

**CAMECO RESOURCES
CROW BUTTE OPERATION**



**86 Crow Butte Road
P.O. Box 169
Crawford, Nebraska 69339-0169**

**(308) 665-2215
(308) 665-2341 – FAX**

April 24, 2013

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Mr. Michael Linder, Director
Nebraska Department of Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

**Subject: Class III UIC Permit NE0122611
March 2013 Monthly Restoration Report**

Dear Mr. Linder:

Please find enclosed the March 2013 Monthly Restoration Reports for Mine Units 2, 3, 4, 5 and 6. The reverse osmosis (RO) units continue to inject permeate and reductant into Mine Units 2, 3, 4, and 5. IX treatment continued in Mine Unit 6 with groundwater sweep continuing in portions of Mine Units 4 and 5.

If you have any questions regarding this submittal, please feel free to contact me at (308) 665-2215, ext. 114.

Sincerely,
Cameco Resources
Crow Butte Operation

A handwritten signature in black ink that reads "Larry Teahon". The signature is written in a cursive, flowing style.

Larry Teahon
SHEQ Manager

Enclosures: As Stated

cc: Shar Sapp, NDEQ Chadron Office
Ron Burrows, NRC
CBO - File
ec: CR - Cheyenne

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
MARCH 2013
MINE UNIT 2

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment	X		RO and Reductant PR15, P97, P113, I180P, I188P, and P209.
d. Wellfield Recirculation		X	
e. Other (explain):		X	

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:

P97, P113, I180P, I188P, and P209.

Mine Unit 2 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (μmohs/l)
P97	03/06/13	58.2	0.1	1.0	0.13	
P97	03/13/13	51.8	0.1	0.9	0.03	235
P97	03/20/13	48.8	0.1	0.9	0.03	
P97	03/27/13	48.8	0.1	1.1	0.07	221
P113	03/06/13	206.0	0.3	7.5	1.05	
P113	03/13/13	176.9	0.3	6.8	0.98	884
P113	03/20/13	189.4	0.3	6.7	1.09	
P113	03/27/13	193.8	0.3	6.9	1.02	879
I180P	03/06/13	214.4	0.2	6.0	0.40	
I180P	03/13/13	194.4	0.2	5.5	0.27	980
I180P	03/20/13	208.9	0.2	5.6	0.33	
I180P	03/27/13	209.6	0.2	5.5	0.20	958
I188P	03/06/13	115.5	0.4	2.5	0.43	
I188P	03/13/13	102.7	0.4	2.7	0.36	473
I188P	03/20/13	105.2	0.4	2.6	0.53	
I188P	03/27/13	101.7	0.4	2.1	0.34	460
P209	03/06/13	251.5	0.7	13.0	0.83	
P209	03/13/13	226.1	0.6	11.9	0.66	1111
P209	03/20/13	243.7	0.6	12.5	0.82	
P209	03/27/13	221.1	0.6	11.7	0.79	1111

CROW BUTTE MINE
 MONTHLY RESTORATION REPORT
 MARCH 2013
 MINE UNIT 3

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment	X		RO and Reductant CM1-11, IJ13P, I298P, and RES2E.
d. Wellfield Recirculation		X	
e. Other (explain):		X	

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

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3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

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4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:

CM1-11, I298P, and RES2E.

Mine Unit 3 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
CM1-11	03/06/13	375.9	0.2	37.0	0.19	
CM1-11	03/13/13	344.0	0.2	34.2	0.02	1846
CM1-11	03/20/13	348.7	0.4	35.5	0.00	
CM1-11	03/27/13	213.6	0.5	4.3	1.53	1818
I298P	03/06/13	96.3	0.2	1.8	0.00	
I298P	03/13/13	91.1	0.2	2.3	0.00	423
I298P	03/20/13	95.8	0.1	2.0	0.00	
I298P	03/27/13	97.0	0.1	1.9	0.01	449
RES-2E	03/06/13	220.0	0.5	4.4	1.74	
RES-2E	03/13/13	189.3	0.5	4.4	1.24	908
RES-2E	03/20/13	210.9	0.5	4.8	1.41	
RES-2E	03/27/13	348.0	0.3	34.0	0.14	924

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
MARCH 2013
MINE UNIT 4

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep	X		(if yes, complete part 3)
c. Groundwater Treatment	X		RO and Reductant P380, P387, P393, P394, P421, P456, P461, I548P, and I551P.
d. Wellfield Recirculation		X	
e. Other (explain):			

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

CM2-4, P371, P372, P396, P397, P426, P430, P434, P437, and P508.

