CROW BUTTE RESOURCES, INC.

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August 18, 2004

AUG 23 2004

Mr. Dwight Chamberlain, Director
Division of Nuclear Material Safety
Region IV
United States Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011

Subject: Semiannual Radiological Effluent and Environmental Monitoring Report
Source Materials License No. SUA-1534, Docket No. 40-8943

Dear Mr. Chamberlain:

Enclosed please find one copy of the Semiannual Radiological Effluent and Environmental Monitoring Report for the Crow Butte Uranium Project. The report is provided in accordance with License Condition 12.1 of Source Materials License SUA-1534 and 10 CFR Part 40. This report covers the first and second quarters of 2004.

If you have any questions concerning the report, please feel free to call me at (308) 665-2215.

Sincerely,
CROW BUTTE RESOURCES, INC.

Michael L. Griffin
Manager of Health, Safety, and Environmental Affairs

c: Mr. Gary Janosko
Branch Chief, Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety and Safeguards
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CROW BUTTE RESOURCES, INC.

CROW BUTTE URANIUM PROJECT

RADIOLOGICAL EFFLUENT AND ENVIRONMENTAL MONITORING REPORT

for

FIRST AND SECOND QUARTERS, 2004

USNRC Source Materials License SUA 1534

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1 WATER QUALITY MONITORING DATA

1.1 Excursion Monitoring

Biweekly excursion monitoring in the shallow aquifer and perimeter monitor wells was continued in Mine Units 1 through 9 during the first and second quarters of 2004. NDEQ approved a permit modification request during the period that removed sodium and sulfate from the list of required excursion parameters. The NRC had previously approved a similar change to SUA-1534.

PR-8 and IJ-13 remain on excursion status. Excursion reports have been submitted as required in License Condition 12.2. Complete excursion monitoring results are available on site for inspection.

1.2 Water Supply Wells and Surface Water

Summary sheets of quarterly radiological analytical data for the reporting period from all surface waters and water supply wells within one kilometer of the active wellfield boundary are included in Appendix A. Three wells (wells #13, 16, and 130) that were previously sampled were removed from the sampling schedule after completion of a new well database and more accurate mapping determined that the actual locations were outside the one kilometer radius of the active wellfields. Two new wells were identified that were added to the sampling schedule (wells # 138 and 140).

The reported radiological data are within the expected ranges for each well or stream. Samples were obtained from all sample locations with the exceptions noted in Appendix A.

2 OPERATIONAL

2.1 Production Data Summary

Mining operations continued through the first and second quarters of 2004. The average operating production flow rate was 4,192 gpm for the first quarter and 4,220 gpm for the second quarter. The average production flow for the first half of 2004 was 4,206 gpm. Injection and production totals from the totalizers and the calculated bleed totals for the reporting period are included in Appendix B.

The main injection trunkline is equipped with a continuous pressure sensor. The average and maximum injection pressures for each wellhouse are included in Appendix C in the Wellfield Injection Pressure table.

2.2 Wastewater Summary

The total volume of wastewater discharged to the ponds was 1,960,200 gallons during the first quarter and 3,032,430 gallons during the second quarter. Currently, all five evaporation ponds contain wastewater.

The northwest underdrain in Pond 1 indicated a liner leak during the period. The report of this leak and the actions taken by CBR were properly documented in accordance with SUA-1534.

Wastewater that is not disposed of in the evaporation ponds is injected into the Deep Disposal Well (DDW). Currently, the well is operated on a continuous basis and 20,647,824 gallons of wastewater was injected into the well during the first half of 2004. A summary of the total volume of wastewater injected and the average radionuclide content is contained in Appendix D.

2.3 Effluent Release

10 CFR §40.65 requires licensees to report quantities of radionuclides in liquid and gaseous effluent releases to the environment. In the Application for Renewal of Source Materials License SUA-1534, submitted December 1995, Table 7.3(A) presented calculations of the annual radon emissions for the Crow Butte Plant. These calculations assumed a 7.04×10^{-4} Curies/m^3 radon release from leaching operations and the radon release calculations for the first half of 2004 use this release rate estimate.

During the first quarter production occurred at an average flow rate of 4,192 gpm (15,868 lpm). Production was maintained nearly continuously for 91 days during the first quarter with an operating factor of 99.4%. The production flow for the first quarter results in a calculated radon release of 1,048 Curies. During the second quarter production occurred at an average flow rate of 4,220 gpm (15,974 lpm). Production was maintained nearly continuously for 91 days during the second quarter with an operating factor of 99.8%. The production flow for the second quarter results in a calculated radon release of 1,059 Curies. Calculations for radon release from production operations are shown in Appendix E.

Additional wells were brought on line during the second half of 2004. Calculations for the start-up of 11.2 acres of a new wellfield are shown in Appendix E. The calculated radon released from start-up of 11.2 acres is 14 Curies.

The total radon emission due to leaching operations from the Crow Butte plant for the first half of 2004 was 2,121 Curies. This calculated release rate is comparable with the releases estimated in CBR's License Renewal Application.

