

**CAMECO RESOURCES
CROW BUTTE OPERATION**



**86 Crow Butte Road
P.O. Box 169
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**(308) 665-2215
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May 14, 2019

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

**ATTN: Document Control Desk, Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001**

**Subject: Source Materials License SUA-1534
Docket No. 40-8943
SM10-28A Monitor Well Excursion - 60 Day Report**

Dear Document Control Desk:

On March 25, 2019, during routine biweekly water sampling of Cameco Resources, Crow Butte Operation (CBO) shallow monitor well SM10-28A, the multiple parameter upper control limits (MCL) for chloride and conductivity were exceeded. As required by License Condition 11.1.5 of Source Materials License SUA-1534, a second sample was collected within 24 hours and analyzed for the three excursion indicator parameters. The results of the second sample exceeded the single control limit (SCL) for alkalinity and conductivity.

The region around the CBO facility was subject to a major winter storm on March 14 and 15, 2019, in which the site received an estimated 18" of snowfall accompanied by up to 90 mph wind gusts. As a result, a significant amount of snowmelt impacted the area around the well. A hole was observed within 5' of the wellhead, and it appears that this hole may have provided a conduit for snowmelt to report to the screened interval of the well at an accelerated rate. Bentonite plug gel was placed in this hole and no further corrective actions were taken.

In accordance with License Condition 11.1.5, CBO increased the sampling frequency for SM10-28A to weekly until three consecutive weekly samples were below the exceeded excursion control parameters. In accordance with the requirements of the NDEQ Class III UIC permit, weekly sampling continued for three additional weeks. Weekly samples were obtained from March 26, 2019 to May 14, 2019. The samples collected on April 9, 16, 23, and 30, as well as the samples collected on May 7 and 14, 2019, were below the excursion criteria. Based on these results, CBO

NM5520

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Document Control Desk, Director

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is removing SM10-28A from excursion status and is returning it to routine biweekly sampling. Attached are copies of the analytical data for each of the last six weekly samples and graphs for each parameter covering the period of October 22, 2018 through May 14, 2019.

If you have any questions or require any further information, please do not hesitate to call me at (308) 665-2215 ext. 117.

Sincerely,
CAMECO RESOURCES
CROW BUTTE OPERATION

A handwritten signature in black ink. The signature appears to be "Walt Nelson" with a stylized, elongated flourish at the end.

Walt Nelson
SHEQ Coordinator

Enclosures: As Stated

cc: NRC - Deputy Director
CBO - File
ec: CBO



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 04/09/2019

Analysis Date: 04/09/2019

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM07-021	144	216	180	344	534	445	2.6	27	23
SM07-022	143	217	181	339	644	536	2.1	54	45
SM07-023	177	278	232	470	850	708	4.3	59	50
SM07-024	185	259	216	582	809	674	8.3	45	37
SM07-025	155	202	168	361	645	538	3.6	52	44
SM08-017	242	331	276	571	848	707	9	24	20
SM08-018	230	317	264	550	816	680	10	25	21
SM08-019	237	340	283	558	827	689	8.8	25	21
SM08-020	224	314	262	542	806	672	8.4	25	21
SM08-021	252	317	264	617	706	588	9.9	25	21
SM08-022	241	324	270	635	829	691	9.4	25	20
SM08-023	227	317	264	545	808	673	8.7	27	23
SM08-024	226	317	264	547	720	600	8.6	24	20
SM10-016	250	382	318	599	850	708	12	28	23
SM10-017	242	374	312	697	835	696	25	28	23
SM10-018	235	346	288	543	763	636	11	24	20
SM10-019	243	369	307	561	778	648	11	25	21
SM10-020	235	360	300	567	792	660	17	27	22
SM10-021	238	360	300	594	806	672	18	27	23
SM10-022	238	360	300	559	778	648	12	23	20
SM10-028A	215	360	300	672	893	744	34	43	36
SM10-030	238	359	299	534	778	648	7.2	25	21
SM10-031	239	340	283	552	734	612	7.8	25	21
SM10-032	238	340	283	533	734	612	6.9	23	20



