

# CROW BUTTE RESOURCES, INC.

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



(308) 665-2215  
(308) 665-2341 – FAX

October 3, 2005

Mr. Gary Janosko  
Branch Chief  
Fuel Cycle Licensing Branch  
Division of Fuel Cycle Safety and Safeguards  
c/o Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555

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

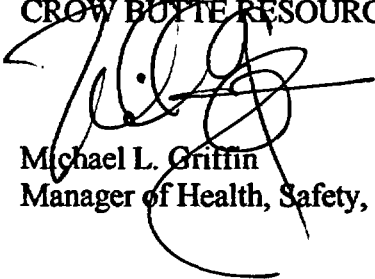
Dear Mr. Janosko:

By letter dated September 20, 2005, the Nuclear Regulatory Commission (NRC) acknowledged receipt of the referenced report for the first half of 2005 and found that it meets the requirements of License Condition 12.1. However, the NRC staff provided non-technical comments. Crow Butte Resources, Inc. (CBR) is providing the following responses to the comments.

1. CBR agreed with the NRC Project Manager by telephone conversation on September 1, 2005 to provide the requested summary table in future reports.
2. The Appendix A uranium reporting limit was rounded off in the data table. The correct reporting limit was 0.0003 mg/l. This is reflected in a corrected Appendix A (attached).
3. The units for wellfield injection pressure are pounds per square inch (psi). Revised Appendix C tables for the first and second quarters of 2005 that list the units in the table title are attached.
4. The Appendix F laboratory sheet for AM-1 contained a typographical error made by the contract laboratory. A corrected report is attached.

If you have any questions, please feel free to call me at (308) 665-2215, extension 116.

Sincerely,  
CROW BUTTE RESOURCES, INC.

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

AM5501

# **CROW BUTTE RESOURCES, INC.**



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**Mr. Gary Janosko**  
**October 3, 2005**  
**Page 2**

**cc: U.S. Nuclear Regulatory Commission**  
**Mr. Stephen Cohen - ADDRESSEE ONLY**  
**Fuel Cycle Licensing Branch**  
**Mail Stop T-8F42**  
**Washington, DC 20555**

**United States Nuclear Regulatory Commission**  
**Region IV**  
**Material Radiation Protection Section**  
**611 Ryan Plaza Drive**  
**Suite 400**  
**Arlington, Texas 76011-4005**

**Nebraska Department of Environmental Quality**  
**Mr. Dave Miesbach, Groundwater Unit Supervisor**  
**PO Box 98922**  
**Lincoln, Nebraska 68509-8922**

**Mr. Steve Collings**  
**Crow Butte Resources, Inc.**  
**141 Union Boulevard**  
**Suite 330**  
**Lakewood, Colorado 80228**

**CROW BUTTE RESOURCES, INC.**

**PRIVATE WELL AND SURFACE WATER RADIOLOGICAL MONITORING RESULTS**

**FIRST QUARTER, 2005**

<b>SAMPLE ID</b>	<b>DATE SAMPLED</b>	<b>URANIUM mg/l</b>	<b>URANIUM <math>\mu</math>Ci/ml</b>	<b>RADIUM-226 pCi/l</b>	<b>RADIUM-226 precision <math>\pm</math></b>
Well #8	3/4/05	0.010	9.09E-09	ND	-
Well #11	3/4/05	0.008	5.00E-09	0.3	0.3
Well #12	3/4/05	0.003	2.00E-09	ND	-
Well #24	3/4/05	0.005	3.00E-09	ND	-
Well #25	3/4/05	0.005	4.00E-09	ND	-
Well #26	3/4/05	0.007	5.00E-09	ND	-
Well #27	WELL INSIDE MINE UNIT. SAMPLING DISCONTINUED.				
Well #28	WELL INOPERABLE-NO SAMPLE COLLECTED				
Well #41	WELL INOPERABLE-NO SAMPLE COLLECTED				
Well #63	3/3/05	0.020	1.00E-08	0.4	0.3
Well #125	3/4/05	0.007	4.00E-09	ND	-
Well #129	3/3/05	0.008	5.00E-09	ND	-
Well #131	3/4/05	0.004	3.00E-09	ND	-
Well #133	3/3/05	0.008	6.00E-09	ND	-
Well #134	3/3/05	0.010	7.00E-09	0.4	0.3
Well #135	3/3/05	0.020	1.00E-08	0.2	0.3
Well #138	3/4/05	0.010	1.00E-08	ND	-
Well #140	3/4/05	0.010	7.00E-09	ND	-
Drinking Water Well	3/4/05	0.007	5.00E-09	ND	-
Stream S-1	3/3/05	0.004	3.00E-09	ND	-
Stream S-2	3/3/05	0.004	3.00E-09	ND	-
Stream S-5	3/3/05	0.005	3.00E-09	ND	-
Stream E-1	3/3/05	0.020	1.00E-08	ND	-
Stream E-5	3/3/05	0.009	6.00E-09	ND	-
Impoundment I-3	3/3/05	0.030	2.00E-08	ND	-
Impoundment I-4	3/3/05	0.030	2.00E-08	ND	-
<b>Reporting Limit</b>		<b>0.0003</b>	<b>2.00E-10</b>	<b>0.2</b>	<b>-</b>

