

Second Draft North Trend Expansion Area License Conditions

Standard License Conditions	Cameco Response
<p>The Authorized places of use shall be: 1) The licensee's Crow Butte Project uranium recovery and processing facility, which is the primary processing facility located in Dawes County, Nebraska. The licensee shall conduct operations within the license boundaries shown in Figure 1.7-2 of the license application. 2) The North Trend Expansion Area (NTEA) located in Dawes County, Nebraska. The licensee shall conduct operations within the license boundaries shown in Figure 1.7-4 of the license application. as described in the license application dated November 27, 2007 (Agencywide Documents Access and Management System (ADAMS) package ML073480264).</p> <p>The licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license application, or amendments, or both, for each facility, which are hereby incorporated by reference. These submittals include the following:</p> <p>Crow Butte Project dated November 27, 2007 (ADAMS package ML073480264), which is supplemented by submittals dated August 28, 2008 (ML082410902), May 12, 2009 (ML091470116), July 13, 2009 (ML091980473), September 17, 2010 (ML102640195), September 28, 2010 (ML102740030), February 8, 2012 (ML120450518), April 19, 2012 (ML121170487), August 16, 2012 (ML12235A355), August 30, 2012 (ML12250A421), and October 4, 2012 (ML12285A075) and any commitments submitted for verification specified in this license;</p> <p>North Trend Expansion Area dated May 30, 2007 (ADAMS package ML072540671), which is supplemented by submittals dated February 27, 2009 (ML090750430), November 20, 2009 (ML093520688), October 22, 2010 (ML103010530), April 5, 2011 (ML111020132),</p>	<p>NRC – staff updated administrative license condition to include North Trend Expansion Area as an authorized place of use.</p> <p>Cameco 5/28/2013 response: Accepted.</p>
<p>The licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license application, or amendments, or both, for each facility, which are hereby incorporated by reference. These submittals include the following:</p> <p>Crow Butte Project dated November 27, 2007 (ADAMS package ML073480264), which is supplemented by submittals dated August 28, 2008 (ML082410902), May 12, 2009 (ML091470116), July 13, 2009 (ML091980473), September 17, 2010 (ML102640195), September 28, 2010 (ML102740030), February 8, 2012 (ML120450518), April 19, 2012 (ML121170487), August 16, 2012 (ML12235A355), August 30, 2012 (ML12250A421), and October 4, 2012 (ML12285A075) and any commitments submitted for verification specified in this license;</p> <p>North Trend Expansion Area dated May 30, 2007 (ADAMS package ML072540671), which is supplemented by submittals dated February 27, 2009 (ML090750430), November 20, 2009 (ML093520688), October 22, 2010 (ML103010530), April 5, 2011 (ML111020132),</p>	<p>NRC – staff updated administrative license condition to include North Trend Expansion Area commitments, representations, and statements.</p> <p>Cameco 5/28/13 Response: Accepted</p>

<p>July 15, 2011 (ML11200A246), June 10, 2012 (ML12165A343), October 18, 2012 (ML12299A212), January 16, 2013 (ML13023A148), April 18, 2013 (ML13116A128), and any commitments submitted for verification specified in this license.</p> <p>The approved-applications, supplements, and information submitted for verification are hereby incorporated by reference, except where superseded by license conditions below.</p> <p>The licensee must maintain at least one copy of its complete, updated license application at the licensed facility. Unless otherwise specified, all references to the "license application" refer to the current, updated application including updates made per License Condition (LC) 9.4.</p> <p>Whenever the word "will", "shall", or "would" is used in the above referenced documents, it shall denote a requirement.</p> <p>The licensee shall identify the location, screen depth, and estimated pumping rate of any new permitted ground water wells or permitted change to the 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>	
	<p>As written, the license condition would require Cameco to contact every well owner within the area of review around the existing plant and each satellite plant every year to tabulate the information. There are 493 active and inactive private wells within the area of review for Crow Butte, North Trend, Three Crow and Marsland. The process would be time consuming and annoying to the surrounding well users as changes occur infrequently.</p> <p>Instead, Cameco proposes to use the Nebraska Department of Natural Resources well data retrieval database to provide the yearly updates. In accordance with Nebraska law, all new wells and registered wells are tabulated and must be updated to reflect changes.</p> <p>NRC - staff finds the proposed revision to be acceptable</p>

