

CROW BUTTE RESOURCES, INC.

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



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

September 15, 2000

U.S. Nuclear Regulatory Commission
Mr. Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
Mail Stop T8A-33
Washington, D.C. 20555-0001

Re: Source Materials License SUA-1534
Docket No. 40-8943
Monitor Well SM6-12 Upper Control Limit Exceedance

Dear Mr. Ting:

On September 8, 2000 during routine biweekly water sampling of Crow Butte Resources, Inc. (CBR) shallow monitor well SM6-12, the single parameter upper control limit (UCL) was exceeded for sodium, sulfate, chloride and conductivity. The concentration for alkalinity was at the multiple parameter UCL. As required by SUA-1534, a second sample was collected within 48 hours and analyzed for the five excursion indicator parameters. The results of the second sample also exceeded the single UCL for sodium, sulfate, chloride and conductivity and the multiple parameter UCL was exceeded for alkalinity. Based upon these results, monitor well SM6-12 was placed on excursion status.

Mr. Steve Sandin of the NRC Operations Center was notified verbally at 0752 MDT on September 10, 2000 of the confirmation of the excursion. As required by License Condition 12.2, this letter provides written notification of the excursion. Laboratory results for the analysis of both samples are attached. In addition, graphs are attached for the excursion monitoring for SM6-12 that covers the period from December 30, 1999 though September 14, 2000.

Shallow monitor well SM6-12 is located in Mine Unit 6 at the northern end of the Crow Butte mine. Shallow monitor wells are completed in the upper aquifer (Brule formation) above the mining zone (Chadron formation). In response to the initial analytical results, CBR inspected the shallow monitor well and the surrounding area on the afternoon of September 8. During this inspection, injection well I-1274 was found to have a stuck pressure relief valve. CBR uses pressure relief valves to relieve a buildup of annulus pressure in injection wells due to oxygen addition. The pressure relief valve for I-

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1274 had been stuck open by a piece of foreign material in the piping system that prevented it from reseating after the pressure was relieved. As a result, the pressure relief valve was releasing approximately 1 gallon per minute (gpm) into the wellhead cover. This released solution was collecting around the wellhead and along the well utility trench to a distance of approximately 12 feet from the wellhead. The saturation of the soil indicated that the injection solution had apparently penetrated the subsurface along the well casing. Probing performed by CBR with a metal rod indicated saturated soil to a depth of at least 7 feet next to the casing.

In addition to investigations around I-1274, wellfield records were reviewed to determine the location of any abandoned exploration holes to determine if they could provide a potential conduit to the upper aquifer. The nearest abandoned exploration holes were 50 feet to the north and south of SM6-12. The injection solution released on the surface at I-1274 did not reach any of these areas.

A review of wellfield inspection records indicates that well I-1274 was inspected on August 16, 2000 during routine wellfield inspections. At that time, there was no indication of leakage from the pressure relief valve. Therefore, the pressure relief valve leak would be limited to a maximum of 23 days in duration. At an estimated flow rate from the pressure relief valve of 1 gpm, a maximum of 33,120 gallons of injection solution could have been released. Visual indications of the areal extent of the saturated soil (approximately 40 square feet) and the lack of any green vegetation indicate that the leak from the pressure relief valve was most likely of a more limited duration.

To ensure that the excursion in SM6-12 was not caused because of the failure of a well casing, CBR performed mechanical integrity tests (MITs) on all nearby injection wells and SM6-12. The attached map of Wellhouse 24 shows the location of mining and monitor wells in this area of the Crow Butte mine. Shallow monitor well SM6-12 is located approximately 175 feet northeast of Wellhouse 24. CBR performed MITs on the three nearest injection wells (I-1274, I-1541, and I-1553) that were in operation at the time of the excursion. MITs were also performed on injection wells in the immediate vicinity of SM6-12 that were not in service at the time (I-1521, I-1566, I-1290, I-1554, and I-1599c). An MIT was also performed on SM6-12. All wells successfully passed the MIT test criteria. Copies of the Casing Integrity reports for each well are attached. These MIT results indicate that the excursion was not the result of a leak in a nearby well casing.

