

**CAMECO RESOURCES  
CROW BUTTE OPERATION**



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

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

May 20, 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  
April 2013 Monthly Restoration Report

Dear Mr. Linder:

Please find enclosed the April 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 cursive script that reads "Larry Teahon". The signature is written in black ink and is positioned above the typed name.

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  
 APRIL 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	04/03/13	40.9	0.1	1.8	0.39	
P97	04/15/13	48.3	0.1	0.7	0.23	226
P97	04/23/13	43.0	0.1	0.7	0.35	214
P113	04/03/13	155.5	0.3	6.8	0.86	
P113	04/15/13	194.9	0.3	6.7	1.03	899
P113	04/23/13	178.5	0.3	6.3	1.03	836
I180P	04/03/13	167.4	0.2	5.4	0.26	
I180P	04/15/13	204.8	0.2	5.3	0.38	955
I180P	04/23/13	177.8	0.2	5.3	0.34	894
I188P	04/03/13	80.9	0.5	2.2	0.34	
I188P	04/15/13	95.4	0.5	2.3	0.64	439
I188P	04/23/13	91.6	0.5	2.4	0.41	435
P209	04/03/13	212.4	0.6	11.6	0.89	
P209	04/15/13	232.5	0.5	11.8	0.68	1130
P209	04/23/13	216.5	0.5	10.7	0.66	1149

CROW BUTTE MINE  
 MONTHLY RESTORATION REPORT  
 APRIL 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:

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

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	04/03/13	315.3	0.3	34.9	0.18	
CM1-11	04/15/13	334.4	0.2	34.2	0.20	1788
CM1-11	04/23/13	328.2	0.2	34.1	0.49	1771
I298P	04/03/13	103.4	0.1	2.3	0.71	
I298P	04/15/13	103.9	0.1	2.5	0.33	515
RES-2E	04/03/13	173.7	0.5	4.4	1.23	
RES-2E	04/15/13	205.3	0.5	4.5	1.42	949
RES-2E	04/23/13	180.5	0.4	4.5	1.28	887

CROW BUTTE MINE  
MONTHLY RESTORATION REPORT  
APRIL 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 P373, P380, P387, P393, P394, P421, P456, P460, 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	04/03/13	675.5	0.0	48.3	2.54	
CM2-4	04/15/13	717.0	0.0	50.9	3.09	3580
CM2-4	04/23/13	702.2	0.0	50.1	3.04	3530
P371	04/03/13	375.9	0.4	27.6	4.21	
P371	04/15/13	424.6	0.4	28.9	4.55	2143
P371	04/23/13	413.3	0.4	29.4	4.42	2149
P372	04/03/13	227.9	0.1	10.0	2.63	
P372	04/15/13	231.4	0.1	9.4	2.36	1200
P380	04/03/13	778.5	0.4	64.1	6.51	
P380	04/15/13	727.5	0.3	59.9	6.55	3620
P380	04/23/13	679.5	0.3	56.6	6.10	3510
P387	04/03/13	205.1	0.4	10.4	2.11	
P387	04/15/13	223.3	0.4	11.1	2.36	1111
P387	04/23/13	207.6	0.4	9.9	2.09	1042
P393	04/03/13	208.5	0.3	17.4	1.40	
P393	04/15/13	217.1	0.2	15.0	1.44	1133
P393	04/23/13	209.7	0.2	15.3	1.31	1113
P394	04/03/13	291.3	0.4	20.1	2.16	
P394	04/15/13	296.6	0.3	20.0	2.39	1562
P394	04/23/13	306.8	0.3	22.0	2.23	1598
P396	04/03/13	826.7	0.2	63.5	5.54	
P396	04/15/13	822.6	0.2	70.7	5.83	4160
P397	04/03/13	842.7	0.3	67.0	6.47	
P421	04/03/13	489.4	0.3	35.1	2.21	
P421	04/15/13	446.4	0.2	32.2	2.03	2225
P421	04/23/13	415.3	0.2	30.4	1.96	2117
P426	04/03/13	846.4	0.2	61.3	7.98	
P426	04/15/13	883.6	0.2	64.9	8.30	4430
P426	04/23/13	807.0	0.1	62.7	7.40	4120
P430	04/03/13	222.0	0.3	15.4	1.58	
P430	04/15/13	254.4	0.3	15.6	1.90	1325
P430	04/23/13	261.0	0.2	15.9	1.85	1299