Radon gas is also released from restoration activities. For restoration water that is treated by ion exchange only, the radon concentration is 0.697 μCi/l. Of the total restoration production flow it is

assumed that 25% of the radon is released through wellfield loss and 10% of the remaining radon is released during pressurized ion exchange treatment. For water that is treated by reverse osmosis, it is assumed that 100% of the remaining radon is released. For water treated by reverse osmosis the radon concentration is 0.470 µCi/l after adjusting for wellfield loss and ion exchange loss.

During the first half of 2004, a total of 110,964,095 gallons (420,044,795 l) of restoration water was produced from Mine Units 3 and 4. Based upon an estimated radon concentration of 0.697 µCi/l, the total amount of radon in the restoration solution was calculated to be 293 Curies as shown in Appendix E. The estimated release of radon through wellfield loss at 25% of this total was 73 Curies. The plant loss for ion exchange treatment of the restoration water is estimated at 10% of the remaining radon, or 22 Curies.

Of the total amount of restoration water produced in the first half of 2004, 31,450,344 gallons (119,052,132 l) of the water was treated by reverse osmosis. The release of radon from reverse osmosis treatment is estimated to be 100% of the remaining radon, after correction for wellfield and ion exchange losses. These corrections result in an estimated radon concentration of 0.470 µCi/l. The total estimated radon release from reverse osmosis treatment was 56 Curies. An additional 5.4 acres of wellfields were placed in restoration during the first half of 2004. The calculated radon released from start-up of 5.4 acres is 7 Curies. Calculations for the start-up of 5.4 acres of a wellfield placed in restoration are shown in Appendix E.

Based upon the calculations shown in Appendix E, the total estimated semiannual radon emission for the first half of 2004 from restoration activities was 158 Curies. This resulted in a total estimated radon release from the Crow Butte project during the first half of 2004 of 2,279 Curies.

2.4 Restoration

Restoration activities continued in Mine Units 2, 3, and 4 during the first half of 2004. Restoration injection and production totals are included in Appendix B. Restoration injection pressures are included in Appendix C.

3 ENVIRONMENTAL MONITORING

3.1 Air Monitor Stations

Seven air monitoring stations are used to monitor the Crow Butte Plant. Ambient radon-222 concentrations and radionuclide concentrations in air for each monitoring site are listed in Appendix F. All air monitoring results were within expected historical ranges.

In the Semiannual Radiological Effluent and Environmental Monitoring Report for the second half of 2003, it was noted that the radon-222 results from three stations (AM-1, AM-2, and AM-8) were elevated above concentrations that are normally present. Concentrations at these three locations ranged from 34 percent to 37 percent of the effluent concentration limit from 10 CFR Part 20, Appendix B Column 2, which were above normal concentrations (generally less than 10 percent). CBR noted that there was no identifiable cause for these elevated concentrations from licensed operations.

The results for the first half of 2004 for these three stations are within historical ranges (i.e., 3 to 10 percent of the effluent concentration limit). One possible cause for the anomalous results from the second half of 2003 is sampling or analytical error. In order to monitor this possibility, CBR deployed duplicate monitors at the three stations for the second half of 2004 for comparison of results.

3.2 TLD Monitors

Environmental TLD monitors are located at each air monitoring station. The results of the area TLD monitors fall within the expected ranges and are listed in Appendix G.

3.3 Stream Sediments

Sediment samples are collected from two locations on Squaw Creek and two locations on English Creek on an annual basis in October. The results of sediment sampling will be reported in the Semiannual Radiological Effluent and Environmental Monitoring Report for the second half of 2004.

Appendix A

Private Well and Surface Water Radiological Monitoring Results

First and Second Quarter, 2004

CROW BUTTE RESOURCES, INC.

PRIVATE WELL AND SURFACE WATER RADIOLOGICAL MONITORING RESULTS

FIRST QUARTER, 2004

SAMPLE ID	DATE SAMPLED	URANIUM mg/l	URANIUM µCi/ml	RADIUM-226 pCi/l	RADIUM-226 precision ±
Well #8	1/23/04	0.0156	1.00E-08	ND	-
Well #11	1/16/04	0.0089	6.00E-09	ND	-
Well #12	1/23/04	0.0043	2.90E-09	ND	-
Well #13	1/23/04	0.0085	5.80E-09	ND	-
Well #16	1/16/04	0.0063	4.30E-09	ND	-
Well #19	1/23/04	0.0060	4.10E-09	ND	-
Well #24	1/16/04	0.0046	3.10E-09	ND	-
Well #25	1/16/04	0.0056	3.80E-09	ND	-
Well #26	1/16/04	0.0077	5.20E-09	ND	-
Well #27	1/16/04	0.0077	5.20E-09	ND	-
Well #28	WINDMILL BROKEN-NO SAMPLE COLLECTED				
Well #41	1/16/04	0.0072	4.90E-09	ND	-
Well #63	1/16/04	0.0178	1.20E-08	ND	-
Well #125	1/23/04	0.0072	4.80E-09	ND	-
Well #129	1/23/04	0.0076	5.10E-09	ND	-
Well #130	1/16/04	0.0072	4.80E-09	ND	-
Well #131	1/16/04	0.0046	3.10E-09	ND	-
Well #133	1/16/04	0.0117	7.90E-09	ND	-
Well #134	1/23/04	0.0107	7.30E-09	0.5	0.3
Well #135	1/23/04	0.0212	1.40E-08	ND	-
Drinking Water Well	1/23/04	0.0078	5.30E-09	ND	-
Stream S-1	1/23/04	0.0052	3.50E-09	ND	-
Stream S-2	1/23/04	0.0051	3.50E-09	ND	-
Stream S-5	1/23/04	0.0058	3.90E-09	ND	-
Stream E-1	1/23/04	0.0147	1.00E-08	ND	-
Stream E-5	1/23/04	0.0118	8.00E-09	ND	-
Impoundment I-3	IMPOUNDMENT SAMPLING SITE FROZEN-NO SAMPLE COLLECTED				
Impoundment I-4	IMPOUNDMENT SAMPLING SITE FROZEN-NO SAMPLE COLLECTED				
Reporting Limit		**0.0003**	**2.00E-10**	**0.2**	-