4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:

CM2-4, P371, P372, P380, P387, P393, P394, P396, P397, P421, P426, P430, P434, P437, P456, P461, I508P, I548P, and I551P.

Mine Unit 4 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
CM2-4	03/06/13	721.3	0.0	53.6	3.15	
CM2-4	03/13/13	643.9	0.0	48.0	2.82	3440
CM2-4	03/20/13	735.9	0.0	49.3	3.20	
CM2-4	03/27/13	696.9	0.0	50.3	2.96	
P371	03/06/13	445.4	0.4	30.2	4.85	
P371	03/13/13	389.5	0.3	28.6	4.18	2110
P371	03/20/13	425.4	0.4	29.0	4.45	
P371	03/27/13	422.8	0.4	27.6	4.63	2115
P372	03/06/13	271.9	0.1	11.4	3.40	
P372	03/13/13	246.9	0.1	10.6	2.92	1241
P372	03/20/13	254.3	0.1	10.4	3.10	
P372	03/27/13	252.8	0.1	10.1	2.85	1221
P380	03/06/13	915.3	0.4	72.0	8.20	
P380	03/13/13	778.3	0.3	64.9	6.73	3980
P380	03/20/13	823.7	0.3	66.6	7.11	
P380	03/27/13	748.8	0.3	62.7	6.65	3740
P387	03/06/13	269.7	0.4	13.5	2.85	
P387	03/13/13	231.0	0.4	11.6	2.42	1148
P387	03/20/13	251.0	0.4	11.0	2.60	
P387	03/27/13	224.7	0.4	10.8	2.40	1110
P393	03/06/13	233.8	0.4	14.1	1.53	
P393	03/13/13	226.0	0.3	14.6	1.29	1112
P393	03/20/13	226.1	0.3	15.3	1.32	
P393	03/27/13	233.5	0.3	17.1	1.42	1122
P394	03/06/13	347.2	0.5	20.5	2.60	
P394	03/13/13	285.5	0.4	19.0	2.14	1492
P394	03/20/13	308.7	0.4	19.8	2.36	
P394	03/27/13	298.1	0.4	19.2	2.29	1452
P396	03/06/13	848.3	0.2	65.6	5.79	
P396	03/13/13	809.7	0.2	62.8	5.48	4160
P396	03/20/13	843.1	0.2	64.5	5.83	
P396	03/27/13	857.0	0.2	67.4	5.90	4150
P397	03/06/13	888.1	0.3	69.3	7.07	
P397	03/13/13	799.7	0.2	65.8	6.47	4150
P397	03/20/13	840.5	0.2	64.9	6.80	
P397	03/27/13	866.8	0.3	68.2	6.86	4170

