June 30, 2010

Mr. Paul Goranson, President
Cameco Resources
2020 Carey Ave., Suite 600
Cheyenne, WY 82001

SUBJECT: OPEN ISSUES, LICENSE RENEWAL AMENDMENT REQUEST, CROW BUTTE RESOURCES, INC., CRAWFORD, NEBRASKA, LICENSE SUA-1534 (TAC J00555)

Dear Mr. Goranson:

By letter dated November 27, 2007, Crow Butte Resources, Inc., (CBR) submitted to the U.S. Nuclear Regulatory Commission (NRC) staff a request to renew its source material license for its uranium in situ recovery (ISR) facility located in Crawford, Nebraska. License No. SUA-1534 authorizes the licensee to operate an ISR uranium recovery facility to produce yellowcake. Specifically, the amendment requests that NRC renew CBR's current license for a standard 10-year period. By letter dated March 28, 2008, NRC staff informed CBR that its application was accepted for further detailed technical review.

NRC staff has identified open issues associated with the preparation of an internal draft of the Safety Evaluation Report. These open issues are enclosed herein. Within 30 days of receipt of this letter, please either provide the information identified in the enclosure or inform us of the date you expect to provide the information. At this point in the review process, NRC staff has presented all open issues to CBR regarding the license renewal amendment Safety Evaluation Report. The staff is, therefore, curtailing any further work until CBR responds to the open issues. If you have any questions, please contact Mr. Ronald Burrows at 301-415-6443 or, by email, at ronald.burrows@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," 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 Agencywide Documents Access and Management System (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
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

Enclosure: Open Issues

cc: D. Miesbach, NDEQ
J. Abrahamson, NDEQ
L. Teahon, CBR

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L. Teahon, CBR

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CROW BUTTE RESOURCES, INC.
CROW BUTTE LICENSE RENEWAL
OPEN ISSUES

I. Open Issues

A. Section 4.1.1, Tank and Process Vessel Ventilation Systems – In Section 4.1.1 of the Technical Report (TR), the applicant describes the negative pressure maintained on the vacuum dryer and during packaging operations. Please describe the location of the exhaust from each of these vacuum sources and the area receiving the exhaust.

B. Section 5.6.1.3, Training Content – In Section 5.6.1.3 of the TR, Crow Butte Resources, Inc. (CBR) discusses its training program content for its employees. However, there is no specific discussion of the instructions regarding risks from occupational radiation exposure and prenatal radiation exposure. Consistent with NUREG-1569, Acceptance Criteria 5.5.3(2) and 5.5.3(3), please address how these instructions are incorporated into the applicant's training program.

C. Section 5.8.3.1, Airborne Uranium Particulate Monitoring –

1. In CBR's May 12, 2009 letter (ML091470119) responding to NRC staff's Request for Additional Information (ML083660060), it did not provide sufficient information to justify the use of 100 percent Class D yellowcake. Please provide technical justification for assuming 100 percent Class D inhalation class for the yellowcake produced at the Crow Butte Project. In addition, if the proposed inhalation class changes, provide an appropriate revised lower limit of detection for measuring uranium in air.

2. In CBR's May 12, 2009 letter (ML091470119) responding to NRC staff's Request for Additional Information (ML083660060), it did not provide sufficient information to justify the use of gross alpha counting for determining occupational internal dose from sources other than radon and its daughters. This method does not account for potential radiation from other alpha emitters, as well as the potential for the presence of beta-gamma emitting daughters. Please provide technical justification for relying on gross alpha counting alone for determining occupational internal dose from sources other than radon and its daughters.

D. Section 5.8.6.1, Surveys for Surface Contamination –

1. Please address how the potential for the presence of beta-gamma emitters are addressed in CBR's contamination control program.

2. Please provide the frequency of contamination surveys in the operating areas of the facility.

3. In Section 5.8.6.1 of the TR, CBR states that an action level of 25 percent of the limits from RG 8.31 is used for clean areas. Please provide details of survey equipment used for this purpose and demonstrate the lower limit of detection of these instruments.

E. Section 5.8.6.2, Surveys for Contamination of Skin and Personal Clothing - Please address how the potential for the presence of beta-gamma emitters are addressed in CBR's personnel contamination control program.

F. Section 5.8.6.3, Surveys of Equipment Prior to Release to an Unrestricted Area –

1. Please address how the potential for the presence of beta-gamma emitters are addressed in CBR's program for releasing items for unrestricted use.

2. In CBR's May 12, 2009 letter (ML091470119) responding to NRC staff's Request for Additional Information (ML083660060), it did not provide sufficient regulatory justification to relieve it from complying with License Condition (LC) 9.12. Specifically, LC 9.12 requires compliance with Regulatory Guide (RG) 8.31. CBR has not proposed a program that is consistent with RG 8.31 regarding the qualifications of personnel releasing items for unrestricted use. Please provide qualifications of personnel releasing items for unrestricted use that are consistent with LC 9.12 and RG 8.31.

G. Section 5.8.7, Airborne Effluent and Environmental Monitoring Program –

1. Please specify radiological monitoring that CBR will perform during operations to confirm its licensing basis and the validity of calculations used for estimating public and occupational exposures for all aspects of its operations.

   Although calculations are allowed in meeting the requirements of 10 CFR 1301/1302, the NRC staff expects that CBR will perform monitoring to such an extent as to be able to confirm its licensing basis and the validity of calculations used for estimating effluent concentrations and calculating dose for compliance with 20.1301/1302. This concept applies to point sources as well as diffuse sources such as radon released in the wellfield. Compliance with 10 CFR 20.1501 in regards to occupational dose should be approached in the same manner.

   Monitoring proposed by CBR does not appear to take into account all sources of potential exposure to workers and members of the public. Examples include effluent discharged from the facility, header houses, and wellfields. More specifically, it is not clear that occupational exposures due to radon and its progeny are considered for all aspects of its operations throughout the permit area.

Please provide a more detailed description of CBR's radiological monitoring program that can be used to confirm its licensing basis and the validity of calculations used for estimating public and occupational exposures for all aspects of its operations.

2. In CBR's May 12, 2009 letter (ML091470119) responding to NRC staff's Request for Additional Information (ML083660060), it did not provide sufficient information to demonstrate compliance with 10 CFR 20.1301(b) and 10 CFR 20.1302(b). CBR appeared to use arbitrary downwind receptor points for its calculations. In terms of public dose, it is not clear that CBR determined who or what group receives the highest exposure consistent with NUREG-1736.

   Please provide an analysis of public dose consistent with open issue G(1) above and NUREG-1736.

H. Section 5.8.7.2, Radon – Please provide information on how radon daughters are factored into determining compliance with 10 CFR 20.1301/1302 during operations.

II. Confirmatory Items

A. Section 6.3, Removal of Process Buildings and Equipment – Please confirm that the beta-gamma limits of the Guidelines will be applied to the release of items for unrestricted use.

III. Administrative Items

A. General – change the verb "would" to "will" in the TR when describing the applicant's program unless the action will be contingent upon some other action.

B. Section 2.5, Meteorology - Table 2.5-15, "Joint Frequency Distribution", indicates that the data is comprised of a summary of meteorological conditions over a one-year period but does not indicate the actual time period. Please indicate the one-year time period that this data represents.

C. Section 4.2.1.2, Secondary Water Sources – In Section 4.2.1.2 of the TR, the applicant discusses how liquid waste from the laboratory will be disposed. Please provide information on amounts of laboratory waste that contains hazardous material and how this waste is dispositioned.