

Crow Butte Resources Comments on NRC Draft License Conditions

Section 9: Administrative Conditions	Comeco Resources Comment
<p>9.1 Authorized place of use shall be the licensee's Crow Butte uranium recovery and processing facilities in Dawes County, Nebraska as described in the license application dated November 27, 2007 (Agencywide Documents Access and Management System (ADAMS) package ML073480264).</p>	<p>Comment: None.</p>
<p>9.2 The licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license application dated November 27, 2007 (ADAMS package ML073480264), which is supplemented by submittals dated August 28, 2008, May 12, 2009, July 13, 2009, September 17, 2010, and September 28, 2010. The approved application and supplements are hereby incorporated by reference, except where superseded by license conditions below.</p> <p>Whenever the word "will" or "shall" is used in the above referenced documents, it shall denote a requirement.</p>	<p>Comment: None.</p>
<p>9.3 All written notices and reports sent to the U.S. Nuclear Regulatory Commission (NRC) as required under this license and by regulation shall be addressed as follows:</p> <p>ATTN: Document Control Desk, Director, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.</p> <p>An additional copy shall be submitted to:</p> <p>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, U.S. Nuclear Regulatory Commission, Mail Stop T-8F5, NRC FORM 374A U.S. NUCLEAR REGULATORY COMMISSION 11545 Rockville Pike, Two White Flint North, Rockville, MD 20852-2738.</p> <p>Incidents and events that require telephone notification shall be made to the NRC Operations Center at (301) 816-5100 (collect calls accepted).</p>	<p>Comment: None.</p>
<p>9.4 Change, Test and Experiment License Condition</p> <p>A) The licensee may, without obtaining a license amendment pursuant to 10 CFR</p>	<p>Comment: None.</p>

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<p>40.44, and subject to conditions specified in (B) of this condition:</p> <ul style="list-style-type: none"> i. Make changes in the facility as described in the license application (as updated); ii. Make changes in the procedures as described in the license application (as updated); and iii. Conduct test or experiments not described in the license application (as updated). 	
<p>9.4 Change, Test and Experiment License Condition (cont.)</p> <p>B) The licensee shall obtain a license amendment pursuant to 10 CFR 40.44 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would:</p> <ul style="list-style-type: none"> i. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated); ii. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a facility structure, equipment, or monitoring system (SEMS) important to safety previously evaluated in the license application (as updated); iii. Result in more than a minimal increase in the consequences of an accident previously evaluated in the license application (as updated); iv. Result in more than a minimal increase in the consequences of a malfunction of an SEMS previously evaluated in the license application (as updated); v. Create a possibility for an accident of a different type than any previously evaluated in the license application (as updated); vi. Create a possibility for a malfunction of an SEMS with a different result than previously evaluated in the license application (as updated); vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER), environmental impact statement (EIS), environmental assessment (EA) or technical evaluation reports (TERs) or other analyses and evaluations for license amendments. viii. For purposes of this paragraph as applied to this license, SEMS means any SEMS that has been referenced in a staff SER, TER, EA, or EIS and supplements and amendments thereof. 	<p>Comment: License conditions 9.4, B) i., ii., iii. and iv. have been consistently modified from “result in any appreciable increase” to “result in more than a minimal increase”.</p> <p>To date, Crow Butte Resources has received favorable feedback from NRC inspectors on its implementation of this risk-based license condition and is unaware of any issue or concern which warrants this language change.</p> <p>If the change is intended to be more stringent, please explain where and how the new language would affect upcoming inspections. If possible, clarify the quantitative and qualitative implications so that Cameco may adjust our approach to implementation.</p> <p>If the change is not intended to be more stringent, is it needed?</p> <p>Proposed license conditions 9.4 B) ii. and 9.4 B) vi. appear to be redundant. Delete 9.4 B) vi.</p>

