

**CAMECO RESOURCES
CROW BUTTE OPERATION**



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July 13, 2020

**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
 SM6-28 Monitor Well Excursion - 60 Day Report**

Dear Document Control Desk:

On May 29, 2020, during routine biweekly water sampling of Cameco Resources, Crow Butte Operation (CBO) shallow monitor well SM6-28, the multiple parameter upper control limits (MCL) for conductivity and alkalinity were exceeded. As required by License Condition 11.5 of Source Materials License SUA-1534, a second sample was collected within 48 hours and analyzed for the three excursion indicator parameters. The results of the second sample exceeded the MCL's for conductivity and alkalinity as well.

SM6-28 was placed on excursion last year following a major blizzard that impacted the area in March. Following the blizzard, conditions remained abnormally wet and cool throughout most of the summer. As a consequence, water levels remained relatively high throughout 2019, on into 2020. While the excursion parameters in the well did eventually retreat below the excursion criteria, they remained somewhat elevated above "normal" levels throughout this period. For example, the mean conductivity for the Q3 Mine Monitoring Report (MMR) in 2018 was 658 $\mu\text{Mho/cm}$, compared with 725 $\mu\text{Mho/cm}$ for the same period in 2019. Similarly, the alkalinity mean on the 2018 Q3 MMR was 280 ppm, compared with 301 ppm for the same period in 2019. Conditions this spring have not been exceptionally wet, but have been sufficient to have a slight impact on the excursion parameters in SM6-28. Other than placing SM6-28 on a weekly monitoring frequency, no additional actions were taken.

In accordance with License Condition 11.1.5, CBO increased the sampling frequency for SM6-28

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Document Control Desk, Director

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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 May 30, 2020 to July 8, 2020. The samples collected on June 3, 10, 17, and 24 as well as the samples collected on July 1 and 8, 2020, were below the excursion criteria. Based on these results, CBO is removing SM6-28 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 January 14, 2020 through July 8, 2020.

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

Walt Nelson
SHEQ Coordinator

Enclosures: As Stated

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



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 06/03/2020

Analysis Date: 06/03/2020

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM05-007	212	323	269	558	932	776	9.7	41	34
SM05-008	209	312	260	545	840	700	13	32	27
SM06-028	292	351	293	671	778	648	11	24	20
SM08-017	249	331	276	577	848	707	9.5	24	20
SM08-018	243	317	264	566	816	680	11	25	21
SM08-019	244	340	283	559	827	689	9.2	25	21
SM08-020	232	314	262	559	806	672	9	25	21
SM08-021	237	317	264	573	706	588	10	25	21
SM08-022	261	324	270	655	829	691	10	25	20
SM08-023	233	317	264	556	808	673	8.8	27	23
SM08-024	237	317	264	569	720	600	9.5	24	20
SM08-025	261	324	270	668	720	600	12	24	20
SM10-030	248	359	299	540	778	648	7.1	25	21
SM10-031	245	340	283	553	734	612	8	25	21
SM10-032	245	340	283	531	734	612	6.6	23	20



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Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 06/10/2020

