

July 20, 2012

Mr. Josh Leftwich
Director of Safety, Health, Environment
and Quality
Cameco Resources
2020 Carey Ave, Suite 600
Cheyenne, WY 82001

SUBJECT: DRAFT LICENSE CONDITIONS, CROW BUTTE RESOURCES, INC., IN SITU
RECOVERY FACILITY NORTH TREND EXPANSION AREA, CRAWFORD,
NEBRASKA, LICENSE SUA-1534 (TAC NO. J00523)

Dear Mr. Leftwich:

By letter dated May 30, 2007, Crow Butte Resources, Inc., (CBR) submitted to the U.S. Nuclear Regulatory Commission (NRC) staff a request to amend license SUA-1534 to develop uranium resources at the North Trend Expansion Area (North Trend). CBR intends to develop the North Trend resources using in situ recovery (ISR) techniques, and loaded ion exchange resins from the ISR process will be transported to the central processing plant at the main Crawford, Nebraska, facility. In response to the NRC staff's requests for additional information and open issues, CBR supplemented the amendment application by letters and e-mails dated February 28, 2009, November 20, 2009, October 22, 2010, July 15, 2011 and June 10, 2012.

Based on the staff's analysis of information provided by CBR, the NRC staff is developing a Safety Evaluation Report (SER). Enclosure 1 lists the draft license conditions for North Trend. These license conditions are preliminary in nature for the purpose of initiating discussions necessary to finalize the SER and Environmental Assessment. It should be noted that as the staff's review continues, these draft license conditions are subject to change and have not received formal legal review. As such, the disclosure of these draft license conditions does not constitute a licensing decision by the NRC. Please review the draft license conditions and provide comments within 14 days of receipt of this letter. Comments can be provided via letter, or e-mail. The NRC staff can also schedule a public meeting to discuss the draft license conditions. Significant changes or deviations from the draft license conditions may require additional staff review and may delay the final review schedule.

In addition to the enclosed license conditions, NRC staff is rearranging several existing license conditions on the third draft of the renewal license (ML120680574) to reflect a multi-facility license. Staff is making these changes to clarify those conditions that apply to all facilities incorporated under Materials License SUA-1534, and those that apply to specific facilities. Enclosure 2 lists these changes. These are administrative changes and do not constitute new requirements.

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 Website at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions concerning the above, please contact me at (301) 415-6443 or via email at Ronald.Burrows@nrc.gov.

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

Enclosures:

1. North Trend Expansion Area Draft
License Conditions
2. Administrative Changes to Third Draft
Renewal License

cc: See next page

J. Leftwich

2

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Docket No. 40-8943
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cc: See next page

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North Trend Expansion Area Draft License Conditions

Standard License Conditions
<p>The licensee shall identify the location, screen depth, and estimated pumping rate of any new ground water wells or new use of an existing well within any licensed area, and within two kilometers of any production area. The licensee shall evaluate the impact of ISR operations to potential ground water users and recommend any additional monitoring or other measures to protect ground water users. The evaluation shall be submitted as part of the semiannual reporting to the NRC specified under license condition 11.1 (D).</p>
North Trend Facility Specific License Conditions
<p>The satellite plant throughout shall not exceed a maximum flow rate of 4,500 gallons per minute, excluding restoration flow.</p>
<p>At least 60 days prior to the preoperational inspection, the licensee shall submit application replacement pages for Table 2.2-12 with well depth units.</p>
<p>The licensee shall minimize potential damage to infrastructure from peak flows by avoiding well installation within ephemeral drainage flood channel areas and within or near the White River flood channel areas at the NTEA. For wells installed within the high water marks of a 100-year flood plain in the Flood Insurance Rate Map issued by the Federal Emergency Management Agency, wellhead protection measures that are protective of the wells during flood conditions shall be provided to the NRC for review and written verification.</p>
<p>For a period of one year, the licensee shall obtain quarterly surface water samples at White River locations shown in application Figure 2.9-5 of the NTEA license application. The samples shall be analytically analyzed for the list of constituents in Table 2.7.3-1 of NUREG-1569. Sample analytical results and justification for an alternate list of constituents shall be submitted to the NRC for review and written verification.</p>
<p>If wellfield designs include a line drive(s), a demonstration of the containment of fluids injected at the line drive and a description of the associated monitoring program shall be provided to NRC for review and written verification.</p>
<p>The licensee will obtain the necessary underground injection control (UIC) permit to construct a minimum of one deep disposal well prior to the commencement of operations of the North Trend Expansion Area (NTEA). The licensee shall ensure the deep disposal well shall have enough capacity to handle the disposal of the total liquid effluent generation. The licensee shall ensure adequate deep well disposal capacity exists to dispose of liquids under normal operating conditions during production and restoration phases. If land application disposal is necessary in the future at the NTEA, a facility specific land application plan under a license amendment application shall be submitted to the NRC for review and approval six months prior to its construction.</p>
<p>At least 60 days prior to the preoperational inspection, the licensee shall submit application replacement pages with added information for:</p> <ul style="list-style-type: none"> • maintaining an overall inward hydraulic gradient within ore zone perimeter monitoring well ring starting the when lixiviant is first injected in the