ND-Not detected at the reporting limit

CROW BUTTE RESOURCES, INC.

PRIVATE WELL AND SURFACE WATER RADIOLOGICAL MONITORING RESULTS

SECOND QUARTER, 2004

SAMPLE ID	DATE SAMPLED	URANIUM mg/l	URANIUM µCi/ml	RADIUM-226 pCi/l	RADIUM-226 precision ±
Well #8	4/15/04	0.0160	1.10E-08	0.4	0.3
Well #11	4/16/04	0.0086	5.80E-09	ND	-
Well #12	4/15/04	0.0034	2.30E-09	ND	-
Well #13	SAMPLING DISCONTINUED-1 KM BOUNDARY REDRAWN				
Well #16	SAMPLING DISCONTINUED-1 KM BOUNDARY REDRAWN				
Well #19	4/16/04	0.0058	3.90E-09	ND	-
Well #24	4/16/04	0.0047	3.20E-09	ND	-
Well #25	4/16/04	0.0055	3.70E-09	ND	-
Well #26	4/16/04	0.0069	4.70E-09	ND	-
Well #27	4/16/04	0.0070	4.80E-09	ND	-
Well #28	WINDMILL BROKEN-NO SAMPLE COLLECTED				
Well #41	4/16/04	0.0081	5.50E-09	ND	-
Well #63	4/16/04	0.0170	1.20E-08	ND	-
Well #125	4/16/04	0.0073	5.00E-09	ND	-
Well #129	4/16/04	0.0071	4.80E-09	ND	-
Well #130	SAMPLING DISCONTINUED-1 KM BOUNDARY REDRAWN				
Well #131	4/16/04	0.0047	3.20E-09	ND	-
Well #133	4/16/04	0.0091	6.20E-09	ND	-
Well #134	4/16/04	0.0099	6.70E-09	ND	-
Well #135	4/16/04	0.0190	1.30E-08	ND	-
Well #140	4/15/04	0.0130	8.70E-09		
Drinking Water Well	4/16/04	0.0061	4.10E-09	ND	-
Stream S-1	4/16/04	0.0044	3.00E-09	ND	-
Stream S-2	4/15/04	0.0038	2.60E-09	ND	-
Stream S-5	4/16/04	0.0049	3.30E-09	ND	-
Stream E-1	4/15/04	0.0130	8.90E-09	0.3	0.3
Stream E-5	4/15/04	0.0070	4.80E-09	ND	-
Impoundment I-3	4/15/04	0.0390	2.70E-08	ND	-
Impoundment I-4	4/15/04	0.0230	1.50E-08	ND	-
Reporting Limit		**0.0003**	**2.00E-10**	**0.2**	**-**

ND-Not detected at the reporting limit

Appendix B

Plant Production and Waste Totals

First and Second Quarter, 2004

WASTE VOLUME
First Quarter 2004

TOTALIZER	PLANT TO PONDS	PLANT TO DDW	RESTORATION TO DDW	CLEAN WATER INTO PLANT	DDW TOTAL INJECTED	TRUCKS TO POND
January	515,720	2,513,468	1,308,061	391,909	3,821,529	
February	629,560	2,219,043	1,263,125	411,420	3,482,168	
March	814,920	2,219,269	1,002,365	460,000	3,221,634	
TOTAL GAL. EOQ	1,960,200	6,951,780	3,573,551	1,263,329	10,525,331	

TOTAL 1st QTR VOLUME DISCHARGED TO WASTE PONDS =	1,960,200	GALLONS
TOTAL 1st QTR VOLUME DISCHARGED TO DEEP WELL=	10,525,331	GALLONS
TOTAL 1st QTR VOLUME DISCHARGED TO WASTE PONDS + DPWELL =	12,485,531	GALLONS
TOTAL 1st QTR VOLUME WF BLEED FROM WELLFIELDS=	11,222,202	GALLONS

WELLFIELD BLEED
First Quarter 2004

MONTH	January	February	March
BLEED	1.8%	1.8%	1.8%

PLANT FLOW
First Quarter 2004

AVERAGE OPERATING FLOW RATE=	4,192	GPM EOQ
TOTAL GALLONS PRODUCED=	549,330,593	GALLONS EOQ
TOTAL GALLONS INJECTED=	521,349,398	GALLONS EOQ

