

CAMECO RESOURCES
CROW BUTTE OPERATION
86 Crow Butte Road
P.O. Box 169
Crawford, Nebraska 69339-0169



(308) 665-2215
(308) 665-2341 – FAX

January 23, 2012

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

Subject: UIC Permit NE0122611
IJ-13P Monitor Well Excursion – 90 Day Report

Dear Mr. Linder:

On December 26, 2002 during routine biweekly water sampling of Mine Unit 3 perimeter monitor well IJ-13P, the multiple parameter upper control limit (UCL) was exceeded for alkalinity and sulfate. As required by Footnote C.1, of Part II of UIC Permit NE0122611, a second sample was collected within 24 hours and analyzed for the five excursion indicator parameters. Although the results of the second sample were generally lower, two of the five excursion indicators continued to exceed the appropriate UCLs. Based upon those results, IJ-13P was placed on excursion status.

By letter dated January 9, 2004, UIC Permit NE0122611 was amended removing sodium and sulfate as excursion indicator parameters. It was determined that the three parameters: alkalinity, chloride, and conductivity were sufficient to detect well field excursions and the permit was amended accordingly. The new monitor well sampling requirements were described in Section B.1 of Part II of the amended permit.

Weekly samples were obtained from December 26, 2002 to March 29, 2011. The samples collected on February 1, 8, 15, and 22, 2011; and March 1, 8, 15, 22, and 29, 2011 were below the excursion

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criteria as stated in Section B.1. Due to a steady upward trend in alkalinity, CBO did not remove the well from excursion status on March 8, 2011, even though six consecutive weekly samples had been below the excursion parameters. CBO continued to sample the well until the trend was reversed. Based on those results, CBO removed IJ-13P from excursion status on April 5, 2011 and returned it to routine biweekly sampling.

On October 4, 2011 during routine biweekly water sampling the single control limit (SCL) for alkalinity was exceeded. As required, a second sample was collected from the well within 24 hours and analyzed for the three excursion parameters. The results of the second sample also exceeded the SCL for alkalinity.

CBO notified Ms. Jennifer Coughlin and Ms. Lindsey Phillips by voicemail of the excursion on October 5, 2011.

CBO believed the source of the excursion water to be an area to the southeast of IJ13P and consulted with a hydro geologist to develop a corrective action plan to adjust the water flow balance. As a part of the water balance, CBO installed well RES-1i 130 feet southeast of IJ13P and by letter received from NDEQ dated November 15, 2011 was given approval to operate the well. On November 23, 2011, CBO began using this well to inject reverse osmosis permeate into the affected area.

The Class III UIC Permit Number NE0122611 Part II (B) (1) states in part, *"If corrective actions have not been effective within 90 days of the excursion conformation, the injection of fluid shall be terminated in the affected area. Resumption of injection shall require written approval by the Director"*.

On January 2, 2012, IJ13P had been on excursion for 90 days. Attached are copies of the analytical data for each of the last six weekly samples and graphs for each parameter covering the period of December 13, 2011 to January 17, 2012. You will note that water level data is not available for this well, with permission from NDEQ; the well was connected to the restoration circuit and allowed to run continuously, thus making it difficult to collect meaningful water level data. By letter dated December 19, 2011, CBO requested approval to continue injection of treated restoration water in the vicinity of IJ-13P to prevent any further delays in restoration activities of this mine unit. By letter dated January 20, 2012, the Department approved the continuation of injecting permeate into the affected area. As shown in the above referenced graphs, the excursion parameters are trending downward and CBO believes that the corrective actions that have been implemented will be effective in resolving this excursion.

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If you have any questions or require any further information, please do not hesitate to call me at (308) 665-2215 Ext. 114.

