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DIVISION OF
RECLAMATION MINING & SAFETY

April 18, 2012

G. Russell Means
Colorado Division of Reclamation, Mining and Safety
101 South 3rd, Suite 301
Grand Junction, CO 81501

Transmittal: First Quarter 2012 Hydrological Report, File No. M-2007-044, Whirlwind Mine, Mesa County, Colorado

Dear Russ:

Attached is the First Quarter 2012 Hydrological Report for the Whirlwind Mine. This report was prepared to comply with conditions set forth in the Environmental Protection Plan of the Whirlwind Mine Permit Application, revised March 2008.

Please let me know if you require any additional information at this time.

Sincerely,

Ryan Ellis

Ryan Ellis, EIT
Environmental Engineer

Attachment

Cc: Scott Gerwe, BLM
Bruce Smith, Western Water & Land
Frank Filas, Dick White (Energy Fuels)

Energy Fuels, Inc.
www.energyfuels.com

44 Union Blvd., Suite 600
Lakewood, Colorado 80228
Phone: 303-974-2140
Fax: 303-974-2141

Energy Fuels Resources Corporation

Whirlwind Mine

First Quarter 2012
Hydrological Monitoring Report

April 2012

Table of Contents

Summary of Quarterly Hydrological Monitoring

Monitoring Activities

The following field monitoring activities were performed during the First Quarter 2012 (January through March 2012):

- March 28, 2012 – Whirlwind decline mine water was measured for elevation and field parameters. DP Spring and PR Spring were measured for flow rate and field parameters. Monitoring well W-1 was measured for water level.

Whirlwind Treatment Plant

While the treatment plant is in operation, mine water from the Whirlwind Mine is pumped to the surface, stored in the untreated water tank, treated and discharged to the middle tributary of Lumsden Creek. Discharge of treated water from the Whirlwind Mine is allowed in accordance with Colorado Discharge Permit System (CDPS) permit number CO-0047562. Following the December 2009 batch treatment of mine water, collection of mine water for treatment was suspended at the Whirlwind Mine. Since then, mine water has been allowed to accumulate in the mine workings. Refer to Section 1 of this report for a summary of mine water treatment.

Whirlwind Mine and Packrat Mine

The inflow within the Whirlwind Mine decline cannot be measured directly because it occurs over approximately 100 feet of the decline and within the drifts. The water collects in the mine sump, and is subsequently pumped into the untreated water tank on the surface when the mine is operating. Currently inflow is calculated based on the approximate elevation level of accumulated mine water, and the void volume of the workings. Field parameters were measured on March 28, 2012. The measured field parameters are consistent with historical records. The estimated flow rate for the First Quarter 2012 of 0.7 gpm is lower than historically recorded flows.

The flow rate and field parameters from the Whirlwind Mine water are included in Section 2. Analytical data from the 7 historical samples collected from the Whirlwind Mine are summarized in Table 1.

Characterization of mine water in the Packrat Mine could not be conducted because the mine is not yet accessible. Section 3 of this report is reserved for field data collected from the Packrat Mine at such time that is becomes accessible and is monitored.

DP Spring

The flow and field parameters were measured at DP Spring on March 28, 2012. The flow was estimated by determining the time required to fill a 5-gallon bucket. Field parameters from DP Spring were measured in the stock tank located at the spring. The flow rate and field parameters at DP Spring are consistent with historical records.

Previous and current flow rates and field parameters at DP Spring are summarized in Section 4.

PR Spring

The flow and field parameters were measured at PR Spring on March 28, 2012. The flow at PR Spring was estimated by determining the time required to fill a 5-gallon bucket. Field parameters from PR Spring were measured in the stock tank located at the spring. The flow rate and field parameters at PR Spring are consistent with historical records.

Previous and current flow rates and field parameters at PR Spring are summarized in Section 5. Historical analytical data from PR Spring is summarized in Table 2.

Monitoring Well W-1

Monitoring Well W-1 was installed on October 12, 2008 for the purpose of characterizing and monitoring groundwater quality downgradient of the waste rock storage area. Monitoring Well W-1 was measured for the static groundwater level on March 28, 2012. The water level at Monitoring Well W-1 is consistent with previous measurements.

Historical water levels and field parameters are summarized in Section 6. Historical analytical data from Monitoring Well W-1 are summarized in Table 3.

Lumsden Canyon Seep

The Lumsden Canyon Seep (also referred to in earlier reports as Lumsden Canyon Spring) was monitored for field parameters and sampled in June and December of 2008. This location was monitored by Western Water & Land, Inc. during hydrologic reconnaissance required by BLM stipulations to the mine permit.

The field parameters are summarized in Section 7 and the analytical data from the Lumsden Canyon Seep samples are summarized in Table 4. No further sampling or field parameter measurement events are scheduled at this time.

Rajah 49 Thornton Portal

Water was observed flowing from the Rajah 49 Thornton Portal and sampled in 2009, 2010 and 2011. The estimated flow rate and measured field parameters are included in Section 8 of this report and the analytical data is summarized in Table 5. Energy Fuels will continue to include the Thornton Portal in future annual seep surveys and collect samples for analysis if discharge is observed.

Waste Rock

No ore was mined and no waste rock was produced in the First Quarter 2012. Because the Whirlwind Mine is currently on stand-by status with only maintenance activities being conducted, Energy Fuels has suspended the quarterly waste rock sample collection until such time that mining operations resume and waste rock removal from the mine commences.

Production rates of ore and waste rock are summarized in Sections 9 and 10, respectively. Analytical data from previously collected waste rock samples is summarized in Table 6.

Sediment Pond

The sediment pond has been monitored since its construction in November 2008 in accordance with DRMS stipulations. Although storm events and significant snow melt events have occurred, none have resulted in stormwater discharge from the pond. As a

result, no stormwater samples have been collected from the pond to date. Energy Fuels will continue to monitor the sediment pond for discharge and will collect samples in the event that a discharge is witnessed.

Dolores River

The Dolores River is required to be monitored for selenium upstream and downstream from the confluence of Lumsden Creek in accordance with BLM stipulations to the mine permit when the following conditions are met:

1) The Whirlwind Mine treatment plant is discharging treated water,
2) There is continuous flow from the middle tributary of Lumsden Creek to the Dolores River, and
3) Selenium levels have been in exceedance of the CDPS permit effluent limits in the past two years.

Because water treatment of mine water has been suspended, it was unnecessary to monitor Lumsden Creek for discharge to the Dolores River in the First Quarter 2012 to determine if samples were required. Energy Fuels will commence monitoring the Dolores River for discharge from Lumsden Creek and take samples, as necessary, at such time that treatment and discharge of mine water resumes.

Hydrological Monitoring Summary

Refer to Table 7 for the hydrological compliance monitoring summary and status for Whirlwind Mine.