<p>The licensee shall dispose of solid byproduct material from the Crow Butte facility and the North Trend Expansion Area at a site that is authorized by NRC or an NRC Agreement State to receive byproduct material. The licensee's approved solid byproduct material disposal agreement must be maintained on site. In the event that the agreement expires or is terminated, the licensee shall notify the NRC within seven working days after the date of expiration or termination. A new agreement shall be submitted for NRC review within 90 days after expiration or termination, or the licensee will be prohibited from further lixiviant injection.</p> <p><u>Establishment of Background Water Quality.</u> Prior to injection of lixiviant for each mine unit, the licensee shall establish background ground water quality data for the ore zone and overlying aquifers. The background water quality will be used to define the background ground water protection standards required to be met in 10 CFR 40, Appendix A, Criterion 5B(5), for the ore zone aquifer and surrounding aquifers. Water quality sampling shall provide representative background ground water quality data and restoration criteria as described in Sections 5.8.8 and 6.1.3 of the approved license application.</p> <p>The data shall consist, at a minimum, of the following sampling and analyses:</p> <p>A. Four samples shall be collected from production and injection wells at a minimum density of one production or injection well per four acres. These samples shall be collected at least 14 days apart.</p> <p>B. Four samples shall be collected from each designated monitoring well at a minimum density of: 1) one upper aquifer monitoring well per five acres of mine unit area, and 2) all perimeter monitoring wells. These samples shall be collected at least 14 days apart. The results of these analyses shall constitute the baseline for</p>	<p>Cameco 5/28/2013 response: Accepted.</p> <p>NRC – staff revised the standard license condition to include the North Trend Expansion Area in the solid byproduct material disposal requirement.</p> <p>Cameco 5/28/2013 Response: Accepted.</p> <p>NRC – Staff modified the renewal standard license condition with the requirement to measure of background alpha in accordance with 10 CFR Part 40, Appendix A, Criterion 5. The license condition was also modified to require NRC's written verification of all mine unit hydrologic test packages that are to be submitted by the licensee.</p> <p>Cameco 5/28/2013 Response: Accepted.</p>
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<p>each designated well.</p> <p>C. The samples shall be analyzed for ammonia, arsenic, barium, cadmium, calcium, chloride, copper, fluoride, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, nitrate, pH, potassium, radium-226, selenium, sodium, sulfate, total carbonate, total dissolved solids, uranium, vanadium, zinc, and gross alpha.</p> <p>D. Prior to operation of a mine unit, representative background concentrations shall be established on a parameter-by-parameter basis using either the mine unit or well-specific mean value.</p> <p>E. The licensee shall submit all mine unit hydrologic test packages to the NRC for review and written verification.</p> <p>The licensee shall submit to NRC staff for written verification the qualifications of a designee that will conduct radiation safety training. Until such verification is received by the licensee, only the RSO shall conduct radiation safety training.</p>	
<p>North Trend Facility Specific License Conditions</p>	
<p>The satellite plant throughout shall not exceed a maximum flow rate of 4,500 gallons per minute, excluding restoration flow.</p>	<p>No comment. Acceptable.</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>No comment. Acceptable.</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>No comment. Acceptable.</p>
<p>For a period of one year, the licensee shall obtain quarterly surface water samples at White River locations shown in application Figure</p>	<p>No comment. Acceptable.</p>

<p>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 well field 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>NRC – this license condition was moved and incorporated into a license condition below</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 tritixiant is first injected in the production zone and continuing until the initiation of the stabilization period; 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>No comment. Acceptable.</p> <p>No comment. Acceptable.</p> <p>Please accept the attached replacement pages as changes to the North Trend application and modify these license condition(s) to match those in the license renewal:</p> <p><i>“The licensee shall maintain an overall inward hydraulic gradient within the perimeter monitor well ring starting when tritixiant is first injected into the production zone and continuing until initiation of the stabilization period”.</i></p> <p><i>“Flow rates on each injection and recovery well and manifold pressures on the entire system, shall be monitored and recorded daily. During well field operations, injection pressures shall not exceed 100 pounds per square inch at the injection well heads”.</i></p>

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	<p>Alternatively, delete the license condition as it is now redundant with the underlying license language.</p> <p>NRC - Staff finds Cameco's response to be acceptable. Thus, the proposed NTEA license condition has been removed.</p>
<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</p>	<p>No comment. Acceptable.</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>No comment. Acceptable.</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</p>	<p>No comment. Acceptable.</p> <p>NRC – staff made administrative change revising “applicant” to “licensee”</p>