Upon discovery of the leaking pressure relief valve on September 8, CBR started the well pump in SM6-12 to recover mining solutions. The pump was operated through September 9 on a portable generator at a flow rate of approximately 12 gpm. On September 11, permanent electrical power was installed at the pump and recovery was resumed. The pumped solutions are directed to production well P-1530 for return to the process plant. CBR has monitored recovery flowrate, total gallons recovered, and well conductivity on a daily basis since September 11. The well has operated at an

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average flowrate of approximately 12 gpm. As of 0638 on September 14, 2000, a total of 45,634 gallons had been recovered. The conductivity measurements made during this period indicate that the mining solutions are being successfully recovered. Conductivity has decreased from 910 $\mu\text{mhos/cm}$ on September 9 to 666 $\mu\text{mhos/cm}$ on September 14, 2000.

In accordance with License Condition 11.2, CBR increased the sampling frequency for SM6-12 from biweekly to weekly. A sample was obtained on September 14 and analyzed for the excursion parameters. As shown in the graph for each parameter, the results indicate a significant decrease in the concentrations of the excursion parameters due to solution recovery efforts. The concentrations of sodium and alkalinity are below the applicable UCLs. The conductivity is below the single UCL. CBR plans to continue recovery efforts until concentrations of all parameters are returned to normal levels.

CBR will continue weekly monitoring until three consecutive weekly samples are below the exceeded UCL. At that time, the well will be returned to normal status. If you have any questions or require any further information, please do not hesitate to call me at (308) 665-2215.

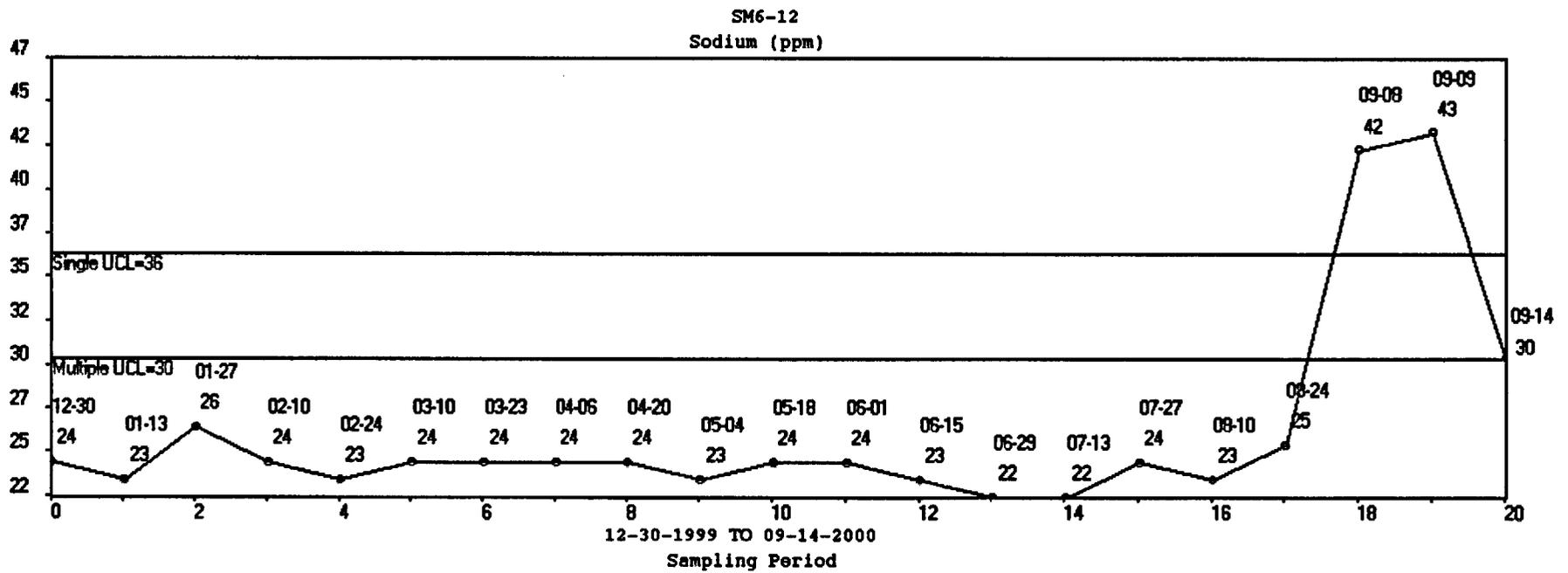
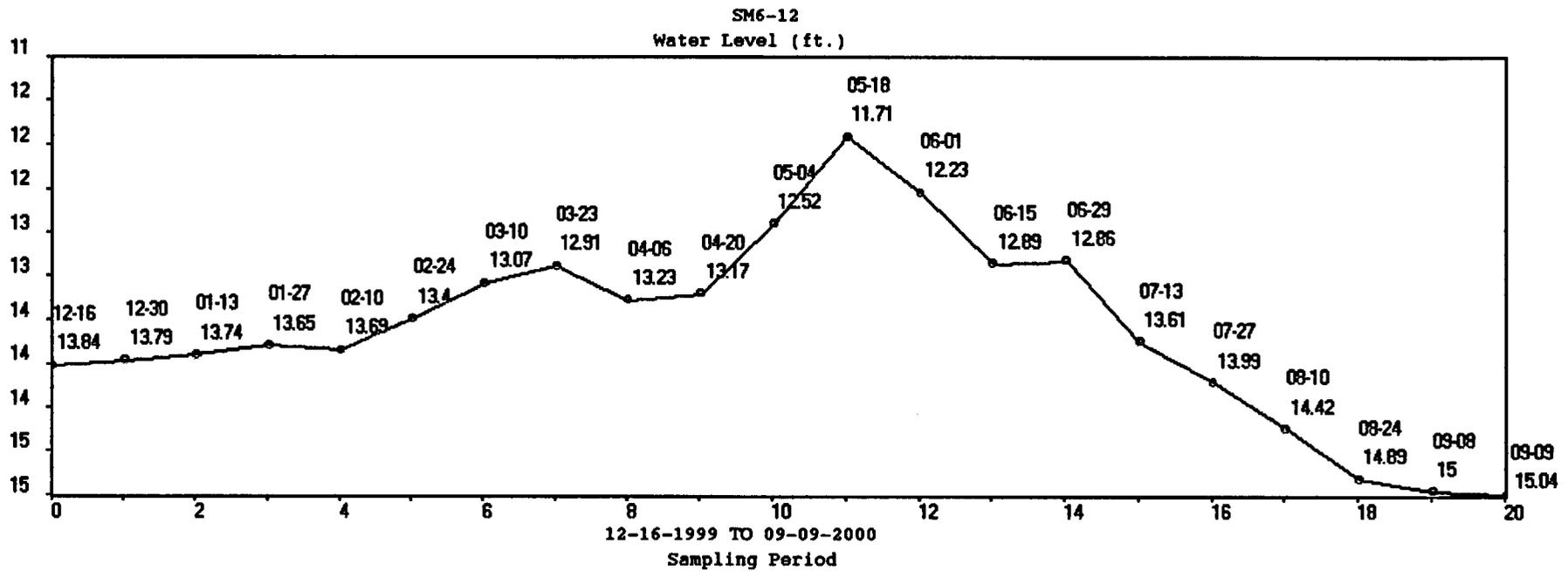
Sincerely,
CROW BUTTE RESOURCES, INC.