DATA TABLES

WHIRLWIND MINE, PERMIT NO. M-2007-044
FOURTH QUARTER 2011 HYDROLOGICAL REPORT

1. Mine Water Treatment & Discharge

Month	Volume (gal)	Comments
2007 Total	**549,868**	
2008 Total	**1,240,889**	
2009 Total	**961,406**	**Pumping and treatment suspended as of Dec. 2009**
2010 Total	**0**	
2011 Total	**0**	
Jan-12	**0**	
Feb-12	**0**	
Mar-12	**0**	
2011 Total	**0**	
Grand Total	**2,752,163**	

2. Whirlwind Decline

Monitoring Date	Sample Location	Inflow Rate[(1)] (gpm)	Field pH (s.u.)	Temperature (deg. C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Oxygen-Reduction Potential (mV)	Comments
3/10/2008	WW Sump	2.4	8.30	11.0	NM	NM	NM	See Table 1
6/19/2008	WW Sump	2.8	10.26	11.5	0.78	592	114	See Table 1
9/8/2008	WW Sump	2.2	9.11	11.0	8.48	649	62	See Table 1
12/16/2008	WW Sump	1.7	8.75	10.7	5.22	609	149	See Table 1
3/5/2009	WW Sump	2.1	8.52	11.1	8.24	618	151	No analytical samples collected
4/20/2009	WW Sump	2.2	8.41	11.2	6.68	626	177	No analytical samples collected
8/11/2009	WW Sump	1.6	8.76	11.9	6.44	599	152	No analytical samples collected
12/1/2009	WW Sump	1.4	8.61	11.5	6.54	624	160	No analytical samples collected
2/2/2010	WW Decline	2.0	7.06	11.3	7.02	597	170	No analytical samples collected
4/21/2010	WW Decline	1.9	8.07	12.3	6.76	576	201	See Table 1
9/8/2010	WW Decline	1.7	8.65	11.9	4.53	592	133	No analytical samples collected
11/4/2010	WW Decline	3.4	8.49	11.6	2.22	578	207	No analytical samples collected
2/7/2011	WW Decline	1.7	8.49	11.3	2.26	590	151	See Table 1
6/20/2011	WW Decline	1.2	8.17	11.7	2.42	620	159	No analytical samples collected
8/20/2011	WW Decline	1.3	8.54	11.6	2.54	644	163	No analytical samples collected
10/25/2011	WW Decline	1.0	8.48	11.5	2.63	618	157	No analytical samples collected
11/9/2011	WW Decline	1.0	8.19	11.5	3.09	631	234	See Table 1
3/28/2012	WW Decline	0.7	8.32	11.5	2.41	592	173	See Table 1

(1) From First Quarter 2008 to Fourth Quarter 2009, the inflow rate was estimated over the quarter by calculating the volume of water pumped out of the mine and treated and estimations of the volume of water evaporated off the untreated water tank and brought out of the mine as moisture in waste rock, ore, and ventilated air. As of the First Quarter 2010, water inflow is estimated based on the approximate water elevation and the void volume of the mine workings.

3. Packrat Mine

Not Accessible

4. DP Spring

Monitoring Date	Sampled (Y/N)	Inflow Rate (gpm)	Field pH (s.u.)	Temperature (deg. C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Oxygen-Reduction Potential (mV)	Comments
3/10/2008	No	6 to 7	NM	NM	NM	NM	NM	Sunny, Ave. of 2 feet snowpack
6/19/2008	No	7.2	7.42	11.0	7.22	524	126	Sunny, Dry
9/8/2008	No	5.2	8.00	11.9	9.49	544	166	Sunny, Dry
12/15/2008	No	8.2	7.96	4.8	9.42	532	97	Snowing, 4" snowpack
2/10/2009	No	8.5	5.22	4.7	9.30	562	126	Sunny, Cold, 3-4" snowpack
4/20/2009	No	8.3	7.64	6.6	9.16	546	190	Sunny, Dry
8/11/2009	No	5.9	7.68	12.0	8.25	532	190	Sunny, Hot, Dry
12/1/2009	No	7.9	8.11	4.8	10.54	548	115	Cold, clear skies
2/2/2010	No	7.9	6.73	4.7	10.71	526	177	Cold, clear skies, 3 ft of snow
6/2/2010	No	8.3	7.53	8.8	11.62	554	200	Sunny, Dry
7/28/2010	No	6.8	7.68	12.6	7.57	535	114	Sunny, Dry
11/4/2010	No	7.0	7.94	7.1	8.66	535	190	Sunny, Dry
4/18/2011	No	8.1	7.59	6.6	9.23	533	NM*	Make-up for missed 1Q11 monitoring, Sunny, warm, clear skies
5/24/2011	No	9.2	7.81	8.0	8.43	551	62	Light showers, warm
8/15/2011	No	7.9	7.59	12.2	7.07	560	203	Partly cloudy, warm
10/25/2011	No	8.1	7.51	11.8	7.64	545	198	Overcast, light rain
3/28/2012	No	7.7	7.62	10.8	7.98	568	186	Dry and calm

* - ORP Probe broke during 4/18/11 Monitoring Event.

5. PR Spring

Monitoring Date	Sampled (Y/N)	Inflow Rate (gpm)	Field pH (s.u.)	Temperature (deg. C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Oxygen-Reduction Potential (mV)	Comments
3/10/2008	Yes	4 to 5	8.1	8.6	NM	NM	NM	Sunny, Ave. of 1 foot snowpack, see Table 2
6/19/2008	Yes	4.7	7.90	13.8	9.95	762	140	Sunny, Dry, see Table 2
9/8/2008	Yes	4.1	8.36	13.4	8.39	883	166	Sunny, Dry, see Table 2
12/15/2008	Yes	4.5	8.31	9.1	8.20	790	-35	Overcast, 4" snowpack, see Table 2
2/10/2009	Yes	4.5	6.68	9.2	7.27	923	90	Sunny, Cold, 1-2" snowpack, see Table 2
4/20/2009	Yes	4.5	8.24	12.3	8.45	898	195	Sunny, Dry, see Table 2
8/11/2009	No	4.7	8.48	13.9	8.25	889	133	Sunny, Hot, Dry
12/1/2009	No	1.5	9.15	8.6	11.54	881	116	Flow restricted by vegetation
6/2/2010	Yes	2.3	8.52	13.2	2.27	880	172	Flow restricted by vegetation, see Table 2
7/28/2010	No	5.2	8.44	13.4	8.04	880	99	Sunny, Dry, Vegetation removed
11/4/2010	No	5.1	8.47	10.1	8.51	856	157	Sunny, Dry
4/18/2011	No	4.3	8.46	10.0	9.40	822	NM*	Make-up for missed 1Q11 monitoring, Sunny, warm, clear skies
5/24/2011	Yes	4.8	8.60	10.8	9.09	858	35	Lt showers, warm, see Table 2
8/15/2011	No	4.2	8.43	12.1	6.86	871	225	Partly cloudy, warm
10/25/2011	No	4.2	8.38	11.7	7.14	844	214	Overcast, light rain
3/28/2012	No	4.3	8.42	10.6	6.99	854	199	Dry and calm

* - ORP Probe broken during 4/18/11 Monitoring Event.