	TOTAL GALS. PRODUCED	TOTAL GALS. INJECTED	HOURS IN MONTH	HOURS IN PRODUCTION	AVERAGE PROD. GPM	AVERAGE COM INJ GPM	AVERAGE REST INJ GPM	HRS. DOWN TIME
Prev. YTD	0	0	0	0				0
January	189,238,625	180,920,535	744	744	4,239	4,053	298	0
February	175,857,297	166,282,401	696	696	4,211	3,982	248	0
March	184,234,670	174,146,462	744	730	4,127	3,901	202	14
EOQ TOTAL	549,330,593	521,349,398	2,184	2,170	4,192	3,979	249	14
YTD TOTAL	549,330,593	521,349,398	2,184	2,170	4,192	3,979	249	14

	TOTAL MUII GALS PRODUCED	TOTAL MUIII GALS PRODUCED	TOTAL MUIV GALS PRODUCED	TOTAL BRINE GALS PRODUCED	TOTAL PERM GALS PRODUCED	PLANT BLEED	MUIII BLEED TO DDW
Prev. YTD	0	0	0	0	0	0	0
January	2,042,562	12,375,390	3,044,303	910,822	2,013,365	3,356,578	397,239
February	1,799,718	9,634,140	1,656,451	909,356	1,811,779	3,101,145	353,769
March	1,921,659	8,529,538	2,466,693	659,335	1,884,271	3,294,836	343,030
EOQ TOTAL	5,763,939	30,539,068	7,167,447	2,479,513	5,709,415	9,752,559	1,094,038
YTD TOTAL	5,763,939	30,539,068	7,167,447	2,479,513	5,709,415	9,752,559	1,094,038

WASTE VOLUME
Second Quarter 2004

TOTALIZER	PLANT TO PONDS	PLANT TO DDW	RESTORATION TO DDW	CLEAN WATER INTO PLANT	DDW TOTAL INJECTED	TRUCKS TO POND
April	571,970	2,329,459	863,548	490,823	3,193,007	
May	1,326,080	914,601	2,746,727	525,956	3,661,328	
June	1,134,380	929,047	2,339,111	285,696	3,268,158	
TOTAL GAL. EOQ	3,032,430	4,173,107	5,949,386	1,302,475	10,122,493	

TOTAL 2nd QTR VOLUME DISCHARGED TO WASTE PONDS =	3,032,430 GALLONS
TOTAL 2nd QTR VOLUME DISCHARGED TO DEEP WELL=	10,122,493 GALLONS
TOTAL 2nd QTR VOLUME DISCHARGED TO WASTE PONDS + DPWELL =	13,154,923 GALLONS
TOTAL 2nd QTR VOLUME WF BLEED FROM WELLFIELDS=	11,852,448 GALLONS

WELLFIELD BLEED
Second Quarter 2004

MONTH	April	May	June
BLEED	1.3%	1.0%	1.0%

PLANT FLOW
Second Quarter 2004

AVERAGE OPERATING FLOW RATE=	4,220 GPM EOQ
TOTAL GALLONS PRODUCED=	552,998,347 GALLONS EOQ
TOTAL GALLONS INJECTED=	528,866,110 GALLONS EOQ

	TOTAL GALS. PRODUCED	TOTAL GALS. INJECTED	HOURS IN MONTH	HOURS IN PRODUCTION	AVERAGE PROD. GPM	AVERAGE COM INJ GPM	AVERAGE REST INJ GPM	HRS. DOWN TIME
Prev. YTD	549,330,593	521,349,398	2,184	2,170				14
April	184,679,694	175,661,309	720	720	4,275	4,066	259	0
May	187,636,864	179,821,705	744	741	4,203	4,028	481	0.5
June	180,681,789	173,383,096	720	718	4,182	4,013	497	1.5
EOQ TOTAL	552,998,347	528,866,110	2,184	2,179	4,220	4,036	413	2.0
YTD TOTAL	1,102,328,940	1,050,215,508	4,368	4,349	4,206	4,007	331	16.0

	TOTAL MUII GALS PRODUCED	TOTAL MUIII GALS PRODUCED	TOTAL MUIV GALS PRODUCED	TOTAL BRINE GALS PRODUCED	TOTAL PERM GALS PRODUCED	PLANT BLEED	MUIII BLEED TO DDW
Prev. YTD	5,763,939	30,539,068	7,167,447	2,479,513	5,709,415	9,752,559	1,094,038
April	13,229	6,695,462	8,792,250	466,309	1,970,771	2,424,862	397,239
May	0	10,674,163	15,673,833	2,392,958	6,451,675	1,894,836	353,769
June	0	11,613,494	14,031,210	263,275	7,940,075	1,788,123	2,075,836
EOQ TOTAL	13,229	28,983,119	38,497,293	3,122,542	16,362,521	6,107,821	2,826,844
YTD TOTAL	5,777,168	59,522,187	45,664,740	5,602,055	22,071,936	15,860,380	3,920,882