Sincerely,
CAMECO RESOURCES
CROW BUTTE OPERATION

Larry Teahon

Larry Teahon
SHEQ Manager

Enclosures: As Stated

cc: Ms. Lindsey Phillips, NDEQ Chadron Field Office
Ron Burrows - NRC
CBO File
ec: CR - Cheyenne

Sample Date 12/6/2011
Analysis Date 12/6/2011

Crow Butte Project Monitor Well Laboratory Report

Well ID	Alkalinity			Conductivity			Chloride		
	(mg/L)	Alk SCL	Alk MCL	(µmho/cm)	Cond SCL	Cond MCL	(mg/L)	Cl SCL	Cl MCL
CM11-12	295	433	361	1850	2794	2328	187	268	223
CM11-13	297	418	348	1860	2722	2268	192	291	242
CM11-14	303	468	390	1860	3024	2520	192	357	298
CM11-15	302	431	359	1830	2765	2304	189	289	241
CM11-16	301	451	376	1820	2794	2328	185	276	230
CM11-17	298	438	365	1810	2837	2364	184	301	251
CM11-18	303	445	371	1840	2722	2268	186	297	247
CM11-19	302	448	373	1830	2779	2316	187	300	250
CM6-10	315	429	358	2020	2952	2460	198	327	272
CM6-9	288	428	356	1950	2866	2388	185	285	238
CM8-1	293	455	379	1960	3110	2592	189	372	310
CM8-2	302	395	329	1940	3125	2604	192	334	278
CM8-3	303	432	360	1950	3211	2676	192	367	306
CM8-4	296	428	356	1920	3125	2604	189	328	274
CM8-5	302	425	354	1940	3067	2556	191	328	274
CM8-6	296	432	360	1920	3067	2556	189	317	264
CM8-7	296	425	354	1920	3154	2628	187	396	330
CM8-8	310	418	348	1910	3211	2676	190	415	346
CM8-9	312	452	377	1880	3053	2544	185	325	271
CM9-10	304	359	299	1810	2390	1992	186	292	244
CM9-11	300	445	371	1830	2707	2256	188	284	236
CM9-8	300	418	348	1820	2952	2460	184	366	305
CM9-9	300	475	396	1830	2923	2436	186	334	278
IJ13P	421	415	346	1870	2900	2417	167	278	232
SM11-1	163	240	200	420	605	504	6	24	20

Sample Date 12/13/2011
Analysis Date 12/13/2011

Crow Butte Project Monitor Well Laboratory Report

Well ID	Alkalinity			Conductivity			Chloride		
	(mg/L)	Alk SCL	Alk MCL	(µmho/cm)	Cond SCL	Cond MCL	(mg/L)	Cl SCL	Cl MCL
CM10-10	327	475	396	1910	2736	2280	193	275	229
CM10-11	317	481	401	1860	2808	2340	177	288	240
CM10-12	317	446	372	1860	2923	2436	177	327	272
CM10-13	321	481	401	1830	2779	2316	176	287	239
CM10-14	335	490	408	1770	2578	2148	169	251	209
CM10-15	341	504	420	1720	2491	2076	170	253	211
CM10-16	320	484	403	1820	2650	2208	171	253	211
CM10-17	330	475	396	1830	2664	2220	170	248	206
CM10-8	319	475	396	1890	2707	2256	187	265	221
CM10-9	319	468	390	1870	2693	2244	183	269	224
CM7-11	294	432	360	1940	2817	2347	195	281	234
CM7-12	294	422	352	1940	2794	2328	196	289	241
CM7-13	295	436	364	1950	2841	2368	194	287	239
CM7-14	295	422	352	1970	2772	2310	194	274	228
CM7-15	301	432	360	1970	2822	2352	196	284	236
CM7-16	307	441	367	2000	2831	2359	201	281	234
IJI3P	428	415	346	1920	2900	2417	173	278	232
PR15	287	444	370	1050	2792	2327	70	268	223
PR8	191	484	403	718	2866	2388	47	282	235
SM10-16	255	382	318	610	850	708	13	28	23
SM10-17	248	374	312	580	835	696	11	28	23
SM10-18	240	346	288	540	763	636	8.1	24	20
SM10-19	245	369	307	560	778	648	7.5	25	21
SM10-20	242	360	300	560	792	660	12	27	22
SM10-21	246	360	300	590	806	672	16	27	23