Mine Unit 4 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
P434	04/03/13	212.6	1.0	8.0	0.91	
P434	04/15/13	220.9	0.9	7.5	1.02	1082
P434	04/23/13	208.6	0.8	7.2	0.92	1047
P437	04/03/13	538.3	1.0	41.5	6.52	
P437	04/15/13	552.6	1.0	41.8	6.79	2749
P437	04/23/13	526.8	1.0	41.4	6.40	2688
P456	04/03/13	227.0	1.0	7.6	1.23	
P456	04/15/13	224.1	0.9	7.1	1.30	1119
P456	04/23/13	214.0	0.9	7.2	1.27	1068
P461	04/03/13	740.6	0.6	60.2	10.16	
P461	04/15/13	706.1	0.6	60.6	9.99	3610
P461	04/23/13	685.5	0.6	60.0	9.47	3500
I508P	04/03/13	839.9	0.2	67.6	6.56	
I508P	04/15/13	827.2	0.2	68.1	6.75	4270
I548P	04/03/13	996.3	0.3	74.4	4.71	
I548P	04/15/13	950.1	0.3	73.2	4.38	4630
I548P	04/23/13	917.8	0.3	71.6	4.23	4570
I551P	04/03/13	712.1	0.9	55.5	11.00	
I551P	04/15/13	696.8	0.8	55.2	11.19	3450
I551P	04/23/13	720.0	0.8	55.2	11.28	3480

CROW BUTTE MINE  
 MONTHLY RESTORATION REPORT  
 APRIL 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, P1085, P1117, and P1155.
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:  
 BL5-1, BL5-2, BL5-5, CM3-2, 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, P1085, P1094,  
 P1117, P1155, and P1209.

Mine Unit 5 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
BL5-5	04/03/13	688.9	0.0	58.7	0.40	
BL5-5	04/15/13	723.7	0.0	61.7	0.36	3710
BL5-5	04/23/13	669.0	0.0	61.2	0.36	3520
P680	04/03/13	418.6	1.9	15.5	7.11	
P680	04/15/13	438.1	1.7	16.3	6.47	1999
P680	04/23/13	422.0	1.8	15.5	6.19	1938
I690P	04/03/13	965.3	0.3	71.9	15.19	
I690P	04/15/13	960.2	0.3	76.0	15.45	4760
I690P	04/23/13	914.2	0.2	72.2	14.42	4750
P773	04/03/13	345.3	0.4	16.9	1.66	
P773	04/15/13	359.2	0.4	15.3	1.90	1745
P773	04/23/13	344.9	0.4	14.4	1.70	1681
P795	04/03/13	277.1	1.6	10.9	2.82	
P795	04/15/13	349.9	1.3	13.9	3.54	1621
P795	04/23/13	347.9	1.2	14.8	3.29	1642
P800	04/03/13	441.1	0.2	25.1	1.98	
P800	04/15/13	462.0	0.6	23.3	2.16	2175
P800	04/23/13	425.8	0.2	22.6	1.95	2102
P837	04/03/13	747.6	0.2	54.0	4.04	
P837	04/15/13	760.3	0.2	56.2	4.12	3770
P837	04/23/13	707.8	0.1	53.4	3.92	3750
I854P	04/03/13	629.6	0.0	36.7	1.88	
I854P	04/15/13	621.7	0.0	36.2	2.04	3040
I854P	04/23/13	668.4	0.0	33.4	1.86	3190
P891	04/03/13	368.4	0.2	14.0	2.82	
P891	04/15/13	394.1	0.2	13.7	2.78	2022
P891	04/23/13	415.7	0.1	13.7	2.70	2100
P897	04/03/13	455.5	0.4	20.3	4.49	
P897	04/15/13	463.1	0.3	19.2	4.46	2354
P897	04/23/13	467.0	0.3	19.0	4.11	2307
P962	04/03/13	589.6	0.8	38.0	8.53	
P962	04/15/13	595.6	0.7	37.8	8.56	2969
P962	04/23/13	576.4	0.7	36.6	8.06	2884

Mine Unit 5 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (μmohs/l)
P1085	04/03/13	434.1	3.0	18.7	4.30	
P1085	04/15/13	465.6	3.7	19.5	4.61	2178
P1085	04/23/13	468.3	4.3	18.2	4.31	2151
P1094	04/03/13	499.7	0.5	21.8	9.12	
P1094	04/15/13	525.9	0.5	18.9	7.03	2451
P1094	04/23/13	512.2	0.6	16.6	6.39	2378
P1117	04/03/13	323.3	0.5	18.7	1.66	
P1117	04/15/13	370.8	0.4	18.7	1.52	1918
P1117	04/23/13	359.0	0.4	18.9	1.44	1892
P1155	04/03/13	551.5	0.9	32.6	6.52	
P1155	04/15/13	577.7	0.9	32.5	6.21	2696
P1155	04/23/13	523.2	0.9	31.1	5.92	2640
P1209	04/03/13	673.7	0.4	35.6	10.59	
P1209	04/15/13	678.0	0.4	36.7	10.92	3310
P1209	04/23/13	709.7	0.4	34.2	10.68	3500

CROW BUTTE MINE  
 MONTHLY RESTORATION REPORT  
 APRIL 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, P1857, and P1865.