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<p>9.4 Change, Test and Experiment License Condition (cont.)</p> <p>C) Additionally, the licensee must obtain a license amendment unless the change, test, or experiment is consistent with NRC’s previous conclusions, or the basis of, or analysis leading to, the conclusions of actions, designs, or design configurations analyzed and selected in the site or facility SER, TER, and EIS or EA. This would include all supplements and amendments, and TERs, EAs, EISs issued with amendments to this license.</p>	<p>Comment: None.</p>
<p>9.4 Change, Test and Experiment License Condition (cont.)</p> <p>D) The licensee’s determinations concerning (B) and (C) of this condition, shall be made by a Safety and Environmental Review Panel (SERP). The SERP shall consist of a minimum of three individuals. One member of the SERP shall have expertise in management (e.g., Plant Manager) and shall be responsible for financial approval for changes; one member shall have expertise in operations and/or construction and shall have responsibility for implementing any operational changes; and one member shall be the radiation safety officer (RSO) or equivalent, with the responsibility of assuring changes conform to radiation safety and environmental requirements. Additional members may be included in the SERP, as appropriate, to address technical aspects such as ground water or surface water hydrology, specific earth sciences, and other technical disciplines. Temporary members or permanent members, other than the three above-specified individuals, may be consultants.</p>	<p>Comment: None.</p>
<p>9.4 Change, Test and Experiment License Condition (cont.)</p> <p>E) The licensee shall maintain records of any changes made pursuant to this condition until license termination. These records shall include written safety and environmental evaluations made by the SERP that provide the basis for determining changes are in compliance with (B) of this condition. The licensee shall furnish, in an annual report to the NRC, a description of such changes, tests, or experiments, including a summary of the safety and environmental evaluation of each. In addition, the licensee shall annually submit to the NRC changed pages, which shall include both a change indicator for the area changed, e.g., a bold line vertically drawn in the margin adjacent to the portion actually changed, and a page change identification (date of change or change</p>	<p>Comment: None.</p>

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<p>number or both), to the operations plan and reclamation plan of the approved license application (as updated) to reflect changes made under this condition.</p>	
<p>9.5 <u>Financial Assurance</u>. The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR 40, Appendix A, Criterion 9, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination, which includes offsite disposal of radioactive solid process or evaporation pond residues, and ground-water restoration as warranted. The surety shall also include the costs associated with all soil and water sampling analyses necessary to confirm the accomplishment of decontamination.</p>	<p>Comment: To maintain consistency in language within the condition, please revise the last sentence to read “shall also include the <i>estimated</i> costs associated....“(Emphasis added).</p>
<p>9.5 <u>Financial Assurance</u>., cont. Proposed annual updates to the financial assurance amount, consistent with 10 CFR Part 40, Appendix A, Criterion 9, shall be provided to the NRC 90 days prior to the anniversary date (e.g. renewal date of the financial assurance instrument/vehicle). The financial assurance update renewal date for the Crow Butte Project will be determined following consultation with the licensee and the State of Nebraska. If the NRC has not approved a proposed revision 30 days prior to the expiration date of the existing financial assurance arrangement, the licensee shall extend the existing arrangement, prior to expiration, for one year. Along with each proposed revision or annual update of the financial assurance estimate, the licensee shall submit supporting documentation, showing a breakdown of the costs and the basis for the cost estimates with adjustments for inflation, maintenance of a minimum 15-percent contingency, changes in engineering plans, activities performed, and any other conditions affecting the estimated costs for site closure.</p>	<p>Comment: Will a new renewal date be established on an annual basis? Will the NRC and State of Nebraska review occur concurrently or sequentially? How will requests for alternate decommissioning schedules and in-process license amendments be administered when the update requires CBR to look ahead and plan over a year in advance?</p>
<p>9.5 <u>Financial Assurance</u>., cont. Within 90 days of NRC approval of a revised closure (decommissioning) plan and its cost estimate, the licensee shall submit, for NRC review and approval, a proposed revision to the financial assurance arrangement if estimated costs exceed the amount covered in the existing arrangement. The revised financial assurance instrument shall then be in effect within 30 days of written NRC approval of the documents.</p>	<p>Comment: None.</p>