Appendix C

Wellfield Injection Pressures

First and Second Quarter, 2004

WELLFIELD INJECTION PRESSURE
First Quarter 2004

	WF HOUSE #1		WF HOUSE #2		WF HOUSE #3		WF HOUSE #4		WF HOUSE #5	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	0	0	0	0	51	72	60	76	43	64
February	0	0	0	0	47	68	55	72	41	55
March	0	0	0	0	36	51	43	67	31	73
AVERAGE	0	0	0	0	45	72	52	76	38	73

	WF HOUSE #6		WF HOUSE #7		WF HOUSE #8		WF HOUSE #9		WF HOUSE #10	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	68	76	0	0	62	68	0	0	0	0
February	68	71	0	0	63	68	0	0	0	0
March	57	95	0	0	52	82	0	0	0	0
AVERAGE	64	95	0	0	59	82	0	0	0	0

	WF HOUSE #11		WF HOUSE #12		WF HOUSE #13		WF HOUSE #14		WF HOUSE #15	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	0	0	0	0	0	0	92	98	66	70
February	0	0	0	0	0	0	93	97	68	70
March	0	0	0	0	0	0	90	95	53	80
AVERAGE	0	0	0	0	0	0	92	98	62	80

	WF HOUSE #16		WF HOUSE #17		WF HOUSE #18		WF HOUSE #19		WF HOUSE #20	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	0	0	77	79	0	0	0	0	84	85
February	0	0	77	79	0	0	0	0	84	85
March	0	0	75	88	0	0	0	5	82	87
AVERAGE	0	0	76	88	0	0	0	5	84	87

	WF HOUSE #21		WF HOUSE #22		WF HOUSE #23		WF HOUSE #24		WF HOUSE #25	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	98	99	98	99	3	99	98	99	96	98
February	98	99	98	99	0	0	97	99	96	96
March	97	99	98	99	20	92	97	99	96	97
AVERAGE	98	99	98	99	8	99	97	99	96	98

	WF HOUSE #26		WF HOUSE #27		WF HOUSE #28		WF HOUSE #30		WF HOUSE #31	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	98	99	95	97	5	74	72	74	95.96774194	98
February	98	99	95	97	0	0	73	75	96	98
March	98	99	96	98	0	0	71	78	92	98
AVERAGE	98	99	95	98	2	74	72	78	95	98

	WF HOUSE #32		WF HOUSE #33		WF HOUSE #34		WF HOUSE #35		WF HOUSE #36	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	52	54	98	99	95	99	98	99	98	99
February	52	54	98	99	95	97	98	99	98	99
March	50	54	96	99	96	99	98	99	98	99
AVERAGE	51	54	98	99	96	99	98	99	98	99

	WF HOUSE #37		WF HOUSE #38		WF HOUSE #39		WF HOUSE #40		WF HOUSE #41	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	97	99					0	0	69	70
February	98	99					0	0	70	78
March	98	99					0	0	66	70
AVERAGE	98	99					0	0	68	78

	WF HOUSE #42	
	AVERAGE	MAXIMUM
January	0	0
February	0	0
March	0	0
AVERAGE	0	0

WELLFIELD INJECTION PRESSURE
Second Quarter 2004

	WF HOUSE #1		WF HOUSE #2		WF HOUSE #3		WF HOUSE #4		WF HOUSE #5	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April					1	29	1	34	1	23
May					0	0	0	0	0	0
June					0	0	0	0	0	0
AVERAGE					0	29	0	34	0	23

	WF HOUSE #6		WF HOUSE #7		WF HOUSE #8		WF HOUSE #9		WF HOUSE #10	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	20	40	0	0	17	36	42	78	0	0
May	31	42	0	0	22	36	68	75	0	0
June	20	28	0	0	9	12	67	70	0	0
December							59	78	0	0
AVERAGE	24	42	0	0	16	36				

	WF HOUSE #11		WF HOUSE #12		WF HOUSE #13		WF HOUSE #14		WF HOUSE #15	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	0	0	19	75	9	68	89	92	71	85
May	0	0	71	99	65	76	91	93	73	80
June	0	0	70	79	65	88	92	94	73	75
AVERAGE	0	0	54	99	46	88	91	94	72	85

	WF HOUSE #16		WF HOUSE #17		WF HOUSE #18		WF HOUSE #19		WF HOUSE #20	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	0	0	73	75	0	0	0	0	81	85
May	0	0	75	76	0	0	0	0	83	85
June	0	0	75	77	0	0	0	0	84	86
AVERAGE	0	0	74	77	0	0	0	0	83	86

	WF HOUSE #21		WF HOUSE #22		WF HOUSE #23		WF HOUSE #24		WF HOUSE #25	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	98	99	97	99	39	95	96	98	96	99
May	96	98	96	98	18	90	97	98	97	98
June	96	96	95	97	5	81	97	98	96	98
AVERAGE	97	99	96	99	21	95	97	98	96	99

	WF HOUSE #26		WF HOUSE #27		WF HOUSE #28		WF HOUSE #30		WF HOUSE #31	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	98	99	97	99	0	0	65	68	91	96
May	97	99	97	98	2	63	64	68	92	97
June	98	99	98	99	0	0	57	61	86	94
AVERAGE	98	99	97	99	1	63	62	68	90	97