Mine Unit 4 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
P421	03/06/13	579.4	0.3	45.7	2.79	
P421	03/13/13	530.5	0.2	41.9	2.40	2778
P421	03/20/13	548.7	0.2	42.2	2.38	
P421	03/27/13	507.1	0.2	38.1	2.31	2548
P426	03/06/13	897.3	0.2	63.7	9.30	
P426	03/13/13	812.1	0.2	59.7	8.54	4110
P426	03/20/13	847.1	0.2	62.7	8.81	
P426	03/27/13	868.7	0.2	62.9	8.59	4230
P430	03/06/13	273.7	0.3	16.7	1.86	
P430	03/13/13	271.7	0.3	16.3	1.74	1357
P430	03/20/13	254.7	0.3	16.3	1.78	
P430	03/27/13	267.7	0.6	15.8	1.76	1296
P434	03/06/13	251.8	1.0	9.0	1.09	
P434	03/13/13	241.1	1.0	8.4	1.10	1127
P434	03/20/13	237.2	0.9	8.3	1.04	
P434	03/27/13	227.8	0.9	8.1	1.07	1094
P437	03/06/13	591.1	1.0	44.0	7.28	
P437	03/13/13	499.9	1.0	34.1	4.79	2445
P437	03/20/13	593.8	1.0	41.0	6.94	
P456	03/06/13	302.9	1.0	10.5	1.78	
P456	03/13/13	262.5	0.9	8.6	1.48	1220
P456	03/20/13	259.6	0.9	8.5	1.49	
P456	03/27/13	251.6	0.9	8.1	1.40	1157
P461	03/06/13	854.0	0.6	70.1	12.35	
P461	03/13/13	745.5	0.5	63.4	10.80	3850
P461	03/20/13	795.1	0.5	62.2	11.49	
P461	03/27/13	739.5	0.5	60.9	10.53	3690
I508P	03/06/13	905.7	0.2	69.6	7.45	
I508P	03/13/13	869.8	0.2	67.7	6.95	4340
I508P	03/20/13	918.6	0.2	66.7	7.46	
I508P	03/27/13	873.6	0.2	68.1	6.84	4170
I548P	03/06/13	1084.0	0.2	76.9	4.92	
I548P	03/13/13	926.9	0.2	73.5	4.46	4750
I548P	03/20/13	974.2	0.3	72.9	4.59	
I548P	03/27/13	976.7	0.3	73.5	4.65	4710

Mine Unit 4 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (μmohs/l)
I551P	03/06/13	768.6	1.0	57.9	12.43	
I551P	03/13/13	711.3	0.9	54.5	11.05	3540
I551P	03/20/13	740.6	0.9	55.0	11.80	
I551P	03/27/13	716.9	0.9	53.9	11.36	3460

CROW BUTTE MINE
 MONTHLY RESTORATION REPORT
 MARCH 2013
 MINE UNIT 5

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep	X		(if yes, complete part 3)
c. Groundwater Treatment	X		RO and Reductant P680, P773, P795, P800, P962, P1075, P1085, P1099, P1117, P1155, and P1232.
d. Wellfield Recirculation		X	
e. Other (explain):		X	

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:
 BL5-5, P690, I854P, P891, P897, P837, and P1209.

4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:

BL-5-5, 680P, P690, P773, P795, P800, P837, I854P, P891, P897, P962, P1117, P1155, and P1209.

Mine Unit 5 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (μmohs/l)
BL5-5	03/06/13	709.3	0.0	57.7	0.05	
BL5-5	03/13/13	626.4	0.0	55.5	0.35	3420
BL5-5	03/20/13	685.1	0.0	56.9	0.17	
BL5-5	03/27/13	688.0	0.0	59.9	0.43	3460
P680	03/06/13	479.9	1.6	16.5	7.73	
P680	03/13/13	445.8	1.6	15.7	7.16	2018
P680	03/20/13	455.8	1.7	16.1	7.39	
P680	03/27/13	451.8	1.8	16.8	7.08	1993
I690P	03/06/13	952.2	0.3	73.5	15.25	
I690P	03/13/13	862.3	0.2	69.4	14.08	4580
I690P	03/20/13	976.3	0.3	71.7	15.68	
I690P	03/27/13	973.8	0.3	75.0	15.54	4630
P773	03/06/13	407.3	0.4	18.3	2.02	
P773	03/13/13	385.7	0.4	16.2	1.91	1915
P773	03/20/13	397.8	0.4	17.2	1.96	
P773	03/27/13	378.8	0.4	16.4	1.93	1826
P795	03/06/13	221.7	2.0	6.2	1.99	
P795	03/13/13	226.0	1.8	6.9	2.07	1083
P795	03/20/13	261.7	1.7	8.7	2.59	
P795	03/27/13	267.6	1.5	9.6	2.76	1280
P800	03/06/13	506.3	0.2	26.4	2.26	
P800	03/13/13	456.7	0.2	24.6	2.13	2261
P800	03/20/13	477.1	0.2	25.0	2.12	
P800	03/27/13	448.3	0.2	24.5	2.14	2253
P837	03/06/13	774.4	0.2	55.9	4.26	
P837	03/13/13	754.8	0.2	50.3	3.95	3950
P837	03/20/13	819.6	0.2	53.1	4.36	
P837	03/27/13	782.5	0.2	55.2	4.21	3810
I854P	03/06/13	656.5	0.0	37.3	1.99	
I854P	03/13/13	779.1	0.0	32.4	2.33	3850
I854P	03/20/13	630.2	0.0	36.3	1.88	
I854P	03/27/13	611.7	0.0	35.3	1.88	3060
P891	03/06/13	428.2	0.2	14.2	3.07	
P891	03/13/13	398.4	0.2	13.8	2.78	1998
P891	03/20/13	406.6	0.2	14.0	2.91	
P891	03/27/13	419.9	0.2	14.2	3.00	2003