A handwritten signature in black ink, appearing to read 'M. Griffin', written over a circular stamp or seal.

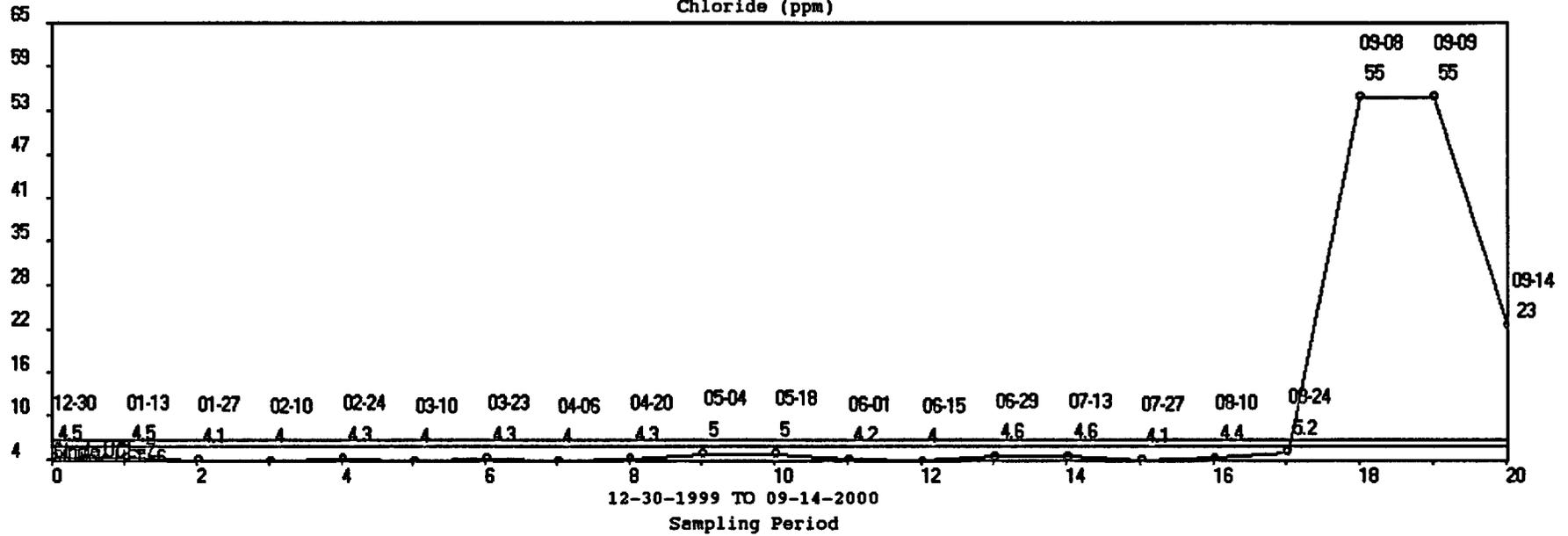
Michael Griffin
Manager of Environmental and Regulatory Affairs

Enclosures: As Stated

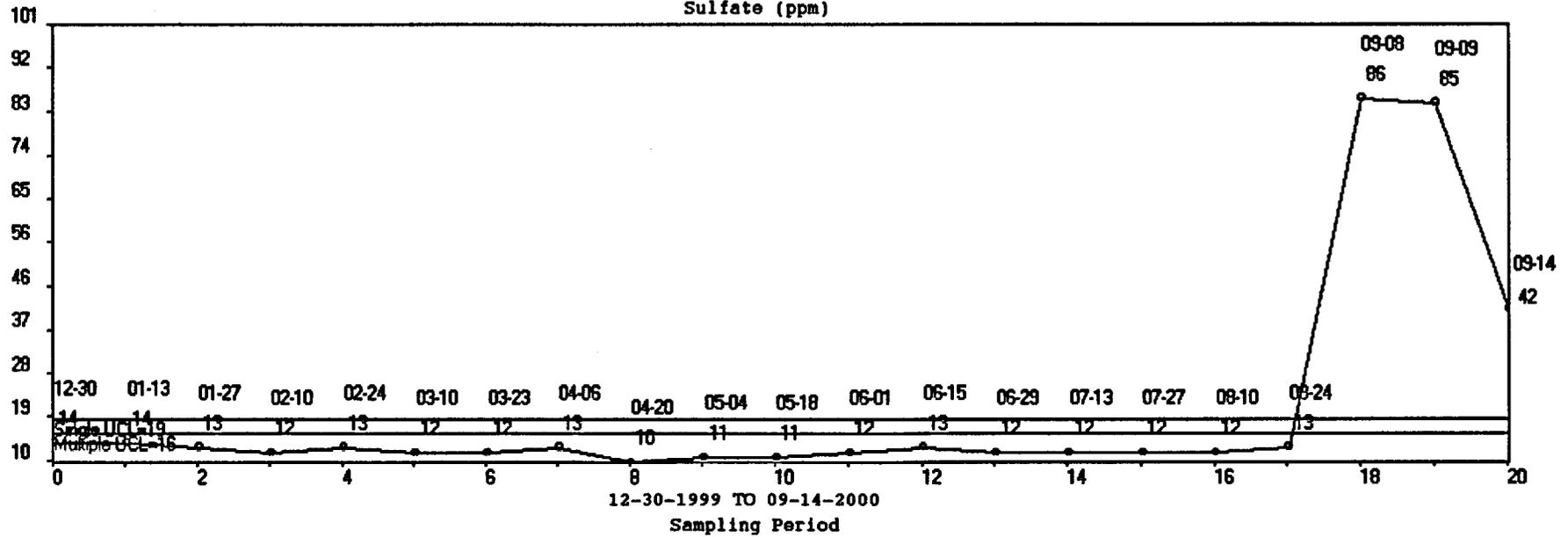
cc: Mr. Steve Collings - CBR, Denver, Colorado
Mr. William Ford - USNRC, Uranium Recovery Branch