Note: PR Spring not accessible in February or March, 2010 due to deep snow

6. Monitoring Well W-1

Monitoring Date	Sampled (Y/N)	Water Level (ft BTOC)	Field pH (s.u.)	Temperature (deg. C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Oxygen-Reduction Potential (mV)	Comments
10/21/2008	Yes	73.22	7.96	10.5	0.95	1543	124	Sunny, Dry, see Table 3
12/16/2008	Yes	74.44	7.73	9.9	1.47	1329	187	Overcast, 4" snow, see Table 3
2/10/2009	Yes	74.73	7.82	10.1	0.93	1251	5	Sunny, Cold, 1-2" snowpack, see Table 3
4/20/2009	Yes	75.00	7.34	10.9	0.13	1209	80	Sunny, Dry, see Table 3
6/24/2009	Yes	74.96	7.63	10.9	--	1157	--	Raining, cool, see Table 3
9/11/2009	Yes	74.84	7.91	11.3	0.23	1219	-75	Sunny, dry, see Table 3
12/10/2009	Yes	74.69	7.66	9.8	1.65	1182	80	Cold, overcast, see Table 3
2/4/2010	Yes	74.40	7.01	10.7	0.61	1240	-74	Cold, clear skies, 3 ft of snow, see Table 3
6/7/2010	Yes	73.98	7.73	12.2	0.25	1239	-111	Hot, clear skies, dry, see Table 3
7/28/2010	No	73.48	NM	NM	NM	NM	NM	Water level measurement only
11/4/2010	No	74.00	NM	NM	NM	NM	NM	Water level measurement only
4/18/2011	No	73.94	NM	NM	NM	NM	NM	Make-up for missed 1Q11 monitoring
5/24/2011	Yes	73.77	7.85	11.0	0.11	1210	10	Ptly cloudy, warm, see Table 3
8/16/2011	No	73.72	NM	NM	NM	NM	NM	Water level measurement only
10/25/2011	No	73.94	NM	NM	NM	NM	NM	Water level measurement only, Overcast, light rain
3/28/2012	No	73.98	NM	NM	NM	NM	NM	Water level measurement only, weather dry and calm

7. Lumsden Canyon Seep

Sample Date	Sampled (Y/N)	Inflow Rate (gpm)	Field pH (s.u.)	Temperature (deg. C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Oxygen-Reduction Potential (mV)	Comments
6/19/2008	Yes	NM	7.18	18.4	5.56	825	214	Sunny, Dry, see Table 4
12/4/2008	Yes	NM	7.47	11.6	6.69	985	99.5	Overcast, Cold, Dry, see Table 4

Whirlwind Mine

Sampling Point	Schedule	Status
Treatment Plant Discharge	Sample weekly during discharge	Ongoing; sampling conducted as required during discharge events. Treatment and discharge has been suspended as of December 9, 2009 until further notice.
Whirlwind Decline (Sump)	Sample for 2 quarters and measure flow for 4 quarters	Completed; 7 samples and 18 flow/field parameter measurements collected to date.
Packrat Mine Water	Sample for 2 quarters when accessible	Not Started; the Packrat Mine is not yet accessible.
DP Spring	Measure flow quarterly	Ongoing; 17 flow/field parameter measurements recorded to date.
PR Spring	Sample and measure flow quarterly for 5 quarters	Completed; 6 samples and flow/field parameter measurements collected.
	Measure flow quarterly and sample annually thereafter	Ongoing; 10 quarterly flow/field parameter measurements and 2 annual samples collected to date.
Monitoring Well W-1	8 samples over 15 months	Completed; 8 baseline samples collected to date.
	Measure quarterly and sample annually thereafter	Ongoing; 8 quarterly water level measurements and 2 annual samples collected to date.
Lumsden Canyon	As needed in support of Hydrogeological Report to be prepared by Western Water & Land	Completed; Two samples collected from 3 points in Lumsden Canyon. No further sampling events are scheduled at this time.
Seep Surveys	Annually	Ongoing; 5 seep surveys completed.
Rajah 49 Mine, Thornton Portal	Sample as discharge is observed in annual seep surveys	Ongoing; 3 samples collected to date.
Waste Rock	Collect grab sample quarterly and composite annually for analysis	Suspended; 1 annual composite sample collected to date. Sampling suspended until mining resumes.
Sediment Pond Sampling	Sample quarterly if discharging	Ongoing Monitoring; no samples collected to date.
Dolores River Sampling	Sample during treatment discharge if flowing into Dolores River	Suspended; not required until water treatment plant resumes operation. No samples collected to date.

Table 7 Hydrological Monitoring Summary

8. Rajah 49 Mine Thornton Portal

Sample Date	Sampled (Y/N)	Inflow Rate (gpm)	Field pH (s.u.)	Temperature (deg. C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Oxygen-Reduction Potential (mV)	Comments
9/21/2009	Yes	1-2 gpm	8.58	10.6	7.71	938	130	Sunny, dry, see Table 5
6/30/2010	Yes	1-2 gpm	8.9	7.8	10.12	889	153	Hot, clear skies, dry, see Table 5
5/24/2011	Yes	negligible	9.16	11.1	8.03	906	120	Ptly cloudy, warm, see Table 5

9. Ore Production and Stockpiling

Month	Mined (ton)	Shipped (ton)	Stockpiled (ton)
2008 Total	**0**	**0**	**0**
2009 Total	**0**	**0**	**0**
2010 Total	**0**	**0**	**0**
2011 Total	**0**	**0**	**0**
Jan-12	0	0	0
Feb-12	0	0	0
Mar-12	0	0	0
2012 Total	**0**	**0**	**0**
Grand Total	**0**	**0**	**0**

10. Waste Production and On-Site Disposal

Month	Mined (ton, dry)
2008 Total	**4,259**
2009 Total	**0**
2010 Total	**0**
2011 Total	**0**
Jan-12	0
Feb-12	0
Mar-12	0
2012 Total	**0**
Grand Total	**4,259**

Whirlwind Mine Water

Sample Information	General Parameters							Major Ions (mg/L)										Metals (mg/L) (i)				
	Flow Rate (gpm)	TSS (mg/L)	TDS (mg/L)	pH (s.u.)	Hard (mg/L)	Alk (mg/L)	Cond (µS/cm)	Na	Ca	Mg	K	Cl	F	NO_3	P	HCO_3	SO_4	Al	Sb	As	Ba	Be
Whirlwind Mine																						
WW-1, EFRC, 9/11/06	NA		390	7.5	57	302	708	144	13	6	10.5	29	0.39	0.72	0.01	365	19			0.015	0.3	
Whirlwind. EFRC, 10/24/06	NA		382	8.3		280		140	12.4	4.8	9.0	20	0.6	1.2			36	1.5		0.023	0.2	
WW Pool, EFRC, 1/17/07	NA	21.3	340	8.60	43.8	266	595	123	9.2	5.0	9.3	17	0.3	0.5	<0.1	314	28	0.2	<0.05	0.027	0.1	<0.01
Whirlwind Pool, EFRC, 4/27/07	NA	<1.0	358	8.72	48.5	268		106	10.2	5.6	9.9	14	0.5	0.5	<0.1	311	27	0.1	<0.0006	0.026	0.1	<0.01
WW Sump, EFRC, 3/10/08	2.4	3,540	661	8.21		296		143	116	22.9	21.9	53	0.4	4.3	2.85	361	38			0.062		<0.01
WW Sump, EFRC, 6/19/08	2.8	132	536	10.0		252	592	150	4	1	6	17	0.7	1.9	0.25	90	88			0.046	0.1	<0.01
WW Sump, EFRC, 9/8/08*	2.2	26	460	9.11		260	649	138	10	7	8	16	0.5	1.8	0.08	318	62			0.044	0.1	<0.01
WW Sump, EFRC, 12/16/08	2.2			8.75			609															
WW Decline, EFRC, 4/21/10	1.9			8.07			576															
WW Decline, EFRC, 2/7/11	1.7			8.49			590															
WW Decline, EFRC, 11/9/11	1.0		356	8.33			631							0.3			42					
Whirlwind Decline (Brushy Basin Formation)																						
Whirlwind Seep, EFRC, 5/3/07	2 to 4		360	8.64		278		119	10.7	5.8	21.8	33	0.5	0.2	<0.3	326	30	0.1		0.024	0.2	
"Upper" Whirlwind Sump, EFRC, 5/3/07	NA		574	8.69		362		188	9.8	4.7	12.0	14	1.6	3.1	<0.3	421	93	1.29		0.032	<0.1	
Colorado Water Standards																						
Ground Water, Domestic				6.5 to 8.5								250	4.0	10.0			250		0.006	0.01	2.0	0.004
Ground Water, Agriculture				6.5 to 8.5									2	100				5		0.1		0.1
Surface Water, Stream (e,f)				6.5 to 9.0													250			0.100		0.100
Surface Water, Domestic				5.0 to 9.0								250	2.0	10.0			250			0.1(g)	1.0	0.004
Surface Water, Agriculture														100						0.1		0.1
EPA Water Standards (h)																						
Maximum		30		6.0 to 9.0																		
Average		20		6.0 to 9.0																		