<p>production zone and continuing until the initiation of the stabilization period;</p> <ul style="list-style-type: none"> • injection pressures at the injection well heads not exceeding 100 pounds per square inch during operations; monitoring and daily recording of flow rates on each injection and recovery well, and manifold pressures on the entire system.
<p>The licensee shall submit a license amendment application for the solar evaporation pond design and specifications to the NRC for review and approval before the commencement of pond construction. As part of this amendment application, the licensee shall use the Dawes County, Nebraska Flood Insurance Rate Map issued by the Federal Emergency Management Agency in June 2011 (as revised), to demonstrate whether the proposed location of the evaporation ponds in the NTEA will subject the ponds to potential flooding and erosion impacts. If a potential flood and erosion impact is identified or if the evaporation ponds are within a 100 year flood plain, the amendment application shall either include a flood and erosion protection design that will be maintained until the ponds are decommissioned or propose a new location for the evaporation ponds within the NTEA that will not pose flood and erosion impacts.</p>
<p>Prior to the preoperational inspection, the licensee shall submit monitoring results to the NRC for review and written verification of each well within two kilometers of the proposed NTEA production area monitoring well ring that is or could be used for drinking water, livestock, and crop irrigation. The minimum sampling frequency shall be quarterly. Samples shall be analyzed for the UCL parameters and for natural uranium and radium-226.</p>
<p>Prior to commencement of operations, the licensee shall install a meteorological station within the NTEA license area and begin collecting meteorological data for a period of at least one year consistent with Regulatory Guide 3.63. The licensee shall continue to collect additional meteorological data on a continuous basis until the data collected is determined by the NRC with written verification to be representative of long-term meteorological conditions at the NTEA. Justification of the similarity or validity of the data shall include an analysis of the statistical data presented to illustrate confidence in the representativeness of the data.</p> <p>The meteorological data collected shall include wind speed, wind direction, temperature, precipitation, and humidity. The licensee shall also develop a relative frequency distribution for each stability class and sum all stability classes and format the stability classes consistent with Regulatory Guide 3.63.</p> <p>The applicant shall confirm and validate current onsite meteorological data against historical (May 1982 to April 1984) Crow Butte onsite meteorological data and make appropriate changes to the environmental monitoring program if necessary. If changes to the environmental monitoring program are necessary, the licensee shall submit these changes to NRC staff for written verification.</p>
<p>Prior to major site construction, the licensee shall submit a preoperational radiological environmental monitoring program report for NRC review and written verification that will include air particulate, air radon, vegetation, food/crop, direct radiation, surface and subsurface soils, sediments, and surface water as</p>

described in Regulatory Guide 4.14 to comply with 10 CFR Part 40, Appendix A, Criterion 7.
The licensee shall establish lower limits of detection for analysis of Th-230 and Pb-210 in soil as specified in Regulatory Guide 4.14 for preoperational and operational soil sampling.
The applicant shall provide additional information to NRC for review and written verification for the justification and technical basis of the selection of the environmental air particulate sampling locations for AM-22, AM-23, AM-24 and AM-25 and how these sampling locations comport with Regulatory Guide 4.14.
The license shall provide flow rates for discharge to unrestricted areas and air exchange rate for the facility, and describe what method(s) will be used to control releases to unrestricted areas.
At least 60 days prior to the preoperational inspection, the licensee shall submit an operational radiological environmental monitoring program report for NRC review and written verification that will include air particulate, air radon, direct radiation, surface soils, sediments, and surface water as described in Regulatory Guide 4.14 to comply with 10 CFR Part 40, Appendix A, Criterion 7. The report shall include the location of each sampling media, frequency of sampling, and frequency and type of analysis in accordance with Regulatory Guide 4.14. Soil samples shall be analyzed for Th-230 in accordance with Regulatory Guide 4.14.
Prior to the preoperational inspection, the licensee shall submit a gamma action level to be used for soil cleanup related to Ra-226 and natural uranium for NRC staff review and written verification.
The licensee shall submit a detailed decommissioning plan to NRC for review and approval at least 12 months prior to the planned final shutdown of mine unit extraction operations.

Administrative Changes to Third Draft Renewal License (ML120680574)

<u>Draft License Condition No.</u>	<u>Current Designation</u>	<u>Designation After Change</u>
10.2 (Facility throughput)	Standard	Crow Butte Facility Specific
10.15 (Monitor well spacing)	Crow Butte Facility Specific	Standard
10.16 (Isotopic Analyses)	Crow Butte Facility Specific	Standard
10.17 (Inhalation class)	Crow Butte Facility Specific	Standard
10.18 (Security measures for mine units)	Not designated	Standard
11.7 (Uranium action level of 15 µg/l)	Crow Butte Facility Specific	Standard
11.8 (Uranium action level of 35/130 µg/l)	Crow Butte Facility Specific	Standard
11.10 (Evaporation pond inspection frequency)	Crow Butte Facility Specific	Standard
11.11 (Beta-gamma contamination surveys)	Not designated	Standard
11.12 (Airborne effluent and environmental monitoring program)	Not designated	Standard