

March 6, 2012

Mr. Thomas P. Young
Vice-President of Operations
Cameco Resources
2020 Carey Ave., Suite 600
Cheyenne, WY 82001

SUBJECT: LICENSE AMENDMENT NO. 26, 2011 SURETY UPDATE, CROW BUTTE
RESOURCES, INC., CRAWFORD, NEBRASKA, SOURCE MATERIALS
LICENSE SUA-1534 (TAC NO. J00634)

Dear Mr. Young:

By letters dated September 28, 2010 (NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML102850181) and August 26, 2011 (ADAMS Accession No. ML11255A131), Crow Butte Resources, Inc. (CBR) submitted its 2011 surety update to U.S. Nuclear Regulatory Commission (NRC) staff. This surety update seeks to increase the 2010 surety amount by \$6,496,751 to \$35,398,802. This increase is based upon annual adjustments for inflation and continued in situ recovery operations.

Based on the information provided in CBR's aforementioned submittals, the NRC staff has determined that the surety estimate is acceptable as documented in staff's Technical Evaluation Report (enclosed). Therefore, NRC staff is approving the new surety amount of \$35,398,802. License Amendment No. 26, enclosed with this letter, includes a revised License Condition 9.5 that reflects this updated surety estimate. This licensing action meets the categorical exclusion provision for surety changes in 10 CFR Part 51.22(c)(10)(i). Therefore, no further environmental review is required for this action.

We are currently reviewing CBR's request for an alternate decommissioning schedule dated December 21, 2010 (ADAMS Accession No. ML110040422). Our evaluation of the potential effect of the alternative decommissioning request on the financial surety amount will be used to complete our review of CBR's 2012 surety update estimate (ADAMS Accession No. ML11292A007).

We note that the surety has not been rebaselined since the 2006 surety update (ADAMS Accession No. ML052850260), and surety updates have been limited to increases in the rate of inflation as well as new operational features. Recognizing that adjustments in unit costs offered by an independent third party in local economies may not match the rate of inflation, we request that the entire 2013 surety be rebaselined with sufficient unit cost justification so that we can conduct a full and comprehensive review.

If you have any questions, please contact Mr. Ronald A. Burrows, Project Manager, at 301-415-6443, or by email at ronald.burrows@nrc.gov.

T. Young

2

In accordance with 10 CFR 2.390 of the NRC's Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders, a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-8943
License No.: SUA-1534

Enclosures: 1: Technical Evaluation Report
2: License Amendment No. 26

cc:
Larry Teahon, Cameco Resources
Crow Butte Operation
Michael Linder, NDEQ

T. Young

2

In accordance with 10 CFR 2.390 of the NRC's Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders, a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-8943
License No.: SUA-1534

Enclosures: 1: Technical Evaluation Report
2: License Amendment No. 26

cc: Larry Teahon, Cameco Resources Crow Butte Operation
Michael Linder, NDEQ

(CLOSES TAC NO. J00634)

DISTRIBUTION:

BSpitzberg/RIV

LGersey/RIV

KKline

TLancaster

ML110320358

OFFICE	DWMEP	DWMEP	DWMEP	OGC	DWMEP
NAME	RBurrows	BGarrett	WvonTill	MSimon via email	KMcConnell
DATE	2/17/12	2/21/12	2/22/12	2/29/12	3/6/12

OFFICIAL RECORD COPY

**TECHNICAL EVALUATION REPORT
2011 SURETY UPDATE
CROW BUTTE RESOURCES, INC.
CRAWFORD, NEBRASKA**

DATE: December 28, 2011

DOCKET NO.: 40-8943

LICENSEE NO.: SUA-1534

FACILITY LOCATION: Crawford, Nebraska

PROJECT MANAGER: Ronald A. Burrows

TECHNICAL REVIEWER: Thomas R. Lancaster

SUMMARY AND CONCLUSIONS:

By letters dated September 28, 2010 and August 26, 2011, Crow Butte Resources, Inc. (CBR) submitted its 2011 surety update to U.S. Nuclear Regulatory Commission (NRC) staff (CBR, 2010, 2011). This update seeks to increase the financial assurance amount for the Crow Butte Uranium Project by \$6,496,751 to a total of \$35,398,802. The staff reviewed the financial assurance estimate update in accordance with License Condition 9.5, consistent with Criterion 9 of Appendix A to Part 40 of Title 10 of the Code of Federal Regulations (10 CFR Part 40, Appendix A). The staff determined that the changes are acceptable. Staff recommends that License Condition 9.5 be revised to include the surety amount of \$35,398,802.