ND-Not detected at the reporting limit

WELLFIELD INJECTION PRESSURE (psi)										
First Quarter 2005										
	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	0	0	20	26	9	18
February	0	0	0	0	0	0	19	30	9	15
March	0	0	0	0	0	0	21	28	10	18
AVERAGE	0	0	0	0	0	0	20	30	9	18
	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	36	43	12	17	28	36	33	38	0	0
February	32	37	8	14	24	32	41	50	0	0
March	34	38	12	16	25	30	51	74	0	0
AVERAGE	34	43	11	17	26	36	42	74	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	35	41	29	35	90	93	41	46
February	0	0	42	50	37	45	80	95	48	59
March	0	0	52	75	48	72	92	93	58	78
AVERAGE	0	0	43	75	38	72	87	95	49	78
	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	75	76	0	0	27	60	83	85
February	0	0	68	78	0	0	60	70	76	95
March	0	0	76	78	0	0	72	92	84	87
AVERAGE	0	0	73	78	0	0	53	92	81	95
	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	97	98	95	98	0	0	96	98	95	98
February	88	98	86	97	0	0	87	98	86	96
March	98	99	95	95	0	0	96	98	95	97
AVERAGE	94	99	92	98	0	0	93	98	92	98
	WF HOUSE #26		WF HOUSE #27		WF HOUSE #28		WF HOUSE #29		WF HOUSE #30	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	96	98	95	97	0	0	71	98	57	63
February	86	98	86	97	0	0	59	68	53	60
March	97	98	95	98	0	0	66	68	59	62
AVERAGE	93	98	92	98	0	0	65	98	56	63
	WF HOUSE #31		WF HOUSE #32		WF HOUSE #33		WF HOUSE #34		WF HOUSE #35	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	91	95	42	44	98	99	97	99	96	98
February	82	95	38	45	88	99	86	99	87	96
March	92	94	42	46	98	99	97	99	96	98
AVERAGE	88	95	41	46	95	99	94	99	93	98
	WF HOUSE #36		WF HOUSE #37		WF HOUSE #38		WF HOUSE #39		WF HOUSE #40	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
January	97	99	97	98	97	99	90	98	0	0
February	87	99	84	97	87	99	85	98	0	0
March	97	99	93	98	96	98	95	98	0	0
AVERAGE	94	99	91	98	93	99	90	98	0	0
	WF HOUSE #41		WF HOUSE #42		WF HOUSE #43					
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM				
January	51	54	38	42	43	46				
February	47	55	35.9	42	40	47				
March	52	55	41	44	45	49				
AVERAGE	50	55	38	44	43	49				