Notes:

1. Water standards are provided for reference only. These standards do not apply to the mine water unless it is discharged or used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standard are shaded for reference purposes. Shading indicates that the measured level is elevated compared to certain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

* Nitrate sample recollected on 9/18/08 due to hold time exceedance on 9/8/08 sample

Table 1 Water Quality Data
Whirlwind Mine Water

Whirlwind Mine Water

Sample Information	Metals (mg/L) (i) *(continued)*																Radionuclides (pCi/L) (i)					
	B	Cd	Cr	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	U	Gross alpha	Gross Beta	Ra-226	Ra-228	Ra-226 Ra-228
Whirlwind Mine																						
WW-1, EFRC, 9/11/06	0.04	<0.0001	<0.001	<0.001	0.07	<0.001	0.025	<0.00001	0.005		0.040	<0.0001		0.098	<0.01	0.06	66.3			4.6		
Whirlwind. EFRC, 10/24/06		<0.01		<0.01	1.07	<0.005	0.03		<0.1	<0.05	0.016			0.189	<0.1	<0.01	128			9.7		
WW Pool, EFRC, 1/17/07	0.1	<0.01	<0.05	<0.01	0.09	<0.05	<0.01	<0.001	<0.1	<0.05	0.030	<0.01	<0.1	0.130	<0.1	<0.01	88.0	92.3	28.6	3.2	2.0	5.2
Whirlwind Pool, EFRC, 4/27/07	0.1	<0.01	<0.05	<0.01	0.05	<0.05	<0.01	<0.001	<0.1	<0.05	0.022	<0.01	<0.001	0.161	<0.1	<0.01	109	101		6.9	<1.0	<7.9
WW Sump, EFRC, 3/10/08	0.2	<0.01	0.08			0.11	0.93		<0.1	<0.05	0.024			0.210	0.6	0.26	142			40.1	1.4	41.5
WW Sump, EFRC, 6/19/08	0.2	<0.01	<0.05			<0.05	0.09		<0.1	<0.05	0.020			0.104	<0.1	0.05	70.4			2.1	<1.2	<3.3
WW Sump, EFRC, 9/8/08*	0.1	<0.01	<0.05			<0.05	0.03		<0.1	<0.05	0.030			0.463	0.3	0.18	313			16	<1.3	<17
WW Sump, EFRC, 12/16/08											0.015											
WW Decline, EFRC, 4/21/10											0.017									5.3	<1.2	<6.5
WW Decline, EFRC, 2/7/11											0.029									5.1	<0.87	<6.0
WW Decline, EFRC, 11/9/11	<0.1	<0.001	<0.01		0.15	<0.01	0.012			<0.01	0.031			0.211	0.014	0.134	143			5.0	0.9	5.9
Whirlwind Decline (Brushy Basin Formation)																						
Whirlwind Seep, EFRC, 5/3/07		<0.01		<0.01	0.08	<0.05	<0.01		<0.1	<0.05	0.023			0.0828	<0.1	<0.01	55.48			6.5	0.9	7.4
"Upper" Whirlwind Sump, EFRC, 5/3/07		<0.01		<0.01	0.55	<0.05	<0.01		<0.1	<0.05	0.040			0.109	<0.1	<0.01	73.0					
Colorado Water Standards																						
Ground Water, Domestic		0.005	0.1	1	0.3	0.05	0.05	0.002	0.035	0.1	0.05	0.05	0.002	0.03		5	20	15(a)		5(c)	5(c)	5
Ground Water, Agriculture	0.75	0.01	0.1	0.2	5	0.1	0.2	0.01		0.2	0.02				0.1	2			(b)			5
Surface Water, Stream (e,f)	0.75 dis	0.010	0.100	0.200	0.3 dis	0.100	0.200			0.200	0.200			(d)		2				5(c)	5(c)	
Surface Water, Domestic		0.005	0.05	1.0	0.3	0.05	0.05	0.002		0.1	0.05	0.1	0.0005	0.03		5	20			5(c)	5(c)	5
Surface Water, Agriculture	0.75	0.01	0.1	0.2		0.1	0.2			0.2	0.02					2						
EPA Water Standards (h)																						
Maximum														4		1.0				10 dis, 30 tot		
Average														2		0.5				3 dis, 10 tot		

Notes:

1. Water standards are provided for reference only. These standards do not apply to the mine water unless it is discharged or used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standard are shaded for reference purposes. Shading indicates that the measured level is elevated compared to certain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

* Nitrate sample recollected on 9/18/08 due to hold time exceedance on 9/8/08 sample

PR Spring

Sample Information	General Parameters							Major Ions (mg/L)										Metals (mg/L) (i)				
	Flow (gpm)	TSS (mg/L)	TDS (mg/L)	pH (s.u.)	Hard (mg/L)	Alk (mg/L)	Cond (µS/cm)	Na	Ca	Mg	K	Cl	F	NO_3	P	HCO_3	SO_4	Al	Sb	As	Ba	Be
PR Spring (aka. Pack Rat Spring, Lower Spring) - Salt Wash																						
Pack Rat Spring, Umetco, 3/21/1980	–		630	7.6				135	23.6	28.2		22				327	109					
Packrat Sp., BLM, 7/7/93	6		830	7.8	258	328	980	138	47	34	6.6	9	0.49	1.39	0.03	397	195			0.210	0.06	
DP-93-6, Peel, 9/9/93	–		552	7.87				158	36.5	22.5	6.2	28				292	162			0.281		
Pack Rat Spring, Umetco, 6/26/96	9	0		7.95			600													0.42		
PRSPRING, WWE, 7/15/97	6.3	<10	528	7.99		308		168	26	15.5	<5	23		0.8		308	125	<0.1		0.379	0.05	<0.05
PRSPRING, WWE, 10/26/97	7.9	<10	492			311		148	23.6	14	6	23		0.8		311	126	<0.05		0.411	0.03	<0.002
Pack Rat Spring, Umetco 6/1/99	5.3	14	509	7.47			894	133	26.4	15	5	24				306	120			0.382		
Pack Rat Spring, Umetco 5/24/00	–	<10	460	8.24		310		160	26	15	<5	22				310	110	<0.05		0.46	0.033	<0.002
Lower Spring, EFRC, 10/24/06	–		538	8.20		312		163	24.8	15.9	5.5	21	0.6	0.4			110	<0.1		0.369	<0.1	
LS Tank, EFRC, 1/17/07	–	<1.0	500	8.36	126	315	847	160	24.6	15.6	5.5	22	0.4	0.4	<0.1	384	120	<0.1	<0.05	0.394	<0.1	<0.1
PS Spring , EFRC, 4/27/07	4.3	<1.0	540	8.38	108	318		147	21.5	13.2	5.2	22	0.6	0.4	<0.1	379	116	<0.1	0.0007	0.357	<0.1	<0.01
PR Springs , EFRC, 3/10/08	4.25	<1	537	8.18		324		162	21.1	13.4	5.6	21	0.4	0.4	0.037	395	121			0.388	<0.1	<0.01
PR Springs , EFRC, 6/19/08	4.7	<1	553	8.25		300	762	172	24	15	6	25	0.4	0.4	0.02	366	122			0.413	<0.1	<0.01
PR Springs , EFRC, 9/8/08*	4.1	<1	534	8.36		303	883	173	23	15	5	23	0.4	0.5	0.02	370	125			0.510	<0.1	<0.01
PR Springs , EFRC, 12/15/08	4.5	8	572	8.31		311	790	171	24	15	5	20	0.4	0.4	0.01	359	123			0.394	<0.1	<0.01
PR Springs , EFRC, 2/10/09	4.5	<1	518	6.68		310	923	152	22	14	4	20	0.4	0.4	0.01	378	120			0.400	<0.1	<0.01
PR Springs , EFRC, 4/20/09	4.5	<4	542	8.24		325	898	150	22	14	5	18	0.5	<0.1	<0.01	387	122			0.384	<0.1	<0.01
PR Springs , EFRC, 6/2/10	2.3	<4	544	8.52		331	880	165	23	14	6	21	0.4	0.4	0.025	384	123			0.406	<0.1	<0.01
PR Springs , EFRC, 5/24/11	4.8	<4	523	8.60		322	858	166	25	14	6	22	0.4	0.4	0.025	393	116			0.425	<0.1	<0.01
Colorado Water Standards																						
Ground Water, Domestic				6.5 to 8.5								250	4.0	10.0			250		0.006	0.01	2.0	0.004
Ground Water, Agriculture				6.5 to 8.5									2	100				5		0.1		0.1
Surface Water, Stream (e,f)				6.5 to 9.0													250			0.100		0.100
Surface Water, Domestic				5.0 to 9.0								250	2.0	10.0			250			0.1(g)	1.0	0.004
Surface Water, Agriculture														100						0.1		0.1
EPA Water Standards (h)																						
Maximum		30		6.0 to 9.0																		
Average		20		6.0 to 9.0																		