DESCRIPTION OF THE SURETY UPDATE:

CBR's 2011 annual surety estimate included a description of the updates to the surety estimate, a breakdown of the surety estimate in 34 spreadsheets, and a review of the surety spreadsheets by George W. Klein, an independent certified public accountant. Mr. Klein's review included the results of his examination of spreadsheet calculations and consumer price index inflationary adjustments. Mr. Klein also provided his findings from spot checks of surety cost items with independent vendors and other sources. (CBR, 2010, 2011)

CBR's 2011 surety update (CBR, 2010, 2011) seeks to increase the financial assurance amount by \$6,496,751 to a total of \$35,398,802. This increase is based on several factors, including:

- flare factor,
- unit cost adjustment for twenty four hour operation of circuits,
- restoration mechanical integrity testing (MIT),
- the continued development of the in-situ recovery (ISR) uranium project,
- reverse osmosis (RO) building addition, and
- contract administration and inflation.

Enclosure

TECHNICAL EVALUATION:

Staff reviewed the licensee's 2011 surety update for sufficient funding of CBR project restoration, reclamation, and decommissioning. Staff also reviewed the update for consistency with CBR's ISR project license (NRC, 2010b), restoration plan (CBR, 2004a), and decommissioning plan (CBR, 2004b). Staff observes that the licensee's surety estimate and the associated spreadsheets were adequately summarized and calculated in accordance with Appendix C of NUREG-1569 (NRC, 2003). Staff spot-checked the calculations within spreadsheets using Microsoft Excel and found the calculations to be correct.

The following is staff's evaluation of the spreadsheet changes in the 2011 surety update (CBR, 2010, 2011).

Ground Water Restoration

Staff observes that changes to the ground water restoration spreadsheets included: (1) the addition of a flare factor, (2) ground water treatment unit cost correction to account for 24-hour operation of treatment circuits, and (3) the addition of ground water MITs (CBR, 2010, 2011). Staff's evaluation of these spreadsheet changes are as follows:

1. Staff reviewed the licensee's proposed flare factor in the surety estimate. A flare factor is an estimate of the amount of ground water outside of a production zone's pore volume that has been affected by the flow of lixiviant. This factor is expressed as a proportion of the production zone's pore volume. The licensee proposed a flare factor of 1.2 or 20 percent of the production zone pore volume (CBR, 2010). Acceptance criteria 2 in Section 6.1.3 of NUREG-1569 (NRC, 2003) states, "Specific flare factors approved in the past vary from 20 to 80 percent and are typically based on experience from research and development pilot demonstrations." Staff observes that proposed flare factor is within the above-referenced range of flare factors stated within NUREG-1569 (NRC, 2003).

The licensee's technical basis for the proposed flare factor is operational experience and hydrological modeling (CBR, 2010). Staff reviewed the licensee's ground water flow model previously submitted with its 2009 surety update (CBR, 2009). Within the licensee's illustrations of model results for mine units (MUs) 2, 3, 4, and 5, staff observes that the proportions of injection well particle traces that extend outside the production zone support the amount of the licensee's proposed flare factor. Therefore, staff finds the licensee's proposed flare factor to be acceptable.

Staff observes that the spreadsheet insertion of the proposed flare factor increased the unit amounts of ground water restoration treatment (ion exchange (IX), RO, and recirculation), consumables, sampling, MITs, and supervisory labor. Staff finds these unit amount adjustments to be reasonable.

2. Staff reviewed the licensee's proposed ground water treatment unit cost within the 2011 update. Staff observes that this unit cost adjustment originated from the increases to the time period of a man-day in the ground water treatment unit cost spreadsheets for IX treatment, RO treatment, and recirculation. The length of a man-day was increased by

the licensee from 8 hours to 24 hours to account for 24-hour operation of treatment circuits. Staff verified the 24-hour operation of the treatment circuits by reviewing facility records during the 2010 NRC CBR facility inspection (NRC, 2010a).

