



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 7, 2018

Mr. Walter Nelson
Coordinator, Safety, Health,
Environment & Quality
Cameco Resources
Crow Butte Operation
86 Crow Butte Road
Post Office Box 169
Crawford, NE 69339-0169

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION VERIFICATION REGARDING
THE 2018 SURETY UPDATE, CROW BUTTE RESOURCES, INC.,
CRAWFORD, NEBRASKA, SOURCE MATERIALS LICENSE SUA-1534

Dear Mr. Nelson:

By letter dated May 31, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17170A162), Crow Butte Resources, Inc. (CBR) submitted its 2018 surety update to the U.S. Nuclear Regulatory Commission (NRC) staff. As a result of this submittal, the overall effect of this surety update is to increase the 2017 surety amount by \$865,325 to a total of \$47,740,447.

Based on the information provided in CBR's aforementioned surety update submittal, the NRC staff has determined that the surety estimate is acceptable as documented in the NRC staff's verification (enclosed). License Condition 9.5 of Materials License SUA-1534 will be revised to reflect the current updated surety amount during a future licensing action.

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

As a result of this verification, the NRC staff has completed its work on Cost Activity Codes (CACs) 000092 and 000080 associated with docket and Enterprise Project Identifier (EPID) 04008943/L-2017-DFA-0012. Therefore, these CACs will be closed with no further charges against them.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public

W. Nelson

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Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

/RA/

Ronald A. Burrows, Project Manager
Uranium Recovery Licensing Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket No.: 40-8943

License No.: SUA-1534

Enclosure: NRC Staff Verification of 2018 Surety Estimate

cc: D. Pavlick, Cameco Resources

D. Miesback, NDEQ

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THE 2018 SURETY UPDATE, CROW BUTTE RESOURCES, INC.,
CRAWFORD, NEBRASKA, SOURCE MATERIALS LICENSE SUA-1534,
DATED MARCH 7, 2018

cc: D. Pavlick, Cameco Resources
D. Miesback, NDEQ

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ADAMS Accession No.: ML18045A065

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**U.S. Nuclear Regulatory Commission
Staff Verification of 2018 Surety Estimate
Crow Butte Resources, Inc.
Source Material License SUA-1534**

DATE: March 7, 2018

DOCKET: 040-08943

LICENSE NO.: SUA-1534

LICENSEE: Crow Butte Resources, Inc.

SITE: Crow Butte Project

PROJECT MANAGER: Ronald A. Burrows

TECHNICAL REVIEWERS: Tom Lancaster, Reginald Augustus

Background

By letter dated May 31, 2017, Crow Butte Resources, Inc. (CBR, or the licensee) submitted its 2018 annual surety update for the Crow Butte Project (CBR, 2017) to the NRC. The NRC staff reviewed the surety estimate and determined that the surety update was acceptable.

Staff Review and Analysis

This report includes the results of the NRC staff's review of its 2018 annual surety update. The NRC staff reviewed CBR's Crow Butte surety estimate in accordance with requirements in 10 CFR Part 40, Appendix A, Criterion 9, "Financial Criteria" and in License Condition 9.5 of Materials License SUA-1534. Additionally, the NRC staff used NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications" (SRP) as guidance in determining elements to be included in a surety review. Specifically, the NRC staff used the review procedures and acceptance criteria guidance in Section 6.0 and in Appendix C of the SRP. The NRC staff also used Nebraska Department of Labor, Office of Labor Market Information, Occupational Employment Statistics Program (NDOL, 2017) when applicable, to verify that reasonable unit costs were included in the surety calculations.

Sufficiency of the Cost Estimate

In the surety calculations, the licensee includes costs for decommissioning and decontamination (D&D), reclamation of sites, structures, and equipment used in conjunction with facility operations.

CBR estimated the cost to decommission and decontaminate the Crow Butte facility by an independent party at \$47,740,447. This constitutes an increase of \$865,325 above the previous year's surety estimate of \$46,875,122. The most significant categories that contributed to the surety estimate change include, contract administration (+\$69,226) and groundwater

restoration (+\$782,158). The cost estimate is based on costs of a third-party contractor, does not take credit for any salvage value, and includes a 15 percent contingency factor. Chemical and electrical costs are based on actual invoices and are adjusted by the Consumer Price Index for inflation.