Mine Unit 6 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
P1268	04/03/13	1082.0	2.2	63.2	14.66	
P1268	04/15/13	1364.0	2.5	68.3	19.49	6535
P1268	04/23/13	1058.0	2.0	66.1	13.33	4980
P1283	04/03/13	1200.0	1.4	65.3	28.96	
P1283	04/15/13	1148.0	1.4	65.5	29.58	5480
P1283	04/23/13	1113.0	1.4	60.0	27.64	5470
P1312	04/03/13	1124.0	1.1	65.2	20.38	
P1312	04/15/13	1088.0	1.1	68.1	20.27	5230
P1312	04/23/13	1050.0	1.0	65.5	18.60	5140
P1314	04/03/13	1102.0	1.5	60.9	9.85	
P1314	04/15/13	1053.0	1.5	62.1	9.72	5160
P1314	04/23/13	1062.0	1.4	60.1	9.47	5210
P1349	04/03/13	1068.0	2.8	67.7	12.17	
P1349	04/15/13	1075.0	2.5	68.4	11.13	5050
P1349	04/23/13	1071.0	2.5	68.4	10.24	5000
P1370	04/03/13	1109.0	0.8	66.0	12.97	
P1370	04/15/13	1064.0	0.8	66.5	13.13	5190
P1370	04/23/13	1067.0	0.7	61.7	12.43	5150
P1474	04/03/13	1134.0	1.4	57.7	9.67	
P1474	04/15/13	1150.0	1.4	61.2	9.71	5290
P1474	04/23/13	1060.0	1.3	58.9	8.32	5190
P1497	04/03/13	1038.0	0.0	92.8	63.10	
P1497	04/15/13	1093.0	0.0	85.3	66.27	5090
P1497	04/23/13	1032.0	0.0	86.6	60.65	4870
P1596	04/03/13	1126.0	1.6	62.9	21.16	
P1596	04/15/13	1087.0	1.6	61.2	19.23	5240
P1596	04/23/13	1024.0	1.5	60.5	17.62	5180
P1630	04/03/13	1231.0	1.8	65.1	14.03	
P1630	04/15/13	1227.0	1.6	65.0	14.78	5770
P1633	04/03/13	950.9	1.1	46.0	18.16	
P1633	04/15/13	921.1	1.0	43.9	18.16	4610
P1633	04/23/13	961.8	1.0	46.3	17.89	4720

Mine Unit 6 Restoration Data

Well #	Date	Na (ppm)	V (ppm)	Ca (ppm)	U (ppm)	Cond (µmohs/l)
P1715	04/03/13	1186.0	1.5	58.3	22.94	
P1715	04/15/13	1157.0	1.4	56.6	23.37	5560
P1715	04/23/13	1121.0	1.4	55.2	21.74	5520
P1730	04/23/13	1113.0	1.6	60.9	13.48	5610
P1751	04/03/13	1111.0	0.9	61.4	9.72	
P1751	04/15/13	1061.0	0.9	61.0	9.48	5210
P1751	04/23/13	1055.0	0.8	59.4	9.41	5140
P1756	04/03/13	1102.0	0.7	57.7	10.19	
P1756	04/15/13	1069.0	0.6	61.2	9.95	5100
P1756	04/23/13	1020.0	0.6	60.7	9.44	5040
P1778	04/03/13	1161.0	0.9	65.4	10.28	
P1778	04/15/13	1075.0	0.9	64.9	9.81	5300
P1778	04/23/13	1064.0	0.8	63.5	9.09	5260
P1794	04/03/13	950.7	1.4	50.1	12.20	
P1794	04/15/13	941.7	1.4	51.1	12.06	4660
P1794	04/23/13	1119.0	1.6	51.5	13.90	5480
P1800	04/03/13	1143.0	0.8	72.4	11.77	
P1800	04/15/13	1049.0	0.7	80.0	11.40	5130
P1800	04/23/13	992.4	0.7	77.0	10.39	5070
P1857	04/03/13	1129.0	1.1	55.7	10.85	
P1857	04/15/13	1046.0	1.0	56.1	10.46	5190
P1857	04/23/13	1166.0	1.1	55.7	10.79	5740
P1865	04/03/13	1134.0	1.5	71.7	54.01	
P1865	04/15/13	1063.0	1.7	68.2	40.58	5380
P1865	04/23/13	1106.0	1.7	67.1	38.55	5460

CEPTEIEN MAIL  
PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT  
OF THE RETURN ADDRESS, FOLD AT DOTTED LINE



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