<p>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 applicantlicensee 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 described in Regulatory Guide 4.14 to comply with 10 CFR Part 40, Appendix A, Criterion 7.</p> <p>Surface soil samples shall include samples at 15 cm depth as described in NUREG-1569, Acceptance Criteria 2.9.3(2) for decommissioning purposes.</p> <p>Surface water samples shall also be analytically analyzed quarterly for the list of constituents in Table 2.7.3-1 of NUREG-1569. Sample analytical results shall be submitted to the NRC for written verification. If an alternate list of constituents tailored to the site, appropriate justification shall be submitted to the NRC for review and</p>	<p> Cameco 5/28/2013 Response: Acceptable</p>
<p>No comment. Acceptable.</p> <p>NRC – staff modified the license condition modified to include the last two paragraphs. The last paragraph was moved from a license condition that was deleted above and incorporated here.</p> <p>NRC - Soil samples at 15 cm depths are necessary for decommissioning purposes.</p> <p>NRC- added clarifying language by replacing “report” with “program description”.</p> <p>Cameco 5/28/2013 Response: Acceptable</p>	

<p>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.</p>	<p>No comment. Acceptable.</p> <p>NRC – staff deleted this license condition because it is redundant with the two license conditions requiring the submission of a preoperational and operational radiological environmental monitoring program.</p> <p>Redundant to the two license conditions before that immediately above. Please delete.</p>
<p>At least 60 days prior to the preoperational inspection, the applicant licensee 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.</p>	<p>NRC –</p> <p>Staff notes that the license conditions are related but each is requiring unique data. This license condition requires the submission of specific information related to the sampling locations.</p> <p>Staff added timeframe for submittal of information.</p> <p>Staff made administrative change revising “applicant” to “licensee”</p>
<p>The licensee 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.</p>	<p>Cameco 5/28/2013 Response: Accepted.</p> <p>This provision is identical to underlying license condition 11.13 and should be deleted.</p>
<p>At least 60 days prior to the preoperational inspection, the licensee shall provide justification that the location of sediment and surface water sampling location W-2 is consistent with Regulatory Guide 4.14 and identify the location of the other two sediment and surface water sampling locations (other than W-1 and W-2) for NRC review</p>	<p>NRC – Staff re-evaluated Section 4.1.2 of the Technical Report and, taking into account renewal standard license condition 11.11, staff agrees that this license condition should be deleted.</p> <p>NRC – Staff added this license condition to obtain clarification on the proposed sediment and surface water sampling locations for the White River as discussed in Technical Report Section 2.9.4.2.</p>

<p>and written verification.</p> <p>At least 60 days prior to the preoperational inspection, the licensee shall submit information on how its portable radiation survey technique (i.e., the sodium iodide readings) is consistent with the recommendations in Regulatory Guide 4.14 regarding gamma exposure rate measurements for NRC review and written verification.</p> <p>At least 60 days prior to the preoperational inspection, the licensee shall submit an operational radiological environmental monitoring program repeat for NRC review and written verification that will include air particulate, air radon, direct radiation, surface soils, vegetation, food, fish, sediments, and surface water as described in Regulatory Guide 4.14 to comply with 10 CFR Part 40, Appendix A, Criterion 7. The program description repeat shall include the location of each sampling media, frequency of sampling, and frequency and type of analysis in accordance with Regulatory Guide 4.14. Set sediment samples shall be analyzed for Th-230 in accordance with Regulatory Guide 4.14.</p>	<p>Cameco 5/28/2013 Response: Accepted.</p> <p>NRC – Staff added this license condition to obtain clarification and justification for an alternate method of obtaining direct radiation measurements during baseline surveys.</p> <p>Cameco 5/28/2013 Response: Accepted</p> <p>No comment. Acceptable.</p> <p>NRC- added clarifying language by replacing “report” with “program description”.</p> <p>NRC – after reviewing all of applicant’s submittals, staff added vegetation, food, and fish after finding insufficient justification for not including these media in the program.</p> <p>NRC- staff corrected Th-230 requirement to apply to sediment as specified in Regulatory Guide 4.14.</p>
<p>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.</p> <p>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.</p>	<p>Cameco 5/28/2013 Response: Accepted</p> <p>No comment. Acceptable.</p> <p>No comment. Acceptable.</p>