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 04/16/2019

Analysis Date: 04/16/2019

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (μMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM08-007	245	348	290	577	763	636	9.2	23	19
SM08-008	238	340	283	514	864	720	6.2	24	20
SM08-009	236	353	294	517	886	738	6.4	23	19
SM08-010	240	331	276	561	749	624	8.7	24	20
SM08-011	232	323	269	547	792	660	8.6	24	20
SM08-012	238	323	269	559	834	695	8.5	25	20
SM08-013	228	328	274	542	880	733	11	31	26
SM08-014	231	325	271	549	720	600	9.7	24	20
SM08-015	222	305	254	531	789	658	8.3	35	29
SM08-016	227	331	276	548	828	690	8.5	24	20
SM09-001	167	255	212	416	648	540	3.8	31	26
SM09-002	159	230	192	381	665	554	3.3	72	60
SM09-003	160	239	199	375	605	504	2.9	29	24
SM09-004	145	230	192	363	562	468	4.2	26	22
SM09-005	141	206	172	309	446	372	3.2	22	18
SM10-017	243	374	312	675	835	696	23	28	23
SM10-028A	213	360	300	646	893	744	33	43	36
SM11-001	161	240	200	408	605	504	5.5	24	20
SM11-002	139	202	168	320	446	372	3.5	21	17
SM11-003	142	210	175	326	490	408	2.3	20	17
SM11-004	139	200	167	305	446	372	1.7	20	17
SM11-005	137	204	170	318	475	396	4.1	20	17
SM11-006	141	207	173	315	490	408	3.3	25	21



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 04/23/2019

Analysis Date: 04/23/2019

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM07-023	176	278	232	458	850	708	4.5	59	50
SM07-024	184	259	216	555	809	674	7.3	45	37
SM07-025	156	202	168	359	645	538	3.2	52	44
SM10-016	250	382	318	598	850	708	13	28	23
SM10-017	243	374	312	639	835	696	19	28	23
SM10-018	236	346	288	536	763	636	9.2	24	20
SM10-019	244	369	307	562	778	648	11	25	21
SM10-020	233	360	300	564	792	660	17	27	22
SM10-021	238	360	300	605	806	672	19	27	23
SM10-022	238	360	300	558	778	648	13	23	20
SM10-028A	211	360	300	614	893	744	33	43	36



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 04/30/2019

Analysis Date: 04/30/2019

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM08-007	246	348	290	585	763	636	9.5	23	19
SM08-008	239	340	283	516	864	720	6.5	24	20
SM08-009	238	353	294	516	886	738	6.7	23	19
SM08-010	242	331	276	541	749	624	8.9	24	20
SM08-011	233	323	269	564	792	660	8.5	24	20
SM08-012	244	323	269	564	834	695	8.9	25	20
SM08-013	231	328	274	543	880	733	11	31	26
SM08-014	233	325	271	553	720	600	9.7	24	20
SM08-015	224	305	254	537	789	658	8.5	35	29
SM08-016	232	331	276	571	828	690	9.4	24	20
SM09-001	169	255	212	417	648	540	4.2	31	26
SM09-002	160	230	192	378	665	554	3.4	72	60
SM09-003	161	239	199	374	605	504	3.1	29	24
SM09-004	147	230	192	365	562	468	4.3	26	22
SM09-005	143	206	172	316	446	372	3	22	18
SM10-017	245	374	312	630	835	696	18	28	23
SM10-028A	209	360	300	622	893	744	35	43	36
SM11-001	161	240	200	407	605	504	5.4	24	20
SM11-002	139	202	168	318	446	372	1.7	21	17
SM11-003	143	210	175	329	490	408	2.3	20	17
SM11-004	139	200	167	307	446	372	2.1	20	17
SM11-005	138	204	170	319	475	396	4.4	20	17
SM11-006	141	207	173	317	490	408	3	25	21



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 05/07/2019

Analysis Date: 05/07/2019

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM07-021	142	216	180	340	534	445	2.7	27	23
SM07-022	145	217	181	340	644	536	2	54	45
SM07-023	177	278	232	459	850	708	3.9	59	50
SM07-024	187	259	216	572	809	674	7.9	45	37
SM07-025	156	202	168	361	645	538	3.9	52	44
SM10-016	255	382	318	607	850	708	13	28	23
SM10-017	243	374	312	616	835	696	16	28	23
SM10-018	237	346	288	542	763	636	9.4	24	20
SM10-019	245	369	307	571	778	648	11	25	21
SM10-020	235	360	300	567	792	660	17	27	22
SM10-021	238	360	300	614	806	672	20	27	23
SM10-022	240	360	300	562	778	648	14	23	20
SM10-028A	209	360	300	609	893	744	34	43	36