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<p>9.5 <u>Financial Assurance</u>. cont.</p> <p>At least 90 days prior to beginning construction associated with any planned expansion or operational change that was not included in the annual financial assurance update, the licensee shall provide, for NRC approval, an updated estimate to cover the expansion or change. The licensee shall also provide the NRC with copies of financial assurance-related correspondence submitted to the State of Nebraska, a copy of the State’s financial assurance review, and the final approved financial assurance arrangement.</p>	<p>Comment: None.</p>
<p>9.5 <u>Financial Assurance</u>. cont.</p> <p>The licensee also must ensure that the financial assurance instrument, where authorized to be held by the State, identifies the NRC-related portion of the instrument and covers the aboveground decommissioning and decontamination, the cost of offsite disposal of solid byproduct material, soil, and water sample analyses, and ground water restoration associated with the site. The basis for the cost estimate is the NRC-approved site closure plan or the NRC-approved revisions to the plan. Reclamation or decommissioning plan cost estimates and annual updates should follow the outline in Appendix C to NUREG-1569 (NRC, 2003), entitled “Recommended Outline for Site-Specific In Situ Leach Facility Reclamation and Stabilization Cost Estimates.”</p>	<p>Comment: The NRC-related aboveground decommissioning and decontamination scope will be identified.</p>
<p>9.5 <u>Financial Assurance</u>. (cont.)</p> <p>The licensee shall continuously maintain an approved surety instrument for Crow Butte Resources, Inc., in favor of the State of Nebraska. The initial surety estimate shall be submitted for NRC review and approval within 90 days of license issuance, and the surety instrument shall be submitted for NRC review and approval 90 days prior to commencing operations.</p>	<p>Comment: The sentences following the first are not applicable to Crow Butte since it is already in operation. This appears to be language that was used for a new licensee and does not reflect Crow Butte’s current status. For that reason, Cameco suggests the second sentence be deleted.</p>
<p>9.6 Release of surficially contaminated equipment, materials, or packages from restricted areas shall be in accordance with the NRC guidance document "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," (the Guidelines) dated April 1993 (ADAMS Accession No. ML003745526) or suitable alternative procedures approved by NRC prior to any such release. The Guidelines shall also apply to the removal of equipment,</p>	<p>Comment: Provided that the referenced guideline is interpreted consistent with the NRC Public Meeting Summary dated December 22, 2009 (ML093510155) and page 107 of the Safety Evaluation Report for the Moore Ranch ISR Project (ML101310291) regarding alpha contamination control, Cameco has no comment.</p>

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<p>materials, or packages from restricted areas that have the potential for accessible surface contamination levels above background regardless of the intent to release these items for unrestricted use. The licensee shall document their survey of equipment, materials, or packages prior to removing them from a restricted area. Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides shall apply independently.</p>	
<p>9.7 The licensee shall follow the guidance set forth in NRC, Regulatory Guides (as revised) 8.22, "Bioassay at Uranium Recovery Facilities," and 8.30, "Health Physics Surveys in Uranium Recovery Facilities," or NRC-approved equivalent. The licensee shall follow the guidance set forth in Regulatory Guide 8.31 (as revised), "Information Relevant to Ensuring that Occupational Radiation Exposure at Uranium Recovery Facilities will be As Low As Is Reasonably Achievable (ALARA)."</p>	<p>Comment: Please insert "or NRC-approved equivalent" at the end of the sentence invoking Regulatory Guide 8.31 to provide parallel construction and regulatory effect. Because Regulatory Guide 8.31 is guidance, Cameco believes it is important to expressly vest this discretion in the NRC, in part to minimize a potential unintended administrative constraint.</p>
<p>9.8 <u>Cultural Resources</u>. Before engaging in any developmental activity not previously assessed by the NRC, the licensee shall administer a cultural resource inventory if such survey has not been previously conducted and submitted to the NRC. All disturbances associated with the proposed development will be completed in compliance with the National Historic Preservation Act (as amended) and its implementing regulations (36 CFR Part 800), and the Archaeological Resources Protection Act (as amended) and its implementing regulations (43 CFR Part 7) to the extent applicable.</p> <p>In order to ensure that no unapproved disturbance of cultural resources occurs, any work resulting in the discovery of previously unknown cultural artifacts shall cease. The artifacts shall be inventoried and evaluated in accordance with 36 CFR Part 800, and no disturbance of the area shall occur until the licensee has received authorization from the NRC to proceed.</p> <p>Prior to any developmental activity in the immediate vicinity of the six potentially eligible sites identified in Section 2.4 of the approved license application, the licensee shall provide documentation of its coordination with the Nebraska State Historical Society to NRC.</p>	<p>Comment: None.</p>
<p>9.9 The licensee shall dispose of solid byproduct material from the Crow Butte</p>	<p>Comment: None.</p>