Notes:

1. Water standards are provided for reference only. These standards do not apply to the spring water unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standard are shaded for reference purposes. Shading indicates that the measured level is elevated compared to cetain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

* Nitrate sample recollected on 9/18/08 due to hold time exceedance on 9/8/08 sample

PR Spring

Sample Information	Metals (mg/L) (i) *(continued)*																Radionuclides (pCi/L) (i)					
	B	Cd	Cr	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	U	Gross alpha	Gross Beta	Ra-226	Ra-228	Ra-226 Ra-228
PR Spring (aka. Pack Rat Spring, Lower Spring) - Salt Wash																						
Pack Rat Spring, Umetco, 3/21/1980														0.225			152					
Packrat Sp., BLM, 7/7/93	0.18	0.0004	0.001	<0.001	0.10	<0.001	0.005	<0.00001	0.120		<0.001	<0.0001		1.80		<0.001	1,220	237	210	7.4		
DP-93-6, Peel, 9/9/93		<0.005	<0.01	<0.01	<0.02		<0.01	<0.0002			0.309			1.68		<0.005	1,140			5.4		
Pack Rat Spring, Umetco, 6/26/96														1.7		<0.025	1,200			3.7	<0.1	<3.8
PRSPRING, WWE, 7/15/97	0.1	0.003	<0.05	<0.01	<0.10	<0.002	<0.05	<0.0002		<0.05	0.193	<0.05		1.6	0.34	<0.025	1,100	1,660	353	3	0.8	3.8
PRSPRING, WWE, 10/26/97	<0.1	<0.005	<0.01	<0.01	<0.055	<0.0045	<0.005	<0.0002		<0.04	0.217	<0.01		1.6	0.34	<0.01	1,100	1 290	206	3	0.3	3.3
Pack Rat Spring, Umetco 6/1/99											0.187			1.4		<0.025	950			3.3	0.3	3.6
Pack Rat Spring, Umetco 5/24/00	0.12	<0.001	<0.01	<0.01	<0.01	<0.05	0.0078	<0.0002		<0.04	0.21	<0.01		1.5	0.32	0.030	1,000	1,300	180	4.0	<0.025	4.0
Lower Spring, EFRC, 10/24/06		<0.01		<0.01	<0.03	<0.05	<0.01		0.1	<0.05	0.160			1.61	0.3	0.01	1,090			3.6		
LS Tank, EFRC, 1/17/07	0.1	<0.01	<0.05	<0.01	<0.03	<0.05	<0.01	<0.001	0.1	<0.05	0.202	<0.01	<0.1	1.15	0.3	<0.01	779	869	219	3.9	1.7	5.6
PS Spring , EFRC, 4/27/07	0.1	<0.01	<0.05	<0.01	<0.03	<0.05	<0.01	<0.001	0.1	<0.05	0.168	<0.01	<0.001	1.40	0.3	<0.01	948	804		9.2	<1.0	<10.2
PR Springs , EFRC, 3/10/08	0.1	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.183			1.50	0.3	<0.01	1,020			3.5	<1.6	<5.1
PR Springs , EFRC, 6/19/08	0.1	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.203			1.53	0.3	<0.01	1,040			3.4	<1.2	<4.6
PR Springs , EFRC, 9/8/08*	0.2	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.243			1.26	0.4	<0.01	853			2.8	<1.3	<4.1
PR Springs , EFRC, 12/15/08	0.1	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.184			1.50	0.3	<0.01	1,020			3.8	2.2	6
PR Springs , EFRC, 2/10/09	<0.1	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.189			1.58	0.4	<0.01	1,070			3.6	<0.3	<4.9
PR Springs , EFRC, 4/20/09	<0.1	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.186			1.45	0.3	<0.01	982			3.9	<1.1	<5
PR Springs , EFRC, 6/2/10	0.1	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.175			1.50	0.4	<0.01	1,020			3.7	<1.2	<4.9
PR Springs , EFRC, 5/24/11	<0.1	<0.01	<0.05			<0.05	<0.01		0.1	<0.05	0.179			1.38	0.3	<0.01	934			4.3	<1.4	<5.7
Colorado Water Standards																						
Ground Water, Domestic		0.005	0.1	1	0.3	0.05	0.05	0.002	0.035	0.1	0.05	0.05	0.002	0.03		5	20	15(a)		5(c)	5(c)	5
Ground Water, Agriculture	0.75	0.01	0.1	0.2	5	0.1	0.2	0.01		0.2	0.02				0.1	2			(b)			
Surface Water, Stream (e,f)	0.75 dis	0.010	0.100	0.200	0.3 dis	0.100	0.200			0.200	0.200			(d)		2				5(c)	5(c)	5
Surface Water, Domestic		0.005	0.05	1.0	0.3	0.05	0.05	0.002		0.1	0.05	0.1	0.0005	0.03		5	20			5(c)	5(c)	5
Surface Water, Agriculture	0.75	0.01	0.1	0.2		0.1	0.2			0.2	0.02					2						
EPA Water Standards (h)																						
Maximum														4		1.0				10 dis, 30 tot		
Average														2		0.5				3 dis, 10 tot		

Notes:

1. Water standards are provided for reference only. These standards do not apply to the spring water unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standard are shaded for reference purposes. Shading indicates that the measured level is elevated compared to cetain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

* Nitrate sample recollected on 9/18/08 due to hold time exceedance on 9/8/08 sample