	WF HOUSE #32		WF HOUSE #33		WF HOUSE #34		WF HOUSE #35		WF HOUSE #36	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	47	50	97	99	97	99	97	99	96	99
May	45	48	96	99	98	99	96	98	98	99
June	41	45	91	99	98	99	97	99	98	99
AVERAGE	44	50	95	99	98	99	97	99	98	99

	WF HOUSE #37		WF HOUSE #38		WF HOUSE #39		WF HOUSE #40		WF HOUSE #41	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	95	99					0	0	60	63
May	96	98					0	0	57	60
June	98	99					0	0	52	63
AVERAGE	97	99					0	0	56	63

	WF HOUSE #42	
	AVERAGE	MAXIMUM
April	0	57
May	47	50
June	40	44
AVERAGE	43	57

Appendix D

Deep Disposal Well Injection Radiological Data

First and Second Quarter, 2004

Crow Butte Uranium Mine

Deep Disposal Well Injection Radiological Data

Month	Total Gallons Injected	Average Natural Uranium (mg/l)	Total Natural Uranium Injected (mg)	Total Natural Uranium Injected (uCi)	Average Radium-226 (pCi/l)	Total Radium-226 Injected (uCi)
January-04	3,821,529	6.9	9.98E+07	6.76E+04	1,140	1.65E+04
February-04	3,482,168	6.3	8.30E+07	5.62E+04	850	1.12E+04
March-04	3,221,634	5.8	7.07E+07	4.79E+04	946	1.15E+04
April-04	3,193,007	6.2	7.49E+07	5.07E+04	1,000	1.21E+04
May-04	3,661,328	5.7	7.90E+07	5.35E+04	1,010	1.40E+04
June-04	3,268,158	6.4	7.92E+07	5.36E+04	1,310	1.62E+04
Totals	20,647,824		4.87E+08	3.29E+05		8.15E+04

Appendix E

Radon Release Calculations

First and Second Quarter, 2004

Radon Effluent Release Calculation (Production and Startup)

First Quarter 2004 Radon Release from Leaching Operations:

Curies/M3	*Production Flow (liters)*	*Radon-222 Decay Constant*	*Operating Days*	*Operating Factor*	*M3/liter conversion*	*Hours/Day Conversion*	*Minutes/Hour Conversion*	*Total Radon Release from Leaching*
7.04E-04	15,868	0.72	91	99.4%	0.001	24	60	1,048

Second Quarter 2004 Radon Release from Leaching Operations:

Curies/M3	*Production Flow (liters)*	*Radon-222 Decay Constant*	*Operating Days*	*Operating Factor*	*M3/liter conversion*	*Hours/Day Conversion*	*Minutes/Hour Conversion*	*Total Radon Release from Leaching*
7.04E-04	15,974	0.72	91	99.8%	0.001	24	60	1,059

First Half 2004 Radon Release From Startup:

Curies/M3	*Total Acres of New Wellfield*	*Meter3/Acre Conversion*	*Orebody Thickness (meters)*	*Porosity*	*Total Radon Release from Startup*
7.04E-04	11.2	4,074	1.52	0.29	14

Total Estimated Radon Release from Production: 2,121

Radon Effluent Release Calculation (Restoration)

First Half 2004 Radon Release From Restoration:

Total Restoration Flow (liters)	*Microcuries/liter*	*Curies/Microcurie*	*Production Potential*
420,044,795	0.697	1.00E-06	293

Wellfield Loss (25% of Production Potential):	73
Ion Exchange Loss (10% of Production Potential minus Wellfield Loss):	22
Reverse Osmosis Loss (100% of remaining activity at 0.470 microcuries/liter)	56

Total Reverse Osmosis Flow (liters)	*Microcuries/liter*	*Curies/Microcurie*
119,052,132	0.470	1.00E-06

First Half 2004 Radon Release From Startup of New Restoration:

Curies/M3	*Total Acres of New Wellfield*	*Meter3/Acre Conversion*	*Orebody Thickness (meters)*	*Porosity*	*Total Radon Release from Startup*
7.04E-04	5.4	4074	1.52	0.29	7

Total Estimated Radon Release from Restoration: 158

Total Estimated Radon Release, First Half 2004: 2,279

Appendix F

Environmental Air Monitoring Results

First and Second Quarter, 2004

Crow Butte Resources, Inc.
Crow Butte Uranium Project

Track Etch Cup Ambient Radon Concentrations

Air Monitoring Station No.