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<p>Project 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>9.10 The results of the following activities, operations, or actions shall be documented: sampling; analyses; surveys or monitoring; survey/ monitoring equipment calibrations; reports on audits and inspections; all meetings and training courses; and any subsequent reviews, investigations, or corrective actions required by NRC regulation or this license. Unless otherwise specified in a license condition or applicable NRC regulation, all documentation required by this license shall be maintained until license termination, and is subject to NRC review and inspection.</p>	<p>Comment: None</p>
<p>9.11 The licensee is hereby exempted from the requirements of 10 CFR 20.1902(e) for areas within the facility, provided that all entrances to the facility are conspicuously posted with the words, "CAUTION: ANY AREA WITHIN THIS FACILITY MAY CONTAIN RADIOACTIVE MATERIAL."</p>	<p>Comment: None.</p>
<p>SECTION 10: Operations, Controls, Limits, and Restrictions</p>	
<p>10.1 The licensee shall use a lixiviant composed of native groundwater, with added sodium carbonate/bicarbonate, carbon dioxide, oxygen and/or hydrogen peroxide, as described in the approved license application.</p>	<p>Comment: None.</p>
<p>10.2 <u>Facility Throughput</u>. The plant throughput shall not exceed a maximum flow rate of 9000 gallons per minute, excluding restoration flow. Annual yellowcake production shall not exceed 2 million pounds.</p>	<p>Comment: None.</p>
<p>10.3 <u>Emission Controls (Dryer)</u>. The licensee shall maintain effluent control systems as specified in Sections 4.1 and 5.8.1 of the approved license application, with the following exceptions:</p> <p>A. If any of the yellowcake emission control equipment fails to operate within specifications set forth in the standard operating procedures, the drying and</p>	<p>Comment: None.</p>

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<p>packaging room shall immediately be closed-in as an airborne radiation area and heating operations shall be switched to cooldown, or packaging operations shall be temporarily suspended. Packaging operations shall not be resumed until the vacuum system is operational to draw air into the system.</p> <p>B. The licensee shall, during all periods of yellowcake drying operations, assure that the negative pressure specified in the standard operating procedures for the dryer heating chamber is maintained. This shall be accomplished by (1) performing and documenting checks of air pressure differential approximately every four hours during operation, or (2) installing instrumentation which will signal an audible alarm if the water flow or air pressure differential falls below the recommended levels. If an audible alarm is used, its operation shall be checked and documented at the beginning and end of each drying cycle when the differential pressure is lowered.</p>	
<p>10.4 The licensee shall ensure that written standard operating procedures (SOPs) exist that address: (1) all operational activities involving radioactive and non-radioactive materials associated with licensed activities that are handled, processed, stored, or transported by employees; (2) all non-operational activities involving radioactive materials including in-plant radiation protection and environmental monitoring; and (3) emergency procedures for potential accident/unusual occurrences including significant equipment or facility damage, pipe breaks and spills, loss or theft of yellowcake or sealed sources, significant fires, and other natural disasters. The SOPs shall include appropriate radiation safety practices to be followed in accordance with 10 CFR Part 20. SOPs for operational activities shall enumerate pertinent radiation safety practices to be followed. A copy of the current written procedures shall be kept in the area(s) of the production facility where they are utilized.</p>	<p>Comment: None.</p>
<p>10.5 <u>Mechanical Integrity Tests</u>. The licensee shall construct all wells in accordance with methods described in Section 3.1.2 of the approved license application. Mechanical integrity tests shall be performed on each injection and production well before the wells are utilized and on wells that have been serviced with equipment or procedures that could damage the well casing. Additionally, each well shall be retested at least once each five (5) years it is in use. The integrity test shall pressurize the well to 125 percent of the maximum operating pressure and</p>	<p>Comment: None.</p>

