	38	36	34	38	39	35	35	35	37	36	250	None	250 ⁽¹⁾
Fluoride	mg/L	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.5	0.5	0.5	4.0	2	4.0(2.0 ⁽¹⁾)
Ammonia as N	mg/L	<0.05	<0.3	0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	None	None	None
Nitrate/Nitrite as N	mg/L	0.66	0.66	0.29	0.03	0.15	0.98	1.04	1.14	0.77	0.68	10.0	100	10
Silica	mg/L	16.7	15.2	12.8	11.2	11.8	18.7	18.9	15.2	15.6	15.3	None	None	None
Sulfate	mg/L	430	430	440	430	450	380	380	380	390	390	250	None	250 ⁽¹⁾ (500 ⁽²⁾)
Sulfide as S	mg/L	<0.02	0.03	<0.02	0.11	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	None	None	None
TOC	mg/L	8	11	NA	NA	NA	7	7	NA	NA	NA	None	None	None
TDS	mg/L	940	930	920	910	940	830	840	860	850	860	None	None	500 ⁽¹⁾
TSS	mg/L	38	43	55	66	49	<5	<5	10	<5	<5	None	None	None
Dissolved Metals														
Aluminum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	None	5	0.05 ⁽¹⁾
Arsenic	mg/L	0.0034	0.0024	0.0007	<0.0005	0.0010	0.0135	0.0138	0.0118	0.0120	0.0118	0.01	0.1	0.01
Barium	mg/L	0.013	0.009	NA	NA	NA	0.032	0.032	NA	NA	NA	2.0	None	2
Boron	mg/L	0.47	0.48	0.47	0.47	0.51	0.39	0.37	0.42	0.43	0.43	None	0.75	None
Cadmium	mg/L	<0.0001	<0.0001	NA	NA	NA	0.0001	<0.0001	NA	NA	NA	0.005	0.01	0.005
Calcium	mg/L	91.4	90.3	88.4	82.5	91.6	67.0	66.9	72.7	73.7	76.3	None	None	None
Cesium	mg/L	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	NA	NA	NA	None	None	None
Chromium	mg/L	<0.01	<0.01	NA	NA	NA	<0.01	<0.01	NA	NA	NA	0.1	0.1	0.1 (total)
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1	0.2	1.3 (1.0 ⁽¹⁾)
Iron	mg/L	0.12	0.12	4.15	21.20	16.30	0.02	0.02	0.06	<0.02	0.04	0.3	5	0.3 ⁽¹⁾
Lead	mg/L	0.0020	0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	0.0010	0.05	0.1	0.015
Magnesium	mg/L	65.6	69.9	71.1	65.6	71.8	80.6	82.4	70.0	71.7	72.7	None	None	None
Manganese	mg/L	0.009	0.012	0.101	0.227	0.198	<0.005	<0.005	0.008	<0.005	<0.005	0.05	0.2	0.05 ⁽¹⁾
Mercury	mg/L	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	NA	NA	NA	0.002	0.01	0.002
Molybdenum	mg/L	0.02	0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	0.02	0.035	None	None
Nickel	mg/L	<0.01	<0.01	NA	NA	NA	<0.01	<0.01	NA	NA	NA	0.1	0.2	None
Potassium	mg/L	17.4	18.3	18.1	17.1	18.0	12.7	12.3	14.3	14.3	14.3	None	None	None
Selenium	mg/L	0.0167	0.0171	0.0126	0.0024	0.0053	0.0208	0.0203	0.0215	0.0209	0.0196	0.05	0.02	0.05
Sodium	mg/L	102	102	102	102	102	100	98.9	102	101	101	None	None	20 ⁽²⁾
Uranium	mg/L	0.0605	0.0638	0.0452	0.0078	0.0204	0.0826	0.0837	0.0797	0.0731	0.0771	0.03	None	0.030 ⁽¹⁾
Vanadium	mg/L	0.010	0.007	<0.005	<0.005	<0.005	0.014	0.021	0.020	0.024	0.019	None	0.1	None
Zinc	mg/L	0.06	0.02	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	5	2	5 ⁽¹⁾
Dissolved Radionuclides												None	None	None
Gross Alpha	µCi/L	31	27	18	<3	21	40	35	32	33	23	15-	None	15 ⁽³⁾
Gross Beta	µCi/L	29	25	21	18	21	27	26	29	19	20	4 mrem/yr	None	4 mrem/yr
Radium 226	µCi/L	<0.27	<0.16	<0.3	<0.19	<0.25	0.26	<0.20	<0.35	0.23	0.48	5 (total)	5 (total)	5 (total)