This surety estimate maintains 11 pore volumes (PVs) as a basis to complete restoration for each mine unit (MU) consisting of 3 ion exchange PVs, 6 reverse osmosis PVs, and 2 recirculation PVs. The NRC staff previously approved 11 PVs for restoration purposes during the 2009 surety update (NRC, 2009) based on the licensee's experience with restoring MU-1. The NRC staff finds nothing to invalidate the previous findings regarding the licensee's estimate of 11 PVs required for MU restoration and therefore the NRC staff's previous conclusions remain valid.

The NRC staff reviewed the 2018 cost estimate against requirements in LC 9.5 (NRC, 2017). The NRC staff observed that CBR's number of units in its calculation of the evaporation pond reclamation increased in anticipation of the addition of a liner and underdrain system to commercial evaporation pond #4. Disposal of 250,000 square feet of liner and 920 linear feet of leak detection piping (underdrain system) was added to the surety estimate for commercial evaporation pond #4 (CBR, 2017). Staff found the additional liner and leak detection piping will adequately cover the current area of Pond #4 (Ferret, 1988). Thus, staff has reasonable assurance that the square feet of liner and linear feet of leak detection piping included in the surety estimate for disposal is satisfactory.

The NRC staff observes that the licensee's surety estimate and the associated cost breakdowns were adequately summarized and calculated in accordance with Appendix C of NUREG-1569 (NRC, 2003). The NRC staff spot-checked the calculations within cost breakdowns, using Microsoft Excel and found the calculations to be correct. The NRC staff observes that 10 CFR Part 40, Appendix A, Criterion 9 does not specify a specific contingency factor to be used in the surety calculations. Guidance in NUREG-1569 recommends a minimum 15 percent contingency as an acceptance criterion. The NRC staff finds that the contingency used by the licensee is consistent with that guidance.

The NRC staff's review of the cost adjustments were found to be consistent with proposed changes in the operations. The NRC staff found that the licensee has included in the update all activities: (1) listed in the reclamation plan or in Section 6.0 of NUREG-1569; and (2) conducted during the period covered by the estimate. The NRC staff found the licensee has based the assumptions for the financial surety analysis on site conditions, including experiences with generally accepted industry practices, research and development at the site, and previous operating experience.

Therefore, The NRC staff finds that the licensee has established an acceptable financial assurance cost estimate based on the requirements in 10 CFR Part 40, Appendix A, Criterion 9.

Conclusion

Based on the information provided in the application and the detailed review conducted of the surety estimate for CBR's Crow Butte Uranium Project, the NRC staff concludes that the 2018 surety estimate reasonably includes funds sufficient to cover the estimated current costs of the facility. The staff determined that the updated surety amount meets the requirements of 10 CFR Part 40, Appendix A, Criterion 9 and LC 9.5 (NRC, 2017) and is therefore acceptable.

REFERENCES

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

CBR, 2017. 2018 Surety Estimate, Cameco Resources Crow Butte Operation, Source Materials License SUA-1534, May 31, 2017, ADAMS Accession No. ML17170A162.

Ferret, 1988. Solar Evaporation Pond Engineering Design Report, Location Map, April 14, 1988, ADAMS Accession No. ML080840486.

NDOL, 2017. Nebraska Department of Labor, Office of Labor Market Information, Occupational Employment Statistics Program, Accessed February 20, 2018, <https://networks.nebraska.gov/vosnet/lmi/default.aspx>.

NRC, 2017. Crow Butte Resources, Inc. Material License SUA-1534, Amendment No. 2, October 5, 2017, ADAMS Accession No. ML17062A606.

NRC, 2009. Letter from K. McConnell, US NRC, to L. Teahon, Crow Butte Resources, Inc., License Amendment No. 24, 2009 Surety Update, October 21, 2009, ADAMS Accession No. ML092220124.

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