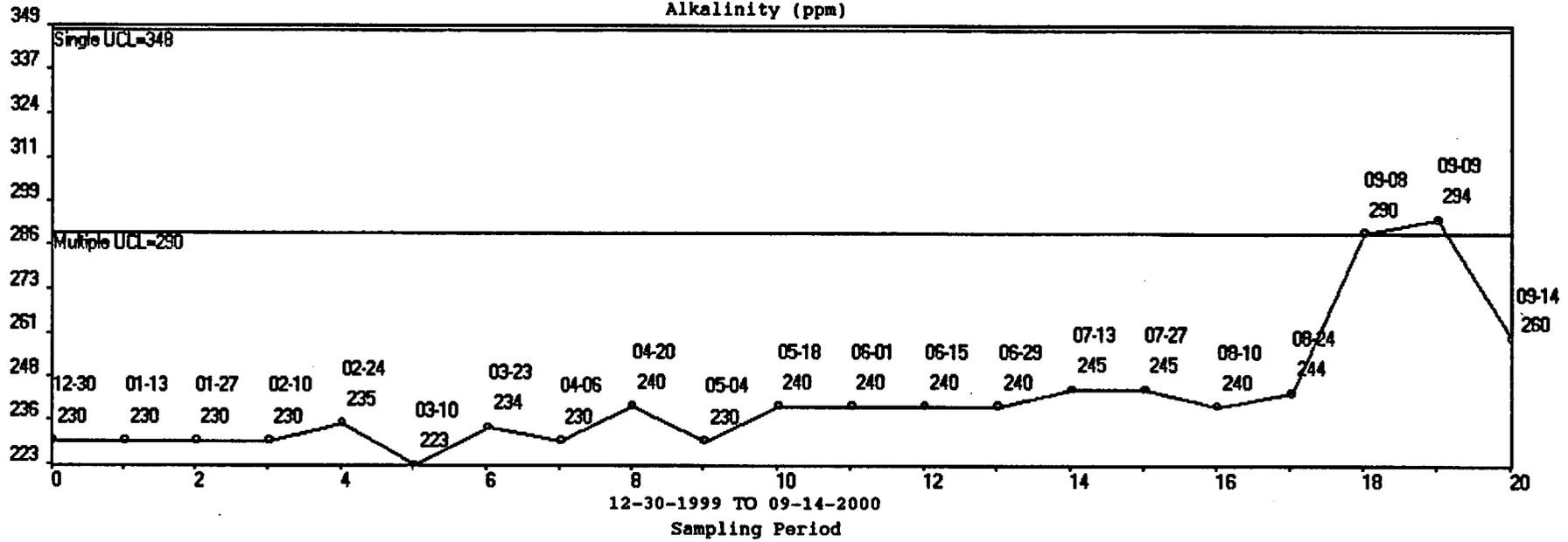
SM6-12
Chloride (ppm)