Monitoring Well W-1

Sample Information	General Parameters							Major Ions (mg/L)										Dissolved Metals (mg/L)			
	Aquifer	TSS (mg/L)	TDS (mg/L)	pH (s.u.)	Hard (mg/L)	Alk (mg/L)	Cond (µS/cm)	Na	Ca	Mg	K	Cl	F	NO_3	P	HCO_3	SO_4	Al	As	Ba	Be
Whirlwind Monitoring Well, W-1																					
W-1, EFRC, 10/21/08	LBB	37	901	7.96	165	269	1543	286	43	14	13	173	0.3	<0.1	0.08	328	237	<0.1	0.009	<0.1	<0.01
W-1, EFRC, 12/16/08	LBB	110	824	7.73		287	1329	265	36	12	12	145	0.4	<0.1	0.03	350	174		0.015	<0.1	<0.01
W-1, EFRC, 2/10/09	LBB	2	696	7.82		300	1251	200	24	8	8	42	0.4	<0.1	<0.01	366	149		0.018	<0.1	<0.01
W-1, EFRC, 4/20/09	LBB	<4	698	7.82		298	1209	206	25	8	9	113	0.5	0.4	0.02	363	139		0.022	<0.1	<0.01
W-1, EFRC, 6/24/09	LBB	<4	730	7.63		287	1157	222	27	9	11	113	0.4	<0.1	<0.01	350	158		0.023	<0.1	<0.01
W-1, EFRC, 9/11/09	LBB	<4	733	7.91		294	1219	229	29	9	11	113	0.4	<0.1	<0.005	358	166		0.025	<0.1	<0.01
W-1, EFRC, 12/10/09	LBB	<4	713	7.96		296	1182	220	28	9	11	122	0.4	<0.1	<0.005	361	168		0.026	<0.1	<0.01
W-1, EFRC, 2/4/10	LBB	4	695	7.01		308	1240	216	29	9	10	122	0.4	<0.1	0.008	367	164		0.025	<0.1	<0.01
MW-1, EFRC, 6/7/10	LBB	<4	751	7.73		301	1239	233	31	10	11	113	0.4	<0.1	<0.005	367	159		0.025	<0.1	<0.01
MW-1, EFRC, 5/24/11	LBB	<4	715	7.85		299	1210	240	29	9	11	119	0.4	<0.1	0.009	365	149		0.028	<0.1	<0.01
Colorado Water Standards																					
Ground Water, Domestic				6.5 to 8.5								250	4.0	10.0			250		0.01	2.0	0.004
Ground Water, Agriculture				6.5 to 8.5									2	100				5	0.1		0.1
Surface Water, Stream (e,f)				6.5 to 9.0															0.100		0.100
Surface Water, Domestic				5.0 to 9.0								250	2.0	10			250		0.1(g)	1.0	0.004
Surface Water, Agriculture														100					0.1		0.1
EPA Water Standards (h)																					
Maximum		30		6.0 to 9.0																	
Average		20		6.0 to 9.0																	

Notes:

1. Water standards are provided for reference only. These standards do not apply to the site groundwater unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standards are shaded for reference purposes. Shading indicates that the measured level is elevated compared to certain standards of water use.
3. Metal levels are reported as dissolved and radionuclide levels are reported as total recoverable.

Table 3 Water Quality Data
Monitoring Well W-1

Monitoring Well W-1

Sample Information	Dissolved Metals (mg/L) *(continued)*													Dissolved Radionuclides (pCi/L)			
	B	Cd	Cr	Cu	Pb	Mn	Mo	Ni	Se	Ag	U	V	Zn	U	Ra-226	Ra-228	Ra-226 Ra-228
Whirlwind Monitoring Well, W-1																	
W-1, EFRC, 10/21/08	0.6	<0.01	<0.05	<0.01	<0.05	0.01	<0.1	<0.05	<0.001	<0.01	0.397	<0.1	<0.01	269	0.84	<1.3	<2.1
W-1, EFRC, 12/16/08	0.7	<0.01	<0.05		<0.05	0.01	<0.1	<0.05	<0.001		0.210	<0.1	<0.01	142	0.46	<1.1	<1.6
W-1, EFRC, 2/10/09	0.5	<0.01	<0.05		<0.05	<0.01	<0.1	<0.05	0.002		0.195	<0.1	<0.01	132	0.50	<1.3	<1.8
W-1, EFRC, 4/20/09	0.6	<0.01	<0.05		<0.05	<0.01	<0.1	<0.05	<0.001		0.161	<0.1	<0.01	109	0.38	<1.1	<1.5
W-1, EFRC, 6/24/09	0.7	<0.01	<0.05		<0.05	<0.01	<0.1	<0.05	<0.001		0.148	<0.1	<0.01	100	0.21	<1.2	<1.4
W-1, EFRC, 9/11/09	0.7	<0.01	<0.05		<0.05	<0.01	<0.1	<0.05	<0.001		0.146	<0.1	<0.01	98.8	0.39	<1.0	<1.4
W-1, EFRC, 12/10/09	0.7	<0.01	<0.05		<0.05	0.01	<0.1	<0.05	<0.001		0.122	<0.1	<0.01	82.6	0.36	<1.1	<1.5
W-1, EFRC, 2/4/10	0.7	<0.01	<0.05		<0.05	0.01	<0.1	<0.05	<0.001		0.139	<0.1	<0.01	94.1	0.34	<0.94	<1.3
MW-1, EFRC, 6/7/10	0.5	<0.01	<0.05		<0.05	0.01	<0.1	<0.05	0.002		0.143	<0.1	0.04	96.8	0.42	<1.3	<1.7
MW-1, EFRC, 5/24/11	0.7	<0.01	<0.05		<0.05	0.01	<0.1	<0.05	0.002		0.118	<0.1	0.04	79.9	0.28	<1.4	<1.7
Colorado Water Standards																	
Ground Water, Domestic		0.005	0.1	1	0.05	0.05	0.035	0.1	0.05	0.05	0.03		5	20	5(c)	5(c)	5
Ground Water, Agriculture	0.75	0.01	0.1	0.2	0.1	0.2		0.2	0.02			0.1	2				
Surface Water, Stream (e,f)	0.75 dis	0.010	0.100	0.200	0.100	0.200		0.200			(d)		2	(d)	5(c)	5(c)	5
Surface Water, Domestic		0.005	0.05	1.0	0.05	0.05		0.1	0.05	0.1	0.03		5	20	5(c)	5(c)	5
Surface Water, Agriculture	0.75	0.01	0.1	0.2	0.1	0.2		0.2	0.02				2				
EPA Water Standards (h)																	
Maximum											4		1.0		10 dis, 30 tot		
Average											2		0.5		3 dis, 10 tot		

Notes:

1. Water standards are provided for reference only. These standards do not apply to the spring water unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standard are shaded for reference purposes. Shading indicates that the measured level is elevated compared to certain standards of water use.
3. Metal levels are reported as dissolved and radionuclide levels are reported as total recoverable.