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<p>shall maintain 90 percent of this pressure for 20 minutes to pass the test. A single point resistance test may be used only in conjunction with another approved well integrity testing method. If any well casing failing the integrity test cannot be repaired, the well shall be plugged and abandoned.</p>	
<p>10.6 <u>Ground Water Restoration</u>. The licensee shall conduct ground water restoration activities in accordance with the approved license application. Permanent cessation of lixiviant injection in a well field would signify the licensee’s intent to shift from the principal activity of uranium production to the initiation of ground water restoration. Prior to initiation of ground water restoration activities, the licensee shall determine the restoration schedule. If the licensee determines that these activities are expected to exceed 24 months, then the licensee shall submit an alternate schedule request that meets the requirements of 10 CFR 40.42.</p> <p>... Changes to ground water restoration or post-restoration monitoring plans shall be submitted to the NRC for review and approval at least 60 days prior to ground water restoration in a well field.</p> <p>The restoration schedule for mine units two through five shall be as described in the request dated July 24, 2009, (ADAMS Accession No. ML092220668) and as approved in NRC staff’s letter dated February 18, 2010(ADAMS Accession No. ML092510030).</p>	<p>Comment: Cameco strongly disagrees with NRC’s contention that Groundwater restoration is not a principal activity. It is Cameco’s contention that the act of groundwater restoration is part and parcel to the final phase of restoration. Groundwater restoration is required by prior license conditions and is required under 10 CFR 40 Appendix A Criterion 5. This constitutes a licensed activity, and the arbitrary application of 10 CFR 40.42 in this condition is wholly inappropriate. 10 CFR 40.42(d) states the following, in part:</p> <p><i>“(d) Within 60 days of the occurrence of any of the following, consistent with the administrative directions in § 40.5, each licensee shall provide notification to the NRC in writing and either begin decommissioning its site, or any separate building or outdoor area that contains residual radioactivity, so that the building or outdoor area is suitable for release in accordance with NRC requirements, or submit within 12 months of notification a decommissioning plan, if required by paragraph (g)(1) of this section, and begin decommissioning upon approval of that plan if--</i></p> <ul style="list-style-type: none"> <i>(1) The license has expired pursuant to paragraph (a) or (b) of this section; or</i> <i>(2) The licensee has decided to permanently cease principal activities, as defined in this part, at the entire site or in any separate building or outdoor area; or</i> <i>(3) No principal activities under the license have been conducted for a period of 24 months; or</i>

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	<p><i>(4) No principal activities have been conducted for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements.”</i></p> <p>Given that the action of groundwater restoration is required as part of the original and license conditions, that action is a principal action. The act of completing restoration to meet the requirements of 10 CFR 40 App. A Criterion 5(b)(5), the majority of the facilities at the site will remain engaged in a principal activity required by the license. As a result, none of the “triggers” in 10 CFR 40.42 are valid until groundwater restoration is completed. Cameco requests that references to groundwater restoration with respect to the requirements of 10 CFR 40.42 be changed to groundwater stability monitoring, which is far more appropriate for this requirement, or at least related to the time that may or may not exist where there is no activity between production and restoration.</p>
<p>10.6 <u>Ground Water Restoration</u>. (cont.) Hazardous constituents in the ground water shall be restored to the numerical ground water protection standards as required by 10 CFR 40, Appendix A, Criterion 5(B)(5). In submitting any license amendment application requesting review of proposed alternate concentration limits (ACLs) pursuant to Criterion 5(B)(6), the licensee must also show that it has first made reasonable effort to restore the specified hazardous constituents to the background or maximum contaminant levels (whichever is greater).</p>	<p>Comment: Please replace the word “reasonable” with “practicable” for consistency with Criterion 5(B)(6).</p>
<p>10.7 The licensee shall maintain an inward hydraulic gradient in each individual well field starting when lixiviant is first injected into the production zone and continuing until the restoration target values (RTVs) have been achieved.</p>	<p>Comment: The term “restoration target values (RTVs) is not used in the application or in NUREG-1569. Please change the license condition to “restoration standards”.</p>