3. Staff reviewed the licensee's proposed addition of ground water restoration MITs submitted with the 2011 update. Staff finds the licensee's description of assumptions for the MITs to be consistent with the CBR license (NRC, 2010b). Staff spot-checked the added restoration MIT unit costs with standard labor costs from outside sources (GSALibrary, 2011; Get-A-Quote, 2011), as well as other NRC-approved costs for other ISR projects and found the unit costs to be sufficient. Thus, staff finds the MIT unit costs adjustments for ground water restoration to be acceptable.

Continued Development

Staff reviewed the adjustments within the 2011 surety spreadsheets for the continued development of the Crow Butte uranium project. This review included surety adjustments for the continued development of MUs and the RO building addition. Staff observes that unit amount increases for the decommissioning and reclamation for this continued development was supported by staff's examination of the CBR uranium facility during the 2010 facility inspection (NRC, 2010a). The licensee added building demolition, disposal, and reclamation costs for the 5,000 sq. ft. RO building addition. Staff finds these unit costs for this building addition to be consistent with existing building demolition, disposal, and reclamation costs. Therefore, staff finds the updated costs for the continued development to be acceptable.

Other Cost Adjustments

The licensee's annual inflation adjustment for the surety estimate was based on an annual increase of the consumer price index of 2 percent. Staff determined that this annual inflation adjustment is correct (U.S. Bureau of Labor Statistics, 2011). Staff finds that the contract administrative costs associated with third party contractors and the surety contingency cost increased by the appropriate percentage of the added restoration, decommissioning, and reclamation costs.

CONCLUSIONS:

The staff determined that cost changes were acceptable and consistent with the CBR license (NRC, 2010b), restoration plan (CBR, 2004a), and decommissioning plan (CBR, 2004b). Therefore, staff recommends that License Condition 9.5 be revised to include the surety amount of \$35,398,802.

REFERENCES

10 CFR Part 40. *Code of Federal Regulations*, Title 10, Energy, Part 40, “Domestic Licensing of Source Material.”

CBR, 2011. 2011 Surety Revised Estimate, Cameco Resources Crow Butte Operation, Source Materials License SUA-1534, August 26, 2011 [ADAMS Accession No. ML11255A131]

CBR, 2010. 2011 Surety Estimate, Cameco Resources Crow Butte Operation, Source Materials License SUA-1534, September 28, 2010, [ADAMS Accession No. ML102870217]

CBR, 2009, Revised 2009 Surety Estimate, Source Materials License SUA-1534, February 28, 2009 [ADAMS Accession No. ML090750920]

CBR, 2004a. Crow Butte Resources, Inc. Groundwater Restoration Plan, Source Materials License SUA-1534, June 30, 2004 [ADAMS Accession No. ML041980328]

CBR, 2004b. Wellfield Decommissioning Plan for Crow Butte Uranium Project , Source Materials License SUA-1534, March 4, 2004 [ADAMS Accession No. ML040780614]

Get-A-Quote, 2011. Cost data located at <http://www.get-a-quote.net>, accessed September 20, 2011

GSALibrary, 2011. Cost data located at <http://www.gsaelibrary.gsa.gov/ElibMain/sinDetails.do?executeQuery=YES&scheduleNumber=899&flag=&filter=&specialItemNumber=899+1>, accessed September 20, 2011

NRC, 2010a. NRC Inspection Report 040-08943/10-001 and Notice of Violation, Arlington, TX, August 20, 2010, ADAMS Accession No. ML102320543.

NRC, 2010b. License Amendment No. 25, 2010 Surety Update, Crow Butte Resources, Inc., Crawford, Nebraska, Source Materials License SUA-1534, April 20, 2010 [ADAMS Accession Package No. ML100830017]

NRC, 2003. NUREG–1569, “Standard Review Plan for In Situ Leach Uranium Extraction License Applications—Final Report.” June.

U.S. Bureau of Labor Statistics, 2011. CPI data at www.bls.gov/cpi, accessed December 5, 2011.