Period: January 2, 2004 to July 1, 2004

	Gross Count	Average Radon Concentration (x 10^{-9} uCi/ml)	Accuracy (x 10^{-9} uCi/ml)	Percent Effluent Concnetration
AM-1	62.8	0.3	0.04	3.0%
AM-2	73.8	0.4	0.05	4.0%
AM-3	59.2	0.3	0.04	3.0%
AM-4	70.1	0.4	0.05	4.0%
AM-5	121.1	0.7	0.06	7.0%
AM-6	66.5	0.4	0.05	4.0%
AM-8	176	1	0.08	10.0%
AB-3 (AM-3 Duplicate)	30	0.2	0.04	2.0%
AB-6 (AM-6 Duplicate)	51.9	0.3	0.04	3.0%

LLD (x 10^{-9} uCi/ml)	0.2
Effluent Concentration Limit, 10 CFR 20 App B Column 2:	10

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: CROW BUTTE RESOURCES

REPORT DATE: July 28, 2004

SAMPLE ID: A.M. #1

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04040194-001A	^{nat}U	1.45E-16	N/A	1.00E-16	9.00E-14	1.61E-01
01/02/2004-03/31/2004	^{226}Ra	1.68E-16	9.31E-17	1.00E-16	9.00E-13	1.86E-02
Air Volume in mLs	^{210}Pb	2.44E-14	1.83E-15	2.00E-15	6.00E-13	4.07E+00
5.10E+09						

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04070210-001A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
03/31/2004-07/01/2004	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
Air Volume in mLs	^{210}Pb	9.31E-15	3.28E-15	2.00E-15	6.00E-13	1.55E+00
5.51E+09						

Final prep volume is 0.95 liter
LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Week for Radium-226
Day for Lead-210

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: CROW BUTTE RESOURCES

REPORT DATE: July 28, 2004

SAMPLE ID: A.M. #2

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04040194-002A	^{nat}U	6.68E-15	N/A	1.00E-16	9.00E-14	7.42E+00
01/02/2004-03/31/2004	^{226}Ra	2.28E-16	1.37E-16	1.00E-16	9.00E-13	2.53E-02
Air Volume in mLs	^{210}Pb	5.15E-15	1.73E-15	2.00E-15	6.00E-13	8.58E-01
4.17E+09						

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04070210-002A	^{nat}U	1.39E-15	N/A	1.00E-16	9.00E-14	1.55E+00
03/31/2004-07/01/2004	^{226}Ra	1.98E-16	1.52E-16	1.00E-16	9.00E-13	2.20E-02
Air Volume in mLs	^{210}Pb	1.75E-14	3.69E-15	2.00E-15	6.00E-13	2.92E+00
5.13E+09						

Final prep volume is 0.95 liter
LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Week for Radium-226
Day for Lead-210

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: CROW BUTTE RESOURCES

REPORT DATE: July 28, 2004

SAMPLE ID: A.M. #3

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04040194-003A	^{nat}U	3.71E-16	N/A	1.00E-16	9.00E-14	4.13E-01
01/02/2004-03/31/2004	^{226}Ra	1.93E-16	1.16E-16	1.00E-16	9.00E-13	2.15E-02
Air Volume in mLs	^{210}Pb	6.56E-15	1.51E-15	2.00E-15	6.00E-13	1.09E+00
4.91E+09						

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04070210-003A	^{nat}U	2.23E-16	N/A	1.00E-16	9.00E-14	2.48E-01
03/31/2004-07/01/2004	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
Air Volume in mLs	^{210}Pb	1.48E-14	3.59E-15	2.00E-15	6.00E-13	2.47E+00
5.19E+09						

Final prep volume is 0.95 liter
LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Week for Radium-226
Day for Lead-210

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: CROW BUTTE RESOURCES

REPORT DATE: July 28, 2004

SAMPLE ID: A.M. #4

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04040194-004A	^{nat}U	1.41E-16	N/A	1.00E-16	9.00E-14	1.57E-01
01/02/2004-03/31/2004	^{226}Ra	1.99E-16	9.05E-17	1.00E-16	9.00E-13	2.21E-02
Air Volume in mLs	^{210}Pb	4.09E-15	1.37E-15	2.00E-15	6.00E-13	6.82E-01
5.25E+09						

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04070210-004A	^{nat}U	1.18E-16	N/A	1.00E-16	9.00E-14	1.32E-01
03/31/2004-07/01/2004	^{226}Ra	2.66E-16	1.38E-16	1.00E-16	9.00E-13	2.96E-02
Air Volume in mLs	^{210}Pb	9.40E-15	3.31E-15	2.00E-15	6.00E-13	1.57E+00
5.46E+09						

Final prep volume is 0.95 liter
LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Week for Radium-226
Day for Lead-210

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: CROW BUTTE RESOURCES

REPORT DATE: July 28, 2004

SAMPLE ID: A.M. #5

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04040194-005A	^{nat}U	8.33E-16	N/A	1.00E-16	9.00E-14	9.26E-01
01/02/2004-03/31/2004	^{226}Ra	1.51E-16	1.08E-16	1.00E-16	9.00E-13	1.68E-02
Air Volume in mLs	^{210}Pb	4.89E-15	1.64E-15	2.00E-15	6.00E-13	8.15E-01
4.39E+09						

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04070210-005A	^{nat}U	2.08E-16	N/A	1.00E-16	9.00E-14	2.31E-01
03/31/2004-07/01/2004	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
Air Volume in mLs	^{210}Pb	1.46E-14	3.54E-15	2.00E-15	6.00E-13	2.44E+00
5.26E+09						