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<p>10.8 In-plant radiological monitoring for airborne uranium and radon daughters shall be conducted at the locations shown in Figure 5.8-5 in the approved license application.</p>	<p>Comment: None.</p>
<p>10.9 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>Comment: None.</p>
<p>10.10 Each of the Research and Development (R&D) evaporation ponds shall have at least 0.9 meters (3 feet) of freeboard. Each of the commercial solar evaporation ponds shall have at least 1.5 meters (5 feet) of freeboard.</p> <p>Additionally, the licensee shall maintain, at all times, sufficient reserve capacity in the evaporation pond system to enable transferring the contents of a pond to the other ponds. In the event of a leak and subsequent transfer of liquid, freeboard requirements shall be suspended during the repair period.</p>	<p>Comment: None.</p>
<p>10.11 All liquid effluents from process buildings and other process waste streams, with the exception of sanitary wastes, shall be returned to the process circuit; discharged to the solar evaporation ponds; disposed by land irrigation in accordance with the licensee's proposal submitted on August 3, 1988, as modified by its submittal on June 7, 1993; or deep well injected in accordance with the licensee's report submitted on August 24, 1993, as modified by submittals dated December 7, 1995, April 3, 1996, and September 12, 2000.</p>	<p>Comment: None.</p>
<p>10.12 The licensee shall maintain an area within the restricted area boundary for temporary storage of contaminated materials. All contaminated wastes and evaporation pond residues shall be disposed at a radioactive waste disposal site licensed to accept 11e.(2) byproduct material.</p>	<p>Comment: None.</p>
<p>10.13 The licensee shall construct solar evaporation ponds 2 and 5 in accordance with the engineering design report dated April 27, 1988, as modified by the submittals dated May 11, and July 16, 1992. In addition, the ponds shall be constructed as follows:</p> <p>A. Fill material shall be classified as a silty sand material in accordance with the Unified Soil Classification System.</p> <p>B. Quality control of the fill shall be performed in accordance with the guidance</p>	<p>Comment: None.</p>

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<p>provided for radon barrier materials in the NRC AStaff Technical Position on Testing and Inspection Plans during Construction of DOE=s Remedial Action at Inactive Uranium Mill Tailing Sites@ (January 1989).</p> <p>C. As-built drawings of the constructed ponds shall be submitted to NRC within 3 months of the completion of construction of each pond.</p>	
<p>10.14 Production zone monitor wells drilled after April 1999 shall be spaced no greater than 300 feet from a well field unit and no greater than 400 feet between the wells.</p>	<p>Comment: None.</p>
<p><i>The following information shall be provided to NRC staff within sixty days of the effective date of this license. Upon acceptance by NRC staff, it will become part of the licensing basis.</i></p>	
<p>10.15 Security measures for the mine units and header houses that address the requirements of 10 CFR Part 20, Subpart I, shall be described in writing to the NRC staff.</p>	<p>Comment: None.</p>
<p>SECTION 11: Monitoring, Recording, and Bookkeeping Requirements</p>	
<p><i>Standard Conditions</i></p>	
<p>11.1 In addition to reports required to be submitted to NRC or maintained on-site by Title 10 of the Code of Federal Regulations, the licensee shall prepare the following reports related to operations at the facility:</p> <p>A) A quarterly report that includes a summary of the weekly excursion indicator parameter values, corrective actions taken, and the results obtained for all wells that were on excursion status during that quarter. This report shall be submitted to NRC within 30 days following completion of the reporting period.</p>	<p>Comment: CBR proposes to submit the NDEQ Quarterly Mine Monitoring Report (MMR) to NRC in lieu of an additional report. The quarterly MMR provides monthly averages of excursion indicator parameter values, corrective actions and results.</p> <p>The time required for radiological sample analysis prevents submission within 30 days. In addition, 10 CFR §40.65 requires submission within 60 day. Please change the submission deadline to 60 days.</p>
<p>11.1 (Cont.) In addition to reports required to be submitted to NRC or maintained on-site by Title 10 of the Code of Federal Regulations, the licensee shall prepare the following reports related to operations at the facility:</p> <p>B) A semi-annual report that discusses: status of well fields in operation (including last date of lixiviant injection), status of well fields in restoration, status of any long term excursions and a summary of MITs during the reporting period. This</p>	<p>Comment: With the exception of MIT status, the information requested is currently included in the Semiannual Radiological Effluent and Environmental Monitoring Report, which is submitted pursuant to 10 CFR §40.65. MIT status will be added to that report.</p> <p>The time required for radiological sample analysis</p>