Analysis Date: 06/10/2020

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
CM08-010	320	441	367	1869	3038	2532	179	315	263
CM08-011	313	446	372	1843	3053	2544	176	325	271
CM08-012	325	461	384	1882	3038	2532	178	305	254
CM10-001	319	469	391	1861	2822	2352	175	305	254
CM10-002	318	474	395	1846	2707	2256	173	262	218
CM10-003	314	474	395	1849	2736	2280	177	266	222
CM10-004	349	468	390	2015	2794	2328	205	288	240
CM10-005	335	464	386	1978	3082	2568	199	389	324
CM10-006	317	482	402	1842	2750	2292	171	281	234
CM10-007	319	482	402	1842	2765	2304	169	278	232
CM11-001	303	438	365	1864	2808	2340	183	297	247
CM11-002A	303	442	368	1860	2794	2328	181	285	238
CM11-003	306	439	366	1874	2693	2244	178	272	227
CM11-004	302	464	386	1848	2678	2232	179	268	223
CM11-005	302	451	376	1834	2664	2220	177	274	228
CM11-006	309	436	364	1856	2707	2256	179	269	224
CM11-007	301	432	360	1834	2707	2256	175	272	227
CM11-008	306	462	385	1873	2678	2232	178	274	228
CM11-009	298	439	366	1836	2765	2304	172	276	230
CM11-010	300	436	364	1822	2707	2256	174	284	236
CM11-011	316	433	361	1876	2736	2280	177	278	232
SM04-003	186	361	301	610	1251	1043	12	38	32
SM04-004	211	266	222	621	1099	916	15	62	52
SM06-028	288	351	293	660	778	648	11	24	20
SM08-025	270	324	270	685	720	600	12	24	20
SM10-001	319	469	391	727	994	828	14	37	31
SM10-002	237	338	282	543	763	636	8.7	24	20
SM10-003	251	386	322	556	821	684	8.3	24	20
SM10-004	245	346	288	533	778	648	7.2	24	20
SM10-005	245	350	292	532	763	636	6.9	23	19
SM10-006	336	501	418	742	1123	936	13	33	28
SM10-007	317	403	336	714	965	804	14	33	27



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 06/17/2020

Analysis Date: 06/17/2020

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM05-007	213	323	269	562	932	776	10	41	34
SM05-008	209	312	260	549	840	700	12	32	27
SM06-028	289	351	293	666	778	648	11	24	20
SM08-017	249	331	276	580	848	707	9.5	24	20
SM08-018	243	317	264	568	816	680	11	25	21
SM08-019	246	340	283	562	827	689	9.1	25	21
SM08-020	231	314	262	561	806	672	8.3	25	21
SM08-021	237	317	264	572	706	588	9.2	25	21
SM08-022	260	324	270	658	829	691	10	25	20
SM08-023	233	317	264	558	808	673	8.8	27	23
SM08-024	236	317	264	565	720	600	9.3	24	20
SM08-025	270	324	270	693	720	600	12	24	20
SM10-030	250	359	299	544	778	648	6.8	25	21
SM10-031	246	340	283	554	734	612	7.8	25	21
SM10-032	247	340	283	536	734	612	6.4	23	20

WD



Crow Butte Project

Monitor Well Laboratory Report

Sample Date: 06/24/2020

Analysis Date: 06/24/2020

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
CM08-010	318	441	367	1866	3038	2532	180	315	263
CM08-011	313	446	372	1839	3053	2544	175	325	271
CM08-012	325	461	384	1872	3038	2532	176	305	254
CM10-001	319	469	391	1854	2822	2352	174	305	254
CM10-002	315	474	395	1844	2707	2256	171	262	218
CM10-003	314	474	395	1853	2736	2280	175	266	222
CM10-004	350	468	390	2031	2794	2328	206	288	240
CM10-005	338	464	386	2001	3082	2568	201	389	324
CM10-006	316	482	402	1841	2750	2292	171	281	234
CM10-007	317	482	402	1840	2765	2304	171	278	232
CM11-001	302	438	365	1852	2808	2340	176	297	247
CM11-002A	300	442	368	1852	2794	2328	179	285	238
CM11-003	307	439	366	1863	2693	2244	178	272	227
CM11-004	301	464	386	1831	2678	2232	176	268	223
CM11-005	303	451	376	1824	2664	2220	177	274	228
CM11-006	308	436	364	1850	2707	2256	176	269	224
CM11-007	300	432	360	1825	2707	2256	174	272	227
CM11-008	304	462	385	1851	2678	2232	176	274	228
CM11-009	298	439	366	1820	2765	2304	171	276	230
CM11-010	298	436	364	1807	2707	2256	172	284	236
CM11-011	313	433	361	1850	2736	2280	174	278	232
SM04-003	188	361	301	610	1251	1043	13	38	32
SM04-004	212	266	222	620	1099	916	15	62	52
SM06-028	291	351	293	664	778	648	11	24	20
SM08-025	270	324	270	692	720	600	12	24	20
SM10-001	321	469	391	731	994	828	14	37	31
SM10-002	236	338	282	541	763	636	8.7	24	20
SM10-003	253	386	322	557	821	684	8.4	24	20
SM10-004	243	346	288	535	778	648	7.2	24	20
SM10-005	246	350	292	534	763	636	6.9	23	19
SM10-006	333	501	418	744	1123	936	13	33	28
SM10-007	315	403	336	712	965	804	14	33	27



Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 07/01/2020

Analysis Date: 07/01/2020

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
SM05-007	213	323	269	563	932	776	9.9	41	34
SM05-008	208	312	260	546	840	700	13	32	27
SM06-028	288	351	293	663	778	648	11	24	20
SM08-017	249	331	276	582	848	707	9.6	24	20
SM08-018	241	317	264	567	816	680	11	25	21
SM08-019	244	340	283	558	827	689	9	25	21
SM08-020	233	314	262	565	806	672	9.1	25	21
SM08-021	236	317	264	569	706	588	9.3	25	21
SM08-022	259	324	270	653	829	691	11	25	20
SM08-023	235	317	264	557	808	673	8.9	27	23
SM08-024	234	317	264	558	720	600	9.6	24	20
SM08-025	268	324	270	687	720	600	12	24	20
SM10-030	249	359	299	543	778	648	7.2	25	21
SM10-031	246	340	283	551	734	612	7.8	25	21
SM10-032	246	340	283	535	734	612	6.4	23	20



CW

Crow Butte Project
Monitor Well Laboratory Report

Sample Date: 07/08/2020

Analysis Date: 07/08/2020

Well ID	Alkalinity (mg/L)	Alk SCL	Alk MCL	Conductivity (µMho/cm)	Cond SCL	Cond MCL	Chloride (mg/L)	Cl SCL	Cl MCL
CM08-010	320	441	367	1861	3038	2532	182	315	263
CM08-011	316	446	372	1856	3053	2544	179	325	271
CM08-012	329	461	384	1894	3038	2532	180	305	254
CM10-001	322	469	391	1872	2822	2352	180	305	254
CM10-002	319	474	395	1857	2707	2256	175	262	218
CM10-003	316	474	395	1862	2736	2280	177	266	222
CM10-004	349	468	390	2023	2794	2328	206	288	240
CM10-005	336	464	386	1979	3082	2568	200	389	324
CM10-006	317	482	402	1838	2750	2292	172	281	234
CM10-007	318	482	402	1836	2765	2304	170	278	232
CM11-001	303	438	365	1862	2808	2340	180	297	247
CM11-002A	302	442	368	1864	2794	2328	180	285	238
CM11-003	308	439	366	1879	2693	2244	180	272	227
CM11-004	302	464	386	1846	2678	2232	179	268	223
CM11-005	302	451	376	1834	2664	2220	179	274	228
CM11-006	312	436	364	1872	2707	2256	180	269	224
CM11-007	299	432	360	1831	2707	2256	175	272	227
CM11-008	307	462	385	1870	2678	2232	178	274	228
CM11-009	298	439	366	1829	2765	2304	172	276	230
CM11-010	300	436	364	1822	2707	2256	174	284	236
CM11-011	315	433	361	1861	2736	2280	177	278	232
SM04-003	187	361	301	606	1251	1043	13	38	32
SM04-004	214	266	222	619	1099	916	17	62	52
SM06-028	291	351	293	660	778	648	11	24	20
SM08-025	269	324	270	678	720	600	12	24	20
SM10-001	320	469	391	730	994	828	14	37	31
SM10-002	236	338	282	539	763	636	8.6	24	20
SM10-003	253	386	322	558	821	684	8.2	24	20
SM10-004	245	346	288	535	778	648	7.1	24	20
SM10-005	246	350	292	535	763	636	6.9	23	19
SM10-006	330	501	418	734	1123	936	13	33	28
SM10-007	317	403	336	715	965	804	14	33	27

SM06-028