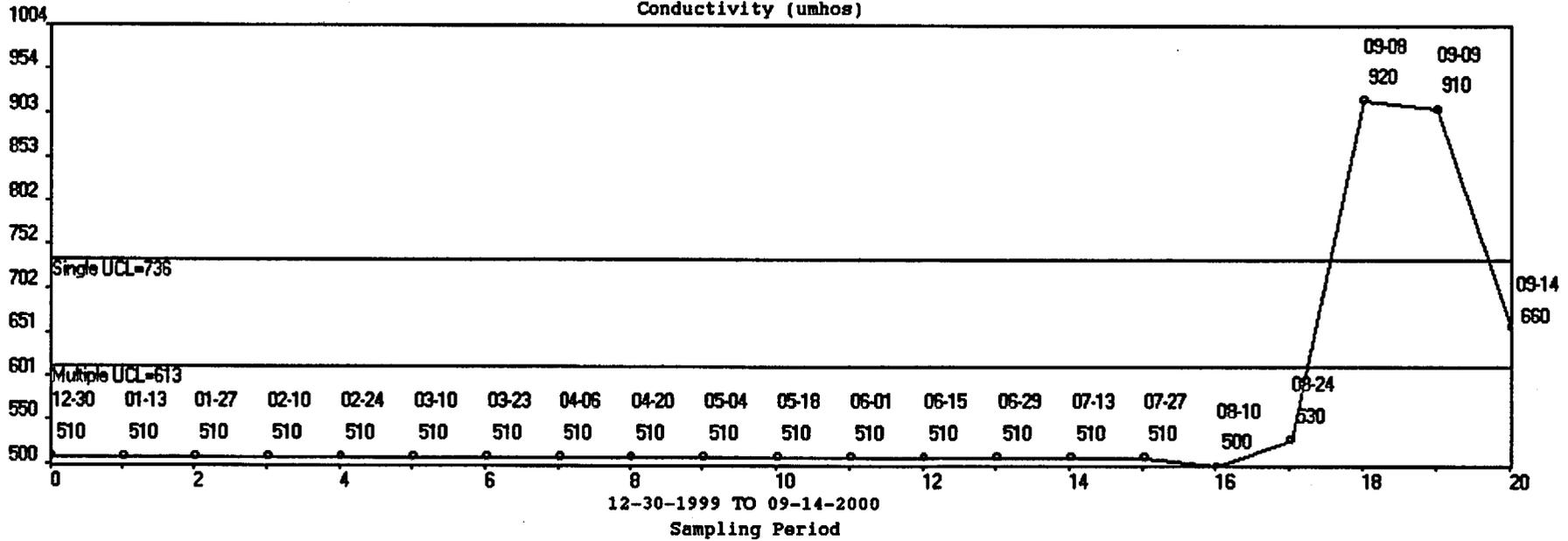
SM6-12
Sulfate (ppm)



SM6-12
Alkalinity (ppm)



SM6-12
Conductivity (umhos)



Crow Butte Project
Monitor Well Laboratory Report

Page Number 1/2

Sample Date: 09-08-2000
Analysis Date: 09-08-2000

Analyst: SM/LG

Well Number	Sodium (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Conductivity (UMHOS)	Alkalinity (mg/L)
SM6-3	120	52	13	560	205
Multiple	148	63	26	703	246
Single	177	75	31	844	295
SM6-4	118	45	8.1	530	210
Multiple	140	55	14	670	258
Single	168	67	17	804	310
SM6-5	115	39	7.4	530	210
Multiple	134	53	8	642	262
Single	161	63	10	770	314
SM6-6	108	20*	3.7*	490	225
Multiple	130	21	7	593	278
Single	156	25	8	711	334
SM6-7	116	15	6.6	500	240
Multiple	136	18	27	649	286
Single	163	22	33	779	343
SM6-8	65	26*	6.3	490	208
Multiple	87	33	20	642	259
Single	104	40	24	770	311
SM6-10	120	47	10*	560	218
Multiple	146	60	18	698	264
Single	176	72	22	838	317
SM6-12	42*	86*	55*	920*	290*
Multiple	30	16	6	613	290
Single	36	19	7	736	348
SM6-17	37	8.5*	4.4*	480	239
Multiple	69	10	26	665	294
Single	83	12	31	798	353
SM7-11	55	18	3.7*	340	147
Multiple	74	26	12	449	180
Single	89	32	15	539	216
SM7-12	87	41	3.5*	440	175
Multiple	101	50	14	516	186
Single	121	60	17	619	223
SM7-13	74	24	3.7*	370	160
Multiple	96	37	12	493	194
Single	115	45	14	592	233
CM6-5	404	368	185*	1930	290
Multiple	485	476	245	2436	347
Single	582	572	294	2923	416
CM6-6	414	363	186	1960	302
Multiple	486	461	251	2412	370
Single	583	553	301	2894	444

* - Denotes 5% change from previous sample.