Crow Butte Project
Monitor Well Laboratory Report

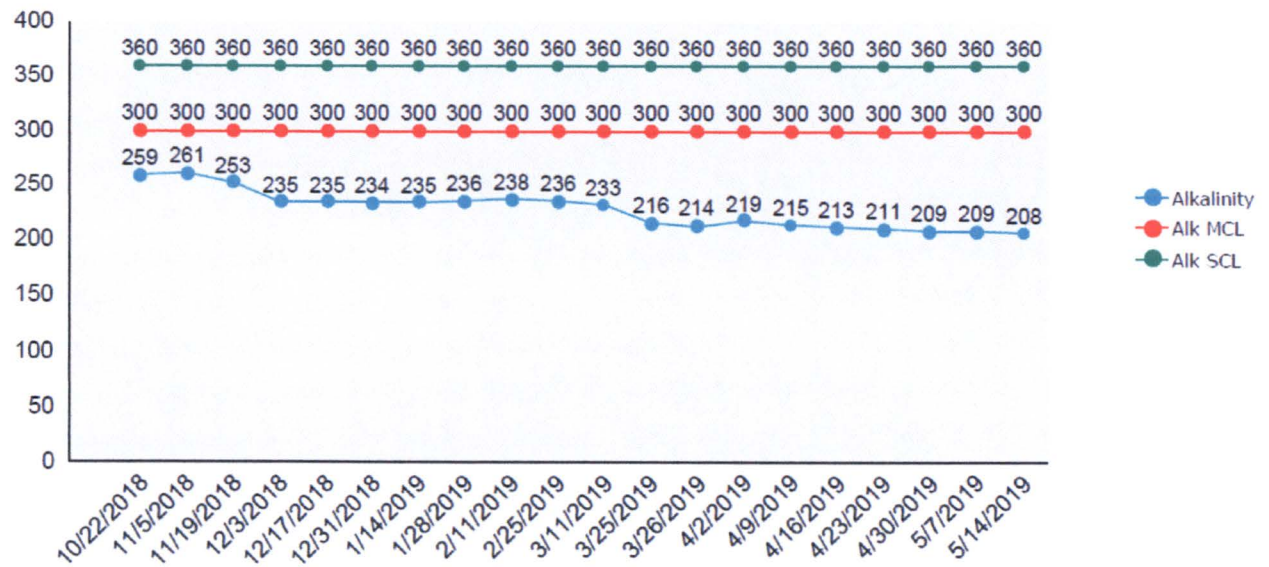
Sample Date: 05/14/2019

Analysis Date: 05/14/2019

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM08-005	254	346	288	585	749	624	9.6	23	19
SM08-006	246	328	274	589	734	612	11	23	19
SM08-007	248	348	290	580	763	636	10	23	19
SM08-008	239	340	283	516	864	720	6.4	24	20
SM08-009	237	353	294	515	886	738	6.7	23	19
SM08-010	241	331	276	565	749	624	8.9	24	20
SM08-011	233	323	269	545	792	660	7.5	24	20
SM08-012	238	323	269	555	834	695	8.5	25	20
SM08-013	229	328	274	542	880	733	11	31	26
SM08-014	232	325	271	555	720	600	9.9	24	20
SM08-015	225	305	254	540	789	658	8.6	35	29
SM08-016	229	331	276	569	828	690	8.8	24	20
SM09-001	169	255	212	416	648	540	4.2	31	26
SM09-002	160	230	192	378	665	554	3.3	72	60
SM09-003	163	239	199	382	605	504	3.5	29	24
SM09-004	149	230	192	371	562	468	4.5	26	22
SM09-005	142	206	172	316	446	372	3	22	18
SM10-017	245	374	312	610	835	696	15	28	23
SM10-028A	208	360	300	607	893	744	33	43	36
SM11-001	162	240	200	408	605	504	5.3	24	20
SM11-002	140	202	168	319	446	372	3.5	21	17
SM11-003	143	210	175	325	490	408	2.3	20	17
SM11-004	139	200	167	307	446	372	2.1	20	17
SM11-005	138	204	170	320	475	396	4.3	20	17
SM11-006	141	207	173	317	490	408	3.5	25	21

SM10-028A

Alkalinity



Chloride