WELLFIELD INJECTION PRESSURE (psi)										
Second Quarter 2005										
	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	0	0	0	0	0	0	21	25	9	12
May	0	0	0	0	0	0	22	52	10	40
June	0	0	0	0	0	0	31	80	19	70
AVERAGE	0	0	0	0	0	0	25	80	13	70
	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	36	38	3	15	27	36	70	73	0	0
May	26	38	0	0	17	47	69	74	0	0
June	26	34	0	0	18	30	72	80	0	0
AVERAGE	29	38	1	15	21	47	70	80	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
April	0	0	69	75	63	68	93	95	74	78
May	0	0	73	77	65	68	93	95	74	78
June	0	0	73	78	66	71	94	98	75	80
AVERAGE	0	0	72	77	65	71	93	98	74	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
April	0	0	77	79	0	0	88	90	85	88
May	0	0	77	80	3	90	87	98	85	85
June	3	95	78	85	0	0	88	95	86	95
AVERAGE	1	95	77	85	1	90	88	98	85	95
	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	97	98	95	96	0	0	96	98	95	97
May	98	99	95	99	0	0	97	98	96	98
June	97	99	95	98	0	0	92	98	93	99
AVERAGE	98	99	95	99	0	0	95	98	95	99
	WF HOUSE #26		WF HOUSE #27		WF HOUSE #28		WF HOUSE #29		WF HOUSE #30	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	98	99	98	98	0	0	67	68	59	60
May	98	98	98	99	0	0	67	70	59	62
June	92	98	85	99	0	0	66	71	59	67
AVERAGE	95	99	93	99	0	0	67	71	59	67
	WF HOUSE #31		WF HOUSE #32		WF HOUSE #33		WF HOUSE #34		WF HOUSE #35	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	93	95	42	45	77	99	97	98	98	99
May	44	92	43	48	44	48	97	98	97	99
June	31	40	42	48	43	50	93	99	94	99
AVERAGE	56	95	42	48	54	99	96	99	96	99
	WF HOUSE #36		WF HOUSE #37		WF HOUSE #38		WF HOUSE #39		WF HOUSE #40	
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM
April	97.6	99	95	97	97	99	97	99	0	0
May	96	98	97	98	98	99	95	99	0	0
June	93	98	93	98	94	99	93	98	0	0
AVERAGE	96	99	95	98	96	99	95	99	0	0
	WF HOUSE #41		WF HOUSE #42		WF HOUSE #43					
	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE	MAXIMUM				
April	53	60	41	47	45	52				
May	52	55	39.4	44	43	47				
June	51	54	40	41	43	47				
AVERAGE	52	60	40	47	44	52				



Date: 26-Sep-05

CLIENT: Crow Butte Resources  
Project: Not Indicated  
Sample Delivery Group: C05070304

## CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

### REVISED REPORT

The attached analytical report has been revised from a previously submitted report due to sample date changed on sample number 001 per client request.

### BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT  
eli-f - Energy Laboratories, Inc. - Idaho Falls, ID  
eli-g - Energy Laboratories, Inc. - Gillette, WY  
eli-h - Energy Laboratories, Inc. - Helena, MT  
eli-r - Energy Laboratories, Inc. - Rapid City, SD  
eli-t - Energy Laboratories, Inc. - College Station, TX

### ORIGINAL SAMPLE SUBMITTAL(S)

All original sample submittals have been returned with the data package. A copy of the submittal(s) has been included and tracked in the data package.

### SUBCONTRACTING ANALYSIS

Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

### SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. - CASPER, WY certifies that certain method selections contained in this report meet requirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol. NELAC Certification Number E87641.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page [www.energylab.com](http://www.energylab.com).

The total number of pages of this report are indicated by the page number located in the lower right corner.



**HIGH VOLUME AIR SAMPLING REPORT**

**CLIENT: CROW BUTTE RESOURCES**

**REPORT DATE: July 25, 2005**

**REVISED REPORT DATE: September 26, 2005**

**SAMPLE ID: AM-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
C05040208-001 01/03/2005 - 04/01/2005 Air Volume in mLs 5.15E+09	<sup>nat</sup> U	1.54E-16	N/A	1.00E-16	9.00E-14	1.71E-01
	<sup>226</sup> Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
	<sup>210</sup> Pb	2.08E-14	1.44E-15	2.00E-15	6.00E-13	3.47E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration μCi/mL	Error Estimate μCi/mL	L.L.D. μCi/mL	Effluent Conc.* μCi/mL	% Effluent Concentration
C05070304-001 04/01/2005 - 07/05/2005 Air Volume in mLs 5.80E+09	<sup>nat</sup> U	1.75E-16	N/A	1.00E-16	9.00E-14	1.95E-01
	<sup>226</sup> Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
	<sup>210</sup> Pb	1.02E-14	1.28E-15	2.00E-15	6.00E-13	1.70E+00

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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