Mine Unit 5 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (μmohs/l)
P897	03/06/13	509.6	0.4	20.2	4.67	
P897	03/13/13	468.9	0.3	18.3	4.32	2366
P897	03/20/13	496.0	0.3	19.0	4.55	
P897	03/27/13	527.3	0.3	19.8	4.77	2375
P962	03/06/13	656.9	0.8	38.8	9.21	
P962	03/13/13	590.2	0.7	37.1	8.28	2973
P962	03/20/13	650.5	0.7	37.9	8.95	
P962	03/27/13	655.1	0.7	37.6	8.86	2943
P1117	03/06/13	348.1	0.9	16.2	1.59	
P1117	03/13/13	364.3	0.7	17.6	1.54	1743
P1117	03/20/13	375.4	0.6	18.8	1.70	
P1117	03/27/13	364.0	0.5	19.2	1.84	1793
P1155	03/06/13	603.7	0.9	33.9	7.12	
P1155	03/13/13	544.7	0.8	32.4	6.21	2792
P1155	03/20/13	613.3	0.9	32.4	6.86	
P1155	03/27/13	616.4	0.9	33.1	6.93	2760
P1209	03/06/13	689.6	0.4	35.2	11.59	
P1209	03/13/13	673.8	0.4	33.4	10.90	3400
P1209	03/20/13	756.8	0.4	35.5	12.12	
P1209	03/27/13	682.0	0.4	35.6	10.99	3340

CROW BUTTE MINE
 MONTHLY RESTORATION REPORT
 MARCH 2013
 MINE UNIT 6

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment	X		IX P1268, P1283, P1312, P1314, P1349, P1370, P1474, P1497, P1596, P1630, P1633, P1715, P1751, P1756, P1778, P1794, P1800, P1857, and P1865.
d. Wellfield Recirculation		X	
e. Other (explain):		X	

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:

P1268, P1283, P1312, P1314, P1349, P1370, P1474, P1497, P1596, P1630, P1633, P1715, P1751, P1756, P1778, P1794, P1800, and P1857.