Crow Butte Project
Monitor Well Laboratory Report

Page Number 1/2

Sample Date: 09-09-2000
Analysis Date: 09-09-2000

Analyst: SM

Well Number	Sodium (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Conductivity (UMHOS)	Alkalinity (mg/L)
SM6-3 Multiple	148	63	26	703	246
Single	177	75	31	844	295
SM6-4 Multiple	140	55	14	670	258
Single	168	67	17	804	310
SM6-5 Multiple	134	53	8	642	262
Single	161	63	10	770	314
SM6-6 Multiple	130	21	7	593	278
Single	156	25	8	711	334
SM6-7 Multiple	136	18	27	649	286
Single	163	22	33	779	343
SM6-8 Multiple	87	33	20	642	259
Single	104	40	24	770	311
SM6-10 Multiple	146	60	18	698	264
Single	176	72	22	838	317
SM6-12 Multiple	43	85	55	910	294
Single	30	16	6	613	290
Single	36	19	7	736	348
SM6-17 Multiple	69	10	26	665	294
Single	83	12	31	798	353
SM7-11 Multiple	74	26	12	449	180
Single	89	32	15	539	216
SM7-12 Multiple	101	50	14	516	186
Single	121	60	17	619	223
SM7-13 Multiple	96	37	12	493	194
Single	115	45	14	592	233
CM6-5 Multiple	485	476	245	2436	347
Single	582	572	294	2923	416
CM6-6 Multiple	486	461	251	2412	370
Single	583	553	301	2894	444

* - Denotes 5% change from previous sample.

Crow Butte Project
Monitor Well Laboratory Report

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Sample Date: 09-14-2000
Analysis Date: 09-14-2000

Analyst: SM/IG

Well Number	Sodium (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Conductivity (UMHOS)	Alkalinity (mg/L)
SM6-3 Multiple	148	63	26	703	246
Single	177	75	31	844	295
SM6-4 Multiple	140	55	14	670	258
Single	168	67	17	804	310
SM6-5 Multiple	134	53	8	642	262
Single	161	63	10	770	314
SM6-6 Multiple	130	21	7	593	278
Single	156	25	8	711	334
SM6-7 Multiple	136	18	27	649	286
Single	163	22	33	779	343
SM6-8 Multiple	87	33	20	642	259
Single	104	40	24	770	311
SM6-10 Multiple	146	60	18	698	264
Single	176	72	22	838	317
SM6-12 Multiple	30*	42*	23*	660*	260*
Single	30	16	6	613	290
Single	36	19	7	736	348
SM6-17 Multiple	69	10	26	665	294
Single	83	12	31	798	353
SM7-11 Multiple	74	26	12	449	180
Single	89	32	15	539	216
SM7-12 Multiple	101	50	14	516	186
Single	121	60	17	619	223
SM7-13 Multiple	96	37	12	493	194
Single	115	45	14	592	233
CM6-5 Multiple	485	476	245	2436	347
Single	582	572	294	2923	416
CM6-6 Multiple	486	461	251	2412	370
Single	583	553	301	2894	444

* - Denotes 5% change from previous sample.

1523

1545 1560

SM-13
1348

1713 1710 1555

1544 1543 1559 1575

CM-8

1754 1711 1542 1522
1533 1763

1553 1534 1532

1599c 1531 1541
1712 1290 1530 1566
1554

1274 1521
SM-12

Wellhouse 24

CROW BUTTE RESOURCES
WELLHOUSE 24 MINE UNIT 6



▲ INJECTION WELL
□ PRODUCTION WELL DATE: 6/15/98



CM-7

1459

1506

1414 1273
1780 SM-11

1528 1507 1573

1497 1516

1520 1503 1572
1494

1496 1499 1515 1519
1708

CM-6

1513 1483 1491 1508

1490 1504 1512 1288

1272
SM-9

1510

1509

Casing Integrity Test Report

Company: CBR Permit No: NE0122611
 Project: CrowButte Well No.: T1274
 Casing Type: yellowmine Diameter: 4 1/2"
 Hole Depth: 510' Casing Depth: 509'
 Screened Interval(s): 476' - 490'
 Depth of Test Packer(s): Top - Ground Level Bottom - 453'
 Cementing Record (List type of test, log, etc. to determine proper cement job): _____

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
10:48	0	125
10:53	5	123
10:58	10	120
10:03	15	119
11:08	20	117

Test Performed By: Paul Hamaker
 Date: 9-11-00

Retest wells around 5M6-12

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By MIKE BROST Chief Geologist
PRINTED NAME OF PERSON SIGNING TITLE
 By Mike Brost 9/14/2000
SIGNATURE DATE

Casing Integrity Test Report

Company: CBR Permit No.: NE0122611
 Project: CrowButte Well No.: I1290
 Casing Type: yellowmine Diameter: 4 1/2"
 Hole Depth: 520' Casing Depth: 509'
 Screened Interval(s): 476'-485'
 Depth of Test Packer(s): Top - Ground level Bottom - 453'
 Cementing Record (List type of test, log, etc. to determine proper cement job): _____

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
1:59	0	125
2:04	5	122
2:09	10	119
2:14	15	116
2:19	20	114