Sample Date 12/20/2011
Analysis Date 12/20/2011

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Crow Butte Project
Monitor Well Laboratory Report

Well ID	Alkalinity			Conductivity			Chloride		
	(mg/L)	Alk SCL	Alk MCL	(µmho/cm)	Cond SCL	Cond MCL	(mg/L)	Cl SCL	Cl MCL
CM11-12	296	433	361	1840	2794	2328	182	268	223
CM11-13	296	418	348	1860	2722	2268	193	291	242
CM11-14	305	468	390	1850	3024	2520	186	357	298
CM11-15	298	431	359	1830	2765	2304	185	289	241
CM11-16	303	451	376	1820	2794	2328	182	276	230
CM11-17	302	438	365	1810	2837	2364	183	301	251
CM11-18	304	445	371	1840	2722	2268	183	297	247
CM11-19	301	448	373	1840	2779	2316	187	300	250
CM6-10	317	429	358	2030	2952	2460	199	327	272
CM6-9	291	428	356	1950	2866	2388	188	285	238
CM8-1	289	455	379	1980	3110	2592	188	372	310
CM8-2	302	395	329	1950	3125	2604	193	334	278
CM8-3	306	432	360	1960	3211	2676	194	367	306
CM8-4	300	428	356	1940	3125	2604	191	328	274
CM8-5	300	425	354	1930	3067	2556	189	328	274
CM8-6	298	432	360	1940	3067	2556	190	317	264
CM8-7	300	425	354	1930	3154	2628	190	396	330
CM8-8	309	418	348	1920	3211	2676	189	415	346
CM8-9	313	452	377	1890	3053	2544	185	325	271
CM9-10	298	359	299	1810	2390	1992	184	292	244
CM9-11	300	445	371	1840	2707	2256	185	284	236
CM9-8	297	418	348	1830	2952	2460	183	366	305
CM9-9	298	475	396	1830	2923	2436	184	334	278
IJI3P	446	415	346	2000	2900	2417	184	278	232
SM11-1	164	240	200	420	605	504	6.1	24	20

Sample Date

1/3/2012

Analysis Date

1/3/2012

Crow Butte Project

Monitor Well Laboratory Report

Well ID	Alkalinity			Conductivity			Chloride		
	(mg/L)	Alk SCL	Alk MCL	(µmho/cm)	Cond SCL	Cond MCL	(mg/L)	Cl SCL	Cl MCL
CM3-5	303	433	361	2000	2814	2345	198	318	265
CM3-6	298	441	367	1980	2799	2333	195	300	250
CM5-18	301	441	367	1940	2916	2430	195	315	263
CM5-19	299	425	354	1940	2916	2430	194	320	266
CM5-20	308	445	371	2020	2929	2441	201	310	258
CM5-21	302	441	367	1950	2910	2425	192	275	229
CM5-22	297	435	362	1950	2903	2419	191	302	252
CM5-23	295	433	361	1940	2916	2430	190	317	264
CM5-24	300	383	319	1950	2887	2406	190	317	264
CM5-25	293	438	365	1970	2982	2485	183	314	262
CM5-26	299	433	361	1970	2900	2417	192	302	252
CM5-27	300	445	371	1970	2974	2478	194	320	266
CM6-12	300	436	364	1950	2794	2328	194	279	233
CM6-13	301	446	372	1940	2866	2388	194	285	238
CM6-14	296	436	364	1940	2909	2424	190	297	247
CM6-15	290	444	370	1950	2779	2316	189	287	239
CM6-16A	296	418	348	1940	3082	2568	190	338	282
CM6-17	299	442	368	1940	2779	2316	190	275	229
CM6-18	300	442	368	1940	2909	2424	190	302	252
CM6-19	301	452	377	1940	2880	2400	189	295	246
IJI3P	429	415	346	1930	2900	2417	175	278	232
SM5-10	208	324	270	570	901	751	11	36	30
SM5-11	217	341	284	590	942	785	11	41	34
SM5-12	209	327	272	580	920	767	11	43	36
SM5-13	197	314	262	550	880	733	13	39	32