Mine Unit 6 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
P1268	03/06/13	1188.0	2.4	67.3	16.82	
P1268	03/13/13	1021.0	2.1	67.9	15.25	4900
P1268	03/20/13	1084.0	2.1	66.0	16.23	
P1283	03/06/13	1226.0	1.5	64.1	30.90	
P1283	03/13/13	1176.0	1.4	58.6	29.14	5730
P1283	03/20/13	1217.0	1.4	63.0	30.37	
P1283	03/27/13	1215.0	1.4	63.8	30.77	5600
P1312	03/06/13	1108.0	1.1	67.3	20.28	
P1312	03/13/13	994.8	1.0	64.7	18.16	5030
P1312	03/20/13	1081.0	1.0	67.2	19.65	
P1312	03/27/13	1100.0	1.0	67.5	20.03	5140
P1314	03/06/13	1101.0	1.7	63.5	10.41	
P1314	03/13/13	1005.0	1.4	61.1	9.18	5070
P1314	03/20/13	1069.0	1.5	61.4	9.96	
P1314	03/27/13	1074.0	1.5	62.9	9.79	5080
P1349	03/06/13	1144.0	2.8	66.2	16.59	
P1349	03/13/13	981.7	2.7	60.7	14.05	5090
P1349	03/20/13	1161.0	2.7	67.5	15.10	
P1349	03/27/13	1144.0	2.6	65.4	13.62	5170
P1370	03/06/13	1131.0	0.8	66.1	13.72	
P1370	03/13/13	1071.0	0.7	64.7	12.51	5170
P1370	03/20/13	1133.0	0.7	64.6	13.34	
P1370	03/27/13	1135.0	0.7	66.7	13.57	5220
P1474	03/06/13	1204.0	1.6	56.5	12.46	
P1474	03/13/13	1131.0	1.5	56.9	11.17	5450
P1474	03/20/13	1239.0	1.5	56.6	11.92	
P1474	03/27/13	1181.0	1.5	59.5	10.85	5420
P1497	03/06/13	1129.0	0.0	93.2	68.68	
P1497	03/13/13	991.5	0.0	91.8	62.42	4980
P1497	03/20/13	1089.0	0.0	90.6	68.82	
P1497	03/27/13	1100.0	0.0	91.3	64.44	5010
P1596	03/06/13	1146.0	1.7	60.7	25.99	
P1596	03/13/13	1046.0	1.5	61.1	23.18	5090
P1596	03/20/13	1151.0	1.6	61.5	25.27	
P1596	03/27/13	1093.0	1.6	61.8	24.06	5150

Mine Unit 6 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
P1630	03/06/13	1211.0	1.6	64.9	13.25	
P1630	03/13/13	1115.0	1.5	62.2	12.83	5650
P1630	03/20/13	1137.0	1.6	63.9	13.59	
P1630	03/27/13	1193.0	1.6	66.4	14.04	5670
P1633	03/06/13	968.2	1.1	45.2	19.69	
P1633	03/13/13	957.3	1.1	44.1	18.86	4640
P1633	03/20/13	989.4	1.0	43.8	19.68	
P1633	03/27/13	1088.0	1.1	46.4	20.59	4870
P1715	03/06/13	1263.0	1.6	60.0	24.60	
P1715	03/13/13	1159.0	1.4	57.4	22.31	5610
P1715	03/20/13	1258.0	1.5	54.0	24.26	
P1715	03/27/13	1304.0	1.6	57.8	24.87	5830
P1751	03/06/13	1134.0	0.9	61.0	10.07	
P1751	03/13/13	1038.0	0.9	59.3	8.91	5160
P1751	03/20/13	1155.0	0.9	59.8	9.85	
P1751	03/27/13	1109.0	0.9	61.1	9.65	5190
P1756	03/06/13	1121.0	0.7	60.9	11.14	
P1756	03/13/13	1011.0	0.6	58.7	10.24	5010
P1756	03/20/13	1089.0	0.6	59.4	10.97	
P1756	03/27/13	1051.0	0.6	59.4	10.10	5060
P1778	03/06/13	1085.0	1.0	65.0	10.52	
P1778	03/13/13	1035.0	0.9	61.6	9.93	5230
P1778	03/20/13	1162.0	0.9	64.2	10.89	
P1778	03/27/13	1158.0	0.9	67.7	10.94	5270
P1794	03/06/13	924.2	1.6	44.6	12.87	
P1794	03/13/13	888.5	1.5	45.3	11.87	4350
P1794	03/20/13	935.9	1.4	46.6	12.82	
P1794	03/27/13	1009.0	1.5	50.0	12.80	4700
P1800	03/06/13	1121.0	0.7	80.9	12.48	
P1800	03/13/13	999.0	0.7	76.2	11.11	5160
P1800	03/20/13	1090.0	0.7	79.3	11.92	
P1800	03/27/13	1114.0	0.7	81.6	12.06	5160
P1857	03/06/13	1162.0	1.1	56.5	11.71	
P1857	03/13/13	1031.0	1.0	55.7	10.20	5060
P1857	03/20/13	1124.0	1.1	54.2	11.26	
P1857	03/27/13	1143.0	1.1	55.9	11.18	5250