Table 3
Groundwater Analytical Results - QA/QC Samples

Well Number	DUP-1 (MW-6)	DUP1-72108 (MW-8B)	DUP091008 (MW-9)	DUP-111408 (PW-1)	MW-7 DUP (MW-7)	MW-5 DUP (MW-5)	DUP022409 (PW-2)	DUP1-0409 (MW-6)	DUP2-0409 (PW-3)	Equipment Rinsate - Sample Pump	Equipment Rinsate - Sample Pump	
Sample Date	4/29/2008	7/21/2008	9/10/2008	11/14/2008	2/18/2009	2/19/2009	2/24/2009	4/28/2009	4/30/2009	10/16/2007	7/22/2008	
Field Parameters												
	Unit											
Temperature	°C	18.8	18.4	17.6	15.4	14.6	14.5	15.1	18.7	15.1	NA	NA
pH	s.u.	7.01	6.36	8.23	7.53	7.52	7.96	7.41	6.85	7.47	NA	NA
Conductivity	µS/cm	3,140	3,060	993	1,161	1,338	1,043	1,391	3	1,243	NA	NA
Dissolved Oxygen	mg/L	0.02	6.10	2.12	0.81	4.78	6.82	0.24	0.24	10.33	NA	NA
ORP	mV	-373	-122.8	154	-154	88	86	-209	-355	-20	NA	NA
General Chemistry												
Alkalinity as CaCO ₃	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbonate as CaCO ₃	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO ₃	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia as N	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate/Nitrite as N	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silica	mg/L	11.5	11.6	12.0	10.4	19.2	18.6	11.3	9.9	15.2	NA	0.5
Sulfate	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide as S	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TDS	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TSS	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Metals												
Aluminum	mg/L	<0.03	<0.03	0.08	<0.03	0.03	0.95	<0.03	<0.03	<0.03	NA	<0.03
Arsenic	mg/L	<0.0005	0.002	0.0110	0.0008	0.0062	0.0028	<0.0005	<0.03	0.0124	NA	<0.0005
Barium	mg/L	0.025	0.040	0.046	0.006	0.013	0.065	0.006	0.021	0.009	NA	<0.03
Boron	mg/L	2.39	0.37	2.65	0.30	0.36	0.44	0.47	2.48	0.43	NA	<0.01
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	<0.0001	<0.0001	0.0001	NA	<0.0001
Calcium	mg/L	129	515	8.9	68.3	103.0	70.3	83.3	139	75.8	NA	0.7
Cesium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	<0.0002
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01
Iron	mg/L	<0.02	0.13	0.03	2.09	<0.02	0.80	21.40	<0.02	0.03	NA	0.03
Lead	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0020	<0.0002	<0.0001	0.0014	NA	<0.0005
Magnesium	mg/L	314	237	4.8	83.5	76.7	58.4	65.9	327	72.6	NA	<0.2
Manganese	mg/L	0.012	0.34	0.042	0.160	<0.005	0.172	0.227	<0.005	<0.005	NA	<0.005
Mercury	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	<0.0002
Molybdenum	mg/L	0.02	0.01	0.06	<0.01	<0.01	<0.01	<0.01	0.01	0.02	NA	<0.01
Nickel	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	NA	<0.01
Potassium	mg/L	107	17.0	12.2	10.4	16.5	16.8	17.1	98.9	15.3	NA	<0.03
Selenium	mg/L	0.1440	0.081	0.0018	0.0097	0.0256	0.0207	0.0025	0.0288	0.0195	NA	<0.001
Sodium	mg/L	209	34.7	202	73.2	83.5	89.5	103	196	100	NA	<0.3
Uranium	mg/L	<0.0001	0.0589	0.0249	0.0286	0.0987	0.1020	0.0078	<0.0001	0.0759	NA	<0.0001
Vanadium	mg/L	<0.005	<0.005	0.027	<0.005	<0.005	0.015	<0.005	<0.005	0.020	NA	<0.005
Zinc	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	NA	<0.01
Dissolved Radionuclides												
Gross Alpha	pCi/L	NA	54	20	7.2	40	42	5.4	<8.6	30	1	NA
Gross Beta	pCi/L	NA	8.5	31	11	31	36	15	110	26	<2.0	NA
Radium 226	pCi/L	NA	7.8	0.18	-0.07	6.3	0.25	<0.22	1.7	0.35	<0.2	NA

Table 3

Groundwater Analytical Results - Abbreviations and Notes

Abbreviations:

°C	degrees Celsius
s.u.	standard units
µS/cm	microsiemens per centimeter
mg/L	milligrams per liter
mV	millivolt
pCi/L	picoCuries per liter
NA	Not Analyzed, see note below

Notes:

- (1) Secondary Drinking Water standards
- (2) US EPA Drinking Water Advisory Level
- (3) Gross alpha standards exclude uranium and radon, the analytical results include uranium and radon

The initial sample from each well was analyzed for an extended list of parameters per the Groundwater Sampling Work Plan, rev 2, date May 21, 2008.

References:

CDPHE Domestic Water Supply and Agricultural Standards are published in CDPHE Water Quality Control Commission 5 CCR 1002-41, Regulation no. 41, The Basic Standards for Ground Water, as amended January 14, 2008

U.S. EPA Standards are published in 2006 Edition of the Drinking Water Standards and Health Advisories, EPA 822-R-06-013, as updated August 2006