Sample Date 1/10/2012

Analysis Date 1/10/2012

Crow Butte Project

Monitor Well Laboratory Report

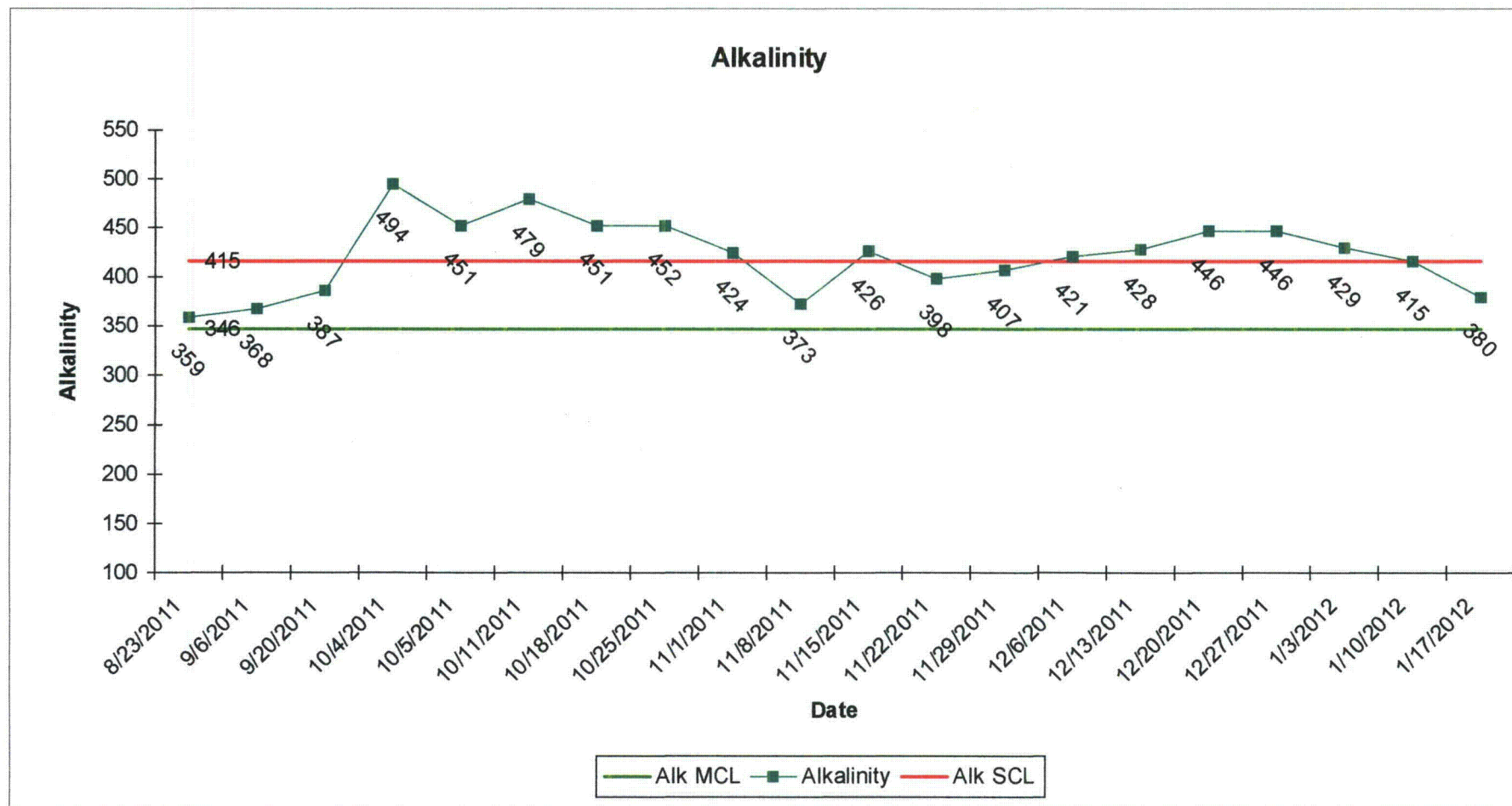
Well ID	Alkalinity			Conductivity			Chloride		
	(mg/L)	Alk SCL	Alk MCL	(µmho/cm)	Cond SCL	Cond MCL	(mg/L)	Cl SCL	Cl MCL
CM10-10	330	475	396	1900	2736	2280	193	275	229
CM10-11	320	481	401	1850	2808	2340	176	288	240
CM10-12	318	446	372	1850	2923	2436	174	327	272
CM10-13	324	481	401	1840	2779	2316	171	287	239
CM10-14	338	490	408	1770	2578	2148	170	251	209
CM10-15	344	504	420	1720	2491	2076	169	253	211
CM10-16	323	484	403	1820	2650	2208	167	253	211
CM10-17	332	475	396	1830	2664	2220	166	248	206
CM10-8	322	475	396	1880	2707	2256	185	265	221
CM10-9	320	468	390	1870	2693	2244	180	269	224
CM7-11	294	432	360	1930	2817	2347	191	281	234
CM7-12	294	422	352	1940	2794	2328	190	289	241
CM7-13	294	436	364	1940	2841	2368	190	287	239
CM7-14	294	422	352	1960	2772	2310	191	274	228
CM7-15	300	432	360	1970	2822	2352	192	284	236
CM7-16	305	441	367	1990	2831	2359	196	281	234
IJ13P	415	415	346	1830	2900	2417	165	278	232
PR15	275	444	370	990	2792	2327	66	268	223
PR8	219	484	403	760	2866	2388	48	282	235
SM10-16	256	382	318	610	850	708	12	28	23
SM10-17	249	374	312	580	835	696	11	28	23
SM10-18	240	346	288	540	763	636	7.9	24	20
SM10-19	247	369	307	560	778	648	7.3	25	21
SM10-20	244	360	300	560	792	660	11	27	22
SM10-21	246	360	300	590	806	672	16	27	23

