

**CAMECO RESOURCES  
CROW BUTTE OPERATION**



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

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

February 22, 2018

**USPS PRIORITY MAIL  
SIGNATURE CONFIRMATION**

Marty Link, Water Quality Division Administrator  
Nebraska Department of Environmental Quality  
P.O. Box 98922  
Lincoln, NE 68509-8922

Class III UIC Permit NE0122611  
December 2017 Monthly Restoration Report

Dear Ms. Link:

Please find enclosed the January 2018 Monthly Restoration Reports for Mine Units 2, 3, 4, 5 and 6. Because of the Deep Well #1 shut down, the reverse osmosis (RO) units were not operational after January 1, 2018. Ion exchange (IX) was the only groundwater treatment method used in Mine Units 3, 4, 5, and 6 during the month. Groundwater sweep continued in portions of Mine Units 4, 5, and 6.

Mine Unit 2 remained in stability monitoring.

If you have any questions regarding this submittal, please feel free to contact me at (308) 665-2215, ext. 117.

Sincerely,  
Cameco Resources  
Crow Butte Operation

Walter D. Nelson  
SHEQ Coordinator

Enclosures: As Stated

cc: Ron Burrows – NRC  
CBO - File  
cc: CR – Electronic File  
Kory Winters – NDEQ Field Office  
Amanda Jones – NDEQ Program Coordinator

**CROW BUTTE MINE**  
**MONTHLY RESTORATION REPORT**

January 2018

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	
d. Wellfield Recirculation		X	
e. Other (explain):	X		The Mine Unit is in Stability Monitoring.

**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:**

No wells were sampled during the month.



**CROW BUTTE MINE**  
**MONTHLY RESTORATION REPORT**

January 2018

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		IX only P246
d. Wellfield Recirculation		X	
e. Other (explain):			

**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:**

No wells were sampled in the mine unit during the month

**CROW BUTTE MINE**  
**MONTHLY RESTORATION REPORT**

January 18

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		IX only P392, P410, P456, I544P, I545P, I546P, I551P, P6024, and P6029.
d. Wellfield Recirculation		X	
e. Other (explain):			

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

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

BL-10, CM2-4, and P372-9.

**4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:**

BL-10.



# Mine Unit 4 Restoration Data

Well Name	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
BL-10	1/10/2018	334.0	10.22	102.0	2.64	284.4	170.3	1305	7.93	820	0.000	1.746	0.299

**CROW BUTTE MINE**  
**MONTHLY RESTORATION REPORT**

January 2018

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		IX only BL5-3, I685P, and P837.
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, P699, and P1002.

**4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:**

P699 and P1002.

# Mine Unit 5 Restoration Data

Well Name	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
P1002	1/10/2018	371	18.56	184	4.76	450.1	389.7	2112	7.96	1297	-0.001	1.108	0.287
P699	1/10/2018	333	13.94	187	3.90	436.3	379.3	2026	8.10	1247	-0.001	1.181	1.104



**CROW BUTTE MINE**  
**MONTHLY RESTORATION REPORT**

January 2018

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 only I1272P, I1285P, P1315, P1355, I1356P, P1402, P1404, P1494, P1532, P1582, P1584, P1585, I1602P, P1690, P1704, P1765, P1800.
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:**

P1337, P1399, I1423P, and P1426.

**4. LIST WELLS SAMPLED DURING MONTH AND ASSAY RESULTS:**

I1267P, I1285P, P1337, P1355, I1356P, P1376, I1423P, P1446, P1584, P1585, I1600P, I1602P, I1667P, P1689, P1690, P1765, P1800 and P1832.



# MU6 Restoration Data

Well Name	Date	Alk	Cl	Ca	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
I1267P	1/29/2018	549	202	26.58	6.77	579.3	437.0	2537	7.83	1620		4.153	0.269
I1285P	1/10/2018	391	101	8.56	2.28	329.4	185.7	1441	8.26	907	0.03	2.355	1.639
I1356P	1/10/2018	316	111	15.43	4.22	286.1	181.5	1341	7.67	839	0.10	6.192	0.356
I1423P	1/10/2018	395	215	23.04	5.72	512.0	454.3	2357	7.82	1487	0.01	3.462	0.562
I1600P	1/29/2018	489	177	55.65	5.68	368.5	205.8	1711	7.51	1072		4.224	0.208
I1602P	1/10/2018	374	107	9.29	2.92	320.7	184.7	1450	8.28	912	0.04	1.934	2.581
I1667P	1/29/2018	348	135	42.96	10.25	325.5	276.9	1615	7.91	1022		0.786	0.163
P1337	1/10/2018	429	94	8.69	2.26	333.8	174.0	1459	8.13	915	0.04	2.361	0.851
P1355	1/10/2018	410	131	13.95	4.02	383.3	252.8	1725	7.85	1080	0.07	2.837	0.776
P1376	1/29/2018	204	45	6.05	0.84	167.9	95.5	754	8.07	526		0.277	0.578
P1446	1/29/2018	295	118	85.68	7.11	158.4	123.5	1147	6.70	690		0.063	0.000
P1584	1/10/2018	377	83	6.16	1.85	299.2	152.6	1307	8.42	821	0.01	2.165	1.343
P1585	1/10/2018	600	177	15.66	5.68	536.3	330.7	2357	7.82	1487	0.00	2.747	1.451
P1689	1/29/2018	278	117	59.12	5.30	135.3	16.4	891	7.10	564		0.277	0.345
P1690	1/10/2018	732	313	49.32	14.40	747.5	578.6	3455	7.58	2283	0.01	5.589	0.495
P1765	1/10/2018	432	118	9.97	2.44	384.0	232.2	1689	8.09	1060	0.05	3.826	0.870
P1800	1/10/2018	463	174	21.10	5.68	443.6	297.6	2036	7.73	1253	0.01	2.378	0.436
P1832	1/29/2018	370	254	102.40	5.05	278.9	150.0	1683	7.68	1057		1.699	0.237