Final prep volume is 0.95 liter
LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Week for Radium-226
Day for Lead-210

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: CROW BUTTE RESOURCES

REPORT DATE: July 28, 2004

SAMPLE ID: A.M. #6

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04040194-006A	^{nat}U	1.31E-16	N/A	1.00E-16	9.00E-14	1.45E-01
01/02/2004-03/31/2004	^{226}Ra	< 1.00E-16	7.36E-17	1.00E-16	9.00E-13	< 1.11E-02
Air Volume in mLs	^{210}Pb	9.35E-15	1.51E-15	2.00E-15	6.00E-13	1.56E+00
5.16E+09						

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04070210-006A	^{nat}U	1.20E-16	N/A	1.00E-16	9.00E-14	1.34E-01
03/31/2004-07/01/2004	^{226}Ra	1.58E-16	1.50E-16	1.00E-16	9.00E-13	1.75E-02
Air Volume in mLs	^{210}Pb	2.15E-14	3.63E-15	2.00E-15	6.00E-13	3.58E+00
5.37E+09						

Final prep volume is 0.95 liter
LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Week for Radium-226
Day for Lead-210

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: CROW BUTTE RESOURCES

REPORT DATE: July 28, 2004

SAMPLE ID: A.M. #8

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04040194-007A	^{nat}U	2.13E-16	N/A	1.00E-16	9.00E-14	2.37E-01
01/02/2004-03/31/2004	^{226}Ra	1.14E-16	1.14E-16	1.00E-16	9.00E-13	1.27E-02
Air Volume in mLs	^{210}Pb	6.48E-15	1.76E-15	2.00E-15	6.00E-13	1.08E+00
4.15E+09						

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C04070210-007A	^{nat}U	1.85E-16	N/A	1.00E-16	9.00E-14	2.05E-01
03/31/2004-07/01/2004	^{226}Ra	1.85E-16	1.56E-16	1.00E-16	9.00E-13	2.05E-02
Air Volume in mLs	^{210}Pb	1.47E-14	3.55E-15	2.00E-15	6.00E-13	2.44E+00
5.25E+09						

Final prep volume is 0.95 liter
LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Week for Radium-226
Day for Lead-210

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Appendix G

Environmental TLD Monitoring Results

First and Second Quarter, 2004

Crow Butte Resources
PO Box 169
Crawford, NE 69339
Attn: Rhonda Grantham

SPHERICAL X9 ENVIRONMENTAL REPORT
Prepared by Landauer, Inc.

Account Number: **306192**

Process Number:	X9SP GE588
Received Date:	5-Apr-04
Report Date:	9-Apr-04
Released by:	LCC

Participant No.	Name/Description	Reading 1 (mrem)	Reading 2 (mrem)	Reading 3 (mrem)	Reading 4 (mrem)	Reading 5 (mrem)	Mean Ambient Dose Equivalent (mrem)	Net Values after control subtraction: Mean Ambient Dose Equivalent (mrem)	Standard Deviation (mrem)	95% Confidence Interval (mrem)
Quarterly Monitoring Period starting:				January 1, 2004						
Control		40	40	41	41	42	41		0.8	1.0
1001	AM-1	47	45	47	46	44	46	5	1.3	1.6
1002	AM-2	45	44	44	45	45	45	4	0.5	0.7
1003	AM-6	48	47	50	47	48	48	7	1.2	1.5
1008	AM-8	50	50	51	48	48	49	8	1.3	1.7
1009	AM-3	46	46	45	45	47	46	5	0.8	1.0
1010	AM-4	49	47	47	50	50	49	8	1.5	1.9
1011	AM-5	49	49	48	48	50	49	8	0.8	1.0

95% Confidence Interval is based on the standard error of the mean

Crow Butte Resources
PO Box 169
Crawford, NE 69339
Attn: Rhonda Grantham

SPHERICAL X9 ENVIRONMENTAL REPORT
Prepared by Landauer, Inc.

Account Number: **306192**

Process Number:	X9SP GE933
Received Date:	7-Jul-04
Report Date:	13-Jul-04
Released by:	CAS

Participant No.	Name/Description	Reading 1 (mrem)	Reading 2 (mrem)	Reading 3 (mrem)	Reading 4 (mrem)	Reading 5 (mrem)	Mean Ambient Dose Equivalent (mrem)	Net Values after control subtraction: Mean Ambient Dose Equivalent (mrem)	Standard Deviation (mrem)	95% Confidence Interval (mrem)
Quarterly Monitoring Period starting:				April 1, 2004						
Control		35	33	35	33	35	34		1.1	1.4
1001	AM-1	40	43	42	43	43	42	8	1.3	1.6
1002	AM-2	43	42	42	43	43	43	9	0.5	0.7
1003	AM-6	42	42	42	42	47	43	9	2.2	2.8
1008	AM-8	42	46	44	44	43	44	10	1.5	1.8
1009	AM-3	41	40	43	43	40	41	7	1.5	1.9
1010	AM-4	44	44	43	44	44	44	10	0.4	0.6
1011	AM-5	45	44	44	44	50	45	11	2.6	3.2

95% Confidence Interval is based on the standard error of the mean