Lumsden Canyon Seep

Sample Information	General Parameters						Major Ions (mg/L)									
	Flow	TSS (mg/L)	TDS (mg/L)	pH (s.u.)	Alk (mg/L)	Cond (µS/cm)	Na	Ca	Mg	K	Cl	F	NO_3	P	HCO_3	SO_4
Lumsden Canyon Seep (aka Lumsden Canyon Spring)																
Lumsden Spring, EFRC, 4/25/07	7		648	7.68	264		43.7	118	27.5	4.3	23	0.4	0.5	<0.3	322	232
Lumsden Canyon Mouth, EFRC, 6/19/08	<1.0	4	668	7.57	251	825	44	135	31	4	22	0.4	0.4	0.02	306	252
Lumsden Canyon Mouth, WWL, 12/04/08	<1.0	<1	695	7.71	261	985	46	146	34	4	19	0.4	0.3	<0.01	318	265
Colorado Water Standards																
Ground Water, Domestic				6.5 to 8.5							250	4.0	10.0			250
Ground Water, Agriculture				6.5 to 8.5								2	100			
Surface Water, Stream (e,f)				6.5 to 9.0												
Surface Water, Domestic				5.0 to 9.0							250	2.0	10			250
Surface Water, Agriculture													100			
EPA Water Standards (h)																
Maximum		30		6.0 to 9.0												
Average		20		6.0 to 9.0												

Notes:

1. Water standards are provided for reference only. These standards do not apply to the site groundwater unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standards are shaded for reference purposes. Shading indicates that the measured level is elevated compared to certain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

Table 4 Water Quality Data
Lumsden Canyon Seep

Lumsden Canyon Seep

Sample Information	Dissolved Metals (mg/L)														Dissolved Radionuclides (pCi/L)			
	As	Ba	Be	B	Cd	Cr	Pb	Mn	Mo	Ni	Se	U	V	Zn	U	Ra-226	Ra-228	Ra-226 Ra-228
Lumsden Canyon Seep (aka Lumsde																		
Lumsden Spring, EFRC, 4/25/07	0.004	<0.1			<0.01		<0.05	<0.01	<0.1	<0.05	0.086	0.216	<0.1	<0.01	146	1.3	0.4	1.7
Lumsden Canyon Mouth, EFRC, 6/19/08	0.003	<0.1	<0.01	<0.1	<0.01	<0.05	<0.05	<0.01	<0.1	<0.05	0.085	0.194	<0.1	0.01	131	1.1	0.2	1.3
Lumsden Canyon Mouth, WWL, 12/04/08	0.008	<0.1	<0.01	0.2	<0.01	<0.05	<0.05	0.02	<0.1	<0.05	0.07	0.201	<0.1	<0.01	136	2.5	1.6	4.1
Colorado Water Standards																		
Ground Water, Domestic	0.01	2.0	0.004		0.005	0.1	0.05	0.05	0.035	0.1	0.05	0.03		5	20	5(c)	5(c)	5
Ground Water, Agriculture	0.1		0.1	0.75	0.01	0.1	0.1	0.2		0.2	0.02		0.1	2				
Surface Water, Stream (e,f)	0.100		0.100	0.75 dis	0.010	0.100	0.100	0.200		0.200		(d)		2		5(c)	5(c)	5
Surface Water, Domestic	0.1(g)	1.0	0.004		0.005	0.05	0.05	0.05		0.1	0.05	0.03		5	20	5(c)	5(c)	5
Surface Water, Agriculture	0.1		0.1	0.75	0.01	0.1	0.1	0.2		0.2	0.02			2				
EPA Water Standards (h)																		
Maximum												4		1.0		10 dis, 30 tot		
Average												2		0.5		3 dis, 10 tot		

Notes:

1. Water standards are provided for reference only. These standards do not apply to the spring water unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standard are shaded for reference purposes. Shading indicates that the measured level is elevated compared to certain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

Rajah 49 Mine, Thornton Portal

Sample Information	General Parameters						Major Ions (mg/L)									
	Flow	TSS (mg/L)	TDS (mg/L)	pH (s.u.)	Alk (mg/L)	Cond (µS/cm)	Na	Ca	Mg	K	Cl	F	NO_3	P	HCO_3	SO_4
Whirlwind Monitoring Well, W-1																
Thornton Portal, EFRC, 9/21/09	1-2	5	581	8.58	373	938	209	7	3	6	20	0.4	0.3	0.062	412	96
Thornton Portal, EFRC, 6/30/10	1-2	<4	537	8.9	379	889	207	7	3	7	23	0.3	0.2	0.102	431	86
Thornton Portal, EFRC, 5/24/11	<1	<4	571	9.16	360	985	216	7	3	6	24	0.4	0.2	0.091	403	93
Colorado Water Standards																
Ground Water, Domestic				6.5 to 8.5							250	4.0	10.0			250
Ground Water, Agriculture				6.5 to 8.5								2	100			
Surface Water, Stream (e,f)				6.5 to 9.0												
Surface Water, Domestic				5.0 to 9.0							250	2.0	10			250
Surface Water, Agriculture													100			
EPA Water Standards (h)																
Maximum		30		6.0 to 9.0												
Average		20		6.0 to 9.0												

Notes:

1. Water standards are provided for reference only. These standards do not apply to the site groundwater unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standards are shaded for reference purposes. Shading indicates that the measured level is elevated compared to certain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

Table 5 Water Quality Data
Rajah 49 Mine, Thornton Portal

Rajah 49 Mine, Thornton Portal

Sample Information	Dissolved Metals (mg/L)														Dissolved Radionuclides (pCi/L)			
	As	Ba	Be	B	Cd	Cr	Pb	Mn	Mo	Ni	Se	U	V	Zn	U	Ra-226	Ra-228	Ra-226 Ra-228
Whirlwind Monitoring Well, W-1																		
Thornton Portal, EFRC, 9/21/09	1.49	<0.1	<0.01	0.2	<0.01	<0.05	<0.05	<0.01	0.3	<0.05	0.154	2.02	0.3	0.01	1,370	9.7	<0.51	<10.2
Thornton Portal, EFRC, 6/30/10	1.39	<0.1	<0.01	<0.2	<0.01	<0.05	<0.05	<0.01	0.2	<0.05	0.146	1.81	0.5	<0.01	1,230	15	<1.0	<16
Thornton Portal, EFRC, 5/24/11	1.51	<0.1	<0.01	0.2	<0.01	<0.05	<0.05	<0.01	0.3	<0.05	0.142	1.86	0.4	<0.01	1,260	12	<1.4	<13
Colorado Water Standards																		
Ground Water, Domestic	0.01	2.0	0.004		0.005	0.1	0.05	0.05	0.035	0.1	0.05	0.03		5	20	5(c)	5(c)	5
Ground Water, Agriculture	0.1		0.1	0.75	0.01	0.1	0.1	0.2		0.2	0.02		0.1	2				
Surface Water, Stream (e,f)	0.100		0.100	0.75 dis	0.010	0.100	0.100	0.200		0.200		(d)		2		5(c)	5(c)	5
Surface Water, Domestic	0.1(g)	1.0	0.004		0.005	0.05	0.05	0.05		0.1	0.05	0.03		5	20	5(c)	5(c)	5
Surface Water, Agriculture	0.1		0.1	0.75	0.01	0.1	0.1	0.2		0.2	0.02			2				
EPA Water Standards (h)																		
Maximum												4		1.0		10 dis, 30 tot		
Average												2		0.5		3 dis, 10 tot		

Notes:

1. Water standards are provided for reference only. These standards do not apply to the spring water unless it is used for drinking water, irrigation, or other regulated uses.
2. Concentrations or activity levels above a state or federal standard are shaded for reference purposes. Shading indicates that the measured level is elevated compared to cetain standards of water use.
3. Metal and radionuclide levels are reported as total recoverable.