Sample Date 1/17/2012
Analysis Date 1/17/2012

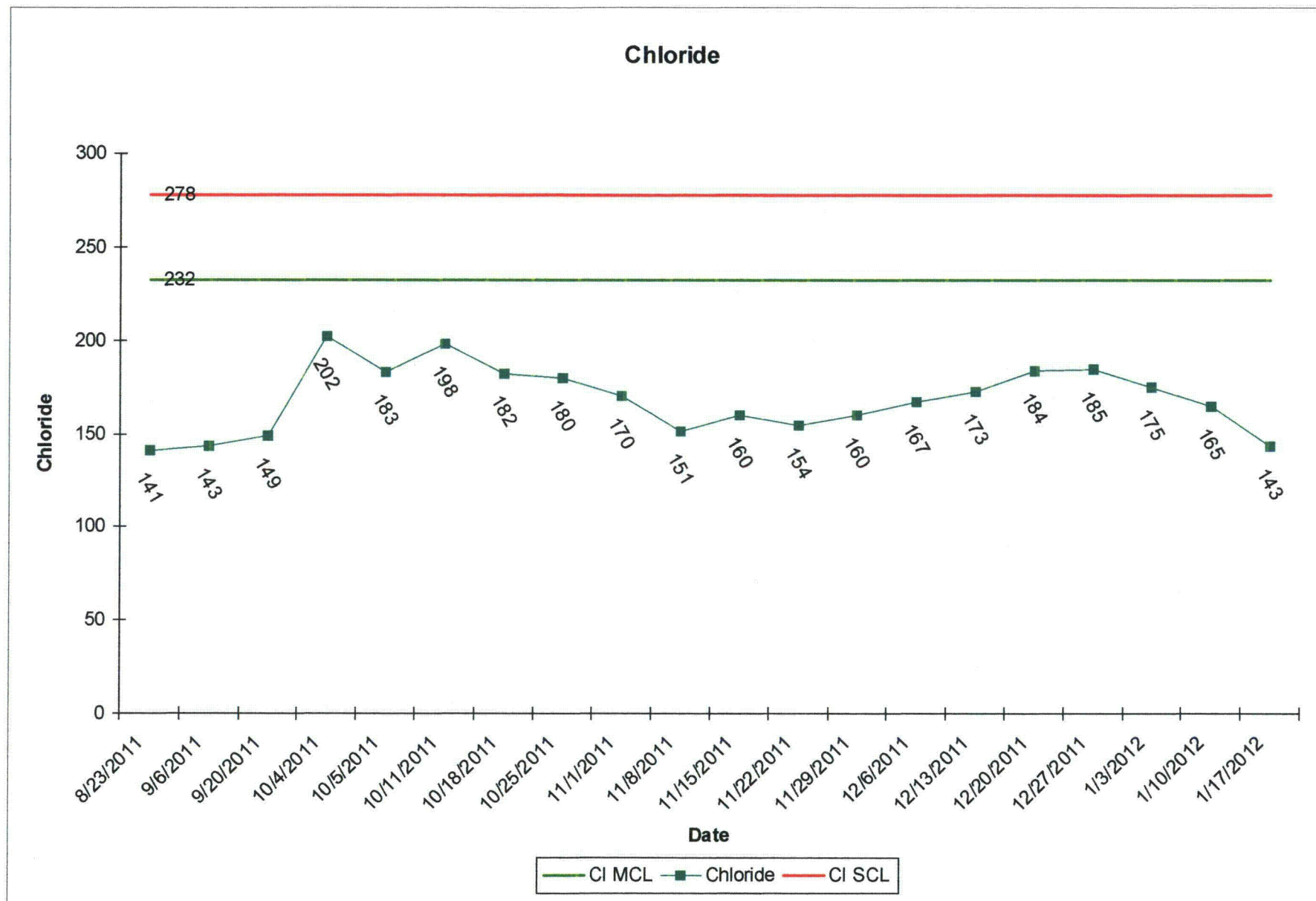
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Well ID	Alkalinity			Conductivity			Chloride		
	(mg/L)	Alk SCL	Alk MCL	(µmho/cm)	Cond SCL	Cond MCL	(mg/L)	Cl SCL	Cl MCL
CM11-12	297	433	361	1850	2794	2328	181	268	223
CM11-13	297	418	348	1850	2722	2268	190	291	242
CM11-14	303	468	390	1850	3024	2520	185	357	298
CM11-15	301	431	359	1830	2765	2304	185	289	241
CM11-16	301	451	376	1820	2794	2328	183	276	230
CM11-17	301	438	365	1810	2837	2364	182	301	251
CM11-18	303	445	371	1830	2722	2268	182	297	247
CM11-19	302	448	373	1830	2779	2316	184	300	250
CM6-10	316	429	358	2010	2952	2460	199	327	272
CM6-9	290	428	356	1960	2866	2388	185	285	238
CM8-1	290	455	379	1970	3110	2592	190	372	310
CM8-2	300	395	329	1950	3125	2604	190	334	278
CM8-3	305	432	360	1970	3211	2676	193	367	306
CM8-4	298	428	356	1940	3125	2604	195	328	274
CM8-5	300	425	354	1950	3067	2556	191	328	274
CM8-6	296	432	360	1940	3067	2556	192	317	264
CM8-7	297	425	354	1940	3154	2628	189	396	330
CM8-8	307	418	348	1920	3211	2676	192	415	346
CM8-9	309	452	377	1900	3053	2544	188	325	271
CM9-10	299	359	299	1810	2390	1992	184	292	244
CM9-11	299	445	371	1840	2707	2256	185	284	236
CM9-8	299	418	348	1830	2952	2460	183	366	305
CM9-9	302	475	396	1830	2923	2436	185	334	278
IJ13P	380	415	346	1680	2900	2417	143	278	232
SM11-1	164	240	200	420	605	504	6.3	24	20

IJ13P



IJ13P



IJ13P