Test Performed By: Paul Hornaker
 Date: 9-12-00

Retest wells around SM6-12

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By Mike Brust Chief Geologist
PRINTED NAME OF PERSON SIGNING TITLE
 By Mike Brust 9/14/2000
SIGNATURE DATE

Casing Integrity Test Report

Company: CBA Permit No: NE0122611
 Project: CrowButte Well No.: T1521
 Casing Type: White Certi-Lok Diameter: 4 1/2"
 Hole Depth: 520' Casing Depth: 509'
 Screened Interval(s): 474' - 492'
 Depth of Test Packer(s): Top - Ground Level Bottom - 453'
 Cementing Record (List type of test, log, etc. to determine proper cement job): _____

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
9:15	0	125
9:20	5	123
9:25	10	120
9:30	15	118
9:35	20	116

Test Performed By: Paul Hamaker
 Date: 9-11-00

Retest wells around SMB-12

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By Mike Brost Chief Geologist
PRINTED NAME OF PERSON SIGNING TITLE
 By Mike Brost 9/14/2000
SIGNATURE DATE

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

Casing Integrity Test Report

Company: CBR Permit No: NE0122611
 Project: CrowButte Well No.: T.1541
 Casing Type: White Certi-Lok Diameter: 4 1/2"
 Hole Depth: 520' Casing Depth: 499'
 Screened Interval(s): 467' - 485'
 Depth of Test Packer(s): TOP - Ground level Bottom - 443'
 Cementing Record (List type of test, log, etc. to determine proper cement job): _____

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
1:34	0	125
1:39	5	122
1:44	10	119
1:49	15	116
1:54	20	114

Test Performed By: Paul Harnaker
 Date: 9-11-00

Retest wells around 5M6-12

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By Mike Brost Chief Geologist
PRINTED NAME OF PERSON SIGNING TITLE
 By Mike Brost 9/14/2000
SIGNATURE DATE

Casing Integrity Test Report

Company: CBR Permit No: NE0122611
 Project: CrowButte Well No.: T 1553
 Casing Type: White Gerti-Lok Diameter: 4 1/2"
 Hole Depth: 520' Casing Depth: 499'
 Screened Interval(s): 458' - 479'
 Depth of Test Packer(s): Top-Ground Level Bottom-438'
 Cementing Record (List type of test, log, etc. to determine proper cement job): _____

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
8:53	0	125
8:58	5	123
9:03	10	120
9:08	15	118
9:13	20	116

Test Performed By: Paul Hamaker

Date: 9-12-00

Retest wells around SM6-12

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By Mike Bross
PRINTED NAME OF PERSON SIGNING

Chief Geologist
TITLE

By Mike Bross
SIGNATURE

9/14/2000
DATE

Casing Integrity Test Report

Company: C.B.R. Permit No: NE0122611
 Project: CrowButte Well No.: I1554
 Casing Type: White Certi-Lok Diameter: 4 1/2"
 Hole Depth: 520' Casing Depth: 499'
 Screened Interval(s): 475' - 484'
 Depth of Test Packer(s): Top - Ground Level Bottom - 453'
 Cementing Record (List type of test, log, etc. to determine proper cement job): _____

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
10:41	0	125
10:46	5	122
10:51	10	120
10:56	15	118
11:01	20	116

Test Performed By: Paul Hamaker
 Date: 9-13-00

Retest wells around 5M6-12

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By Mike Beast PRINTED NAME OF PERSON SIGNING
 By Mike Beast SIGNATURE
Chief Geologist TITLE
9/14/2000 DATE

Casing Integrity Test Report

Company: CBR Permit No: NE012-2611
 Project: CrossButte Well No.: T-1566
 Casing Type: White Certi-Lok Diameter: 4 1/2"
 Hole Depth: 520' Casing Depth: 509'
 Screened Interval(s): 474' - 489'
 Depth of Test Packer(s): TOP - Ground Level Bottom - 458
 Cementing Record (List type of test, log, etc. to determine proper cement job): _____

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
12:56	0	125
1:01	5	122
1:06	10	119
1:11	15	116
1:16	20	114

Test Performed By: Paul Hamaker
 Date: 9-13-00

Retest wells around SM6-12

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By MIKE BRIST PRINTED NAME OF PERSON SIGNING TITLE CHIEF Geologist
 By Mike Brist SIGNATURE DATE 9/14/2000