Whirlwind Mine Waste Rock

		Whirlwind Mine Waste Rock Samples			
Sample ID		WW 04	WW 05	WW 06	WW WR
Collection Date(s)		11/18/07	11/18/07	11/18/07	3Q08-4Q09
Constituents	Units				
TOTAL ANALYSES					
Total Major Ions					
Calcium	mg/kg	17100	12000	18900	28300
Magnesium	mg/kg	4020	2760	5720	3300
Phosphorous	mg/kg	174	101	299	247
Potassium	mg/kg	1800	852	6510	1380
Silica	mg/kg	1610	1100	1180	2290
Sodium	mg/kg	101	105	220	211
Total Metals					
Aluminum	mg/kg	8600	5590	17300	4190
Antimony	mg/kg	<0.5	<0.5	<0.5	<0.5
Arsenic	mg/kg	4.6	1.4	3.8	14.5
Barium	mg/kg	558	771	35.9	234
Beryllium	mg/kg	<0.5	<0.5	0.7	<0.5
Boron	mg/kg	5.6	<5.0	11.4	<5.0
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	4.1	2.5	14.6	4.9
Copper	mg/kg	0.7	3.4	7.5	20.4
Iron	mg/kg	2790	3450	13800	5060
Lead	mg/kg	7.8	1.2	4.7	16.1
Manganese	mg/kg	102	90.4	133	190
Mercury	mg/kg	<0.05	<0.05	<0.05	<0.05
Molybdenum	mg/kg	<0.5	<0.5	1.2	<0.5
Nickel	mg/kg	2.7	1.9	11.6	3.2
Selenium	mg/kg	3.0	<0.5	<0.5	4.0
Silver	mg/kg	<0.5	<0.5	<0.5	<0.5
Thallium	mg/kg	<0.5	<0.5	<0.5	<0.5
Uranium	mg/kg	10.9	6.4	2.7	7.8
Uranium as U_3O_8	mg/kg	12.8	7.6	3.2	9.2
Vanadium	mg/kg	336	47.2	88.4	51.8
Vanadium as V_2O_5	mg/kg	599	84.3	158	92.4
Zinc	mg/kg	9.1	9.1	21.0	32.1
Total Radionuclides					
Gross Alpha	pCi/g	20.4	13.0	9.4	21.5
Gross Beta	pCi/g	26.0	17.9	15.0	29.4
Radium-226	pCi/g	4.2	2.8	3.8	3.7
Radium-228	pCi/g	<0.1	<0.1	0.3	<0.5
Radium-226 + -228	pCi/g	<4.3	<2.9	4.1	<4.2
SYNTHETIC PRECIPITATION LEACHING PROCEDURE (SPLP) ANALYSES					
SPLP Extractable Physical Properties					
TDS	mg/L	52	40	52	30
pH	s.u.	10.1	10.2	10.1	9.87
Hardness	mg/L	17.5	17	10.7	13
Alkalinity	mg/L	34	37	36	35
Conductance	µS/cm	83.5	87.9	92.6	96
SPLP Extractable Major Ions					
Sodium	mg/L	10	8.6	11.2	12.3
Calcium	mg/L	5.2	5.3	3.0	3.4
Magnesium	mg/L	1.1	0.9	0.8	1.0
Potassium	mg/L	<0.5	<0.5	2.6	4.0
Chloride	mg/L	<1	<1	<1	2
Flouride	mg/L	<0.1	<0.1	0.1	0.1
Nitrate	mg/L	<0.1	<0.1	<0.1	1.2
Nitrite	mg/L	<0.1	<0.1	<0.1	<0.1
Phosphorous	mg/L	<0.1	<0.1	<0.1	<0.1
Bicarbonate as HCO_3	mg/L	24	25	24	23
Silica	mg/L	2.6	2.8	3.3	4.7
Sulfate	mg/L	4	2	3	6
SPLP Extractable Metals					
Aluminum	mg/L	0.2	0.2	0.2	0.7
Antimony	mg/L	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/L	0.033	0.002	0.026	0.040
Barium	mg/L	<0.1	0.2	<0.1	<0.1
Beryllium	mg/L	<0.001	<0.001	<0.001	<0.001
Boron	mg/L	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	<0.002	<0.002	<0.001	<0.001
Chromium	mg/L	<0.05	<0.05	<0.05	<0.05
Copper	mg/L	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.07	0.05	0.11	0.32
Lead	mg/L	<0.001	<0.001	<0.001	0.002
Manganese	mg/L	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	<0.1	<0.1	<0.1	<0.1
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.014	<0.004	<0.004	0.012
Silver	mg/L	<0.01	<0.01	<0.01	<0.01
Thallium	mg/L	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	<0.0004	<0.0004	<0.0004	0.0066
Uranium as U_3O_8	mg/L	<0.0004	<0.0004	<0.0004	0.0077
Vanadium	mg/L	<0.1	<0.1	<0.1	<0.1
Vanadium as V_2O_5	mg/L	<0.2	<0.2	<0.2	<0.2
Zinc	mg/L	0.05	0.02	0.02	0.01
SPLP Extractable Radionuclides					
Uranium	pCi/L	<0.3	<0.3	<0.3	4.5
Gross Alpha	pCi/L	5.3	2.4	2.6	6.7
Gross Beta	pCi/L	6.4	<2.0	4.7	<5.5
Radium-226	pCi/L	<0.2	<0.2	<0.2	0.20
Radium-228	pCi/L	<1.0	<1.0	<1.0	<1.4
Radium-226 + -228	pCi/L	<1.2	<1.2	<1.2	<1.6

Notes:

1. 3Q08-4Q09 sample was a composite of waste rock grab samples collected on 11/4/08, 3/5/09, 6/19/09 and 9/8/09.

Table 6 Total and SPLP Data
Whirlwind Mine Waste Rock

Abbreviations

Alk = Alkalinity, total as $CaCO_3$
BLM = U.S. Bureau of Land Management
Cond = Specific Conductance
dis = dissolved
EFRC = Energy Fuels Resources Corporation
EPA = U.S. Environmental Protection Agency
Hard = Hardness
gpm = gallons per minute
LBB = Lower Brushy Basin
mg/L = milligrams per liter
Peel = Peel Environmental Services
s.u. = standard units
TDS = total dissolved solids
TSS = total suspended solids
tot = total
Umetco = Umetco Minerals Corporation
WWE = Wright Water Engineers, Inc.
WWL = Western Water & Land, Inc.
ρCi/L = picoCuries per liter
µS/cm = microSiemen per centimeter

Notes:

(a) The gross alpha activity standard excludes alpha activity due to radon and uranium. The majority of the gross alpha count in these samples is attributable to uranium.

(b) The gross beta standard is 4 millirems per year and is based on the sum of beta emitters present and a risk-based analysis with 2-liters per day drinking water intake.

(c) The standard of 5 ρCi/L is for combined Radium-226 and Radium-228.

(d) Uranium levels in the Lower Dolores River Basin cannot be increased above 30 ug/L or background, whichever is greater.

(e) Numeric table values for Segment 3a of the Lower Dolores River water quality standards.

(f) Stream standards are in total concentrations unless indicated otherwise.

(g) The Colorado Water Quality Control Commission has calculated a health-based standard of 0.02 ug/L for arsenic.

(h) The EPA Standards are from Subpart C - uranium, radium, and vanadium ores subcategory of Title 40, Part 440 of the Code of Federal Regulations.

(i) The analytical data includes results for both total and dissolved concentrations. The data has not been differentiated because the water contains very low levels of suspended solids and the dissolved and total concentrations are typically within 10% of each other.

Shading of a constituent concentration or activity level indicates that the value exceeds one or more water quality standards. These standards may not be applicable to the water source and use; however, they do provide a means for assessing whether a value is higher than the norm.

"<" indicates not detected at the analyte reporting limit shown

Uranium values are presented in both mg/L and ρCi/L. The units mg/L are converted to ρCi/L by multiplying by 677 ρCi/mg.