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<p>report shall be submitted to NRC within 30 days following completion of the reporting period.</p>	<p>prevents submission within 30 days. In addition, 10 CFR §40.65 requires submission within 60 day. Please change the submission deadline to 60 days to remain consistent.</p>
<p>11.1 (Cont.) In addition to reports required to be submitted to NRC or maintained on-site by Title 10 of the Code of Federal Regulations, the licensee shall prepare the following reports related to operations at the facility:</p> <p>C) Quarterly report summarizing daily flow rates for each injection and production well and injection manifold pressures on the entire system. This report shall be made available for inspection upon request.</p>	<p>Comment: Monthly reports are currently available at the site upon request.</p>
<p>11.1 (Cont.) In addition to reports required to be submitted to NRC or maintained on-site by Title 10 of the Code of Federal Regulations, the licensee shall prepare the following reports related to operations at the facility:</p> <p>D) Consistent with Regulatory Position 2 of Regulatory Guide 4.14, a semiannual report that summarizes the results of the operational effluent and environmental monitoring program. The licensee shall submit this report consistent with the terms of Regulatory Guide 4.14.</p>	<p>Comment: None.</p>
<p>11.2 The licensee shall submit the results of the annual review of the radiation protection program content and implementation performed in accordance with 10 CFR 20.1101(c). These results shall include an analysis of dose to individual members of the public consistent with 10 CFR 20.1301 and 10 CFR 20.1302 and a land use survey.</p>	<p>Comment: None.</p>
<p>11.3 <u>Establishment of Background Water Quality</u>. Prior to injection of lixiviant for each production area, the licensee shall establish background ground water quality data for the ore zone, overlying and underlying 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>Comment: For consistency, please change “each production area” to “each mine unit”.</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</p>	<p>Comment: This requirement is inconsistent with rules and permit requirements of NDEQ, the State primacy agency</p>

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<p>minimum density of one production or injection well per four acres. These samples shall be collected at least 14 days apart.</p>	<p>for enforcing the requirements under the Safe Drinking Water Act and Underground Injection Control program. NDEQ has approved and continues to approve new UIC permits that require 3 baseline monitoring samples collected at least 14 days apart. Neither the NDEQ nor NRC has identified any specific weakness in the existing data sets used to date. The requirement for 4 rounds of baseline samples is from the UIC program originated from Wyoming under that States Rules and Regulations rather than Nebraska. It would seem to be inappropriate to impose requirements at the Federal level that are inconsistent with the rules and statutes that the State of Nebraska have promulgated in accordance with their implementation of the Safe Drinking Water Act.</p>
<p>11.3 <u>Establishment of Background Water Quality</u> (cont.). The data shall consist, at a minimum, of the following sampling and analyses: 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 each designated well.</p>	<p>Comment: See comment immediately above regarding the requirement to collect four samples.</p>
<p>11.3 <u>Establishment of Background Water Quality</u> (cont.). The data shall consist, at a minimum, of the following sampling and analyses: 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, and zinc.</p>	<p>Comment: None.</p>
<p>11.3 <u>Establishment of Background Water Quality</u> (cont.). The data shall consist, at a minimum, of the following sampling and analyses: D. Prior to operation of a mine unit, representative background concentrations shall be established on a parameter-by-parameter basis using either the mine</p>	<p>Comment: At the end of the sentence please include: "or other NRC-approved statistically valid analysis."</p>

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<p>unit or well-specific mean value.</p>	
<p>11.3 <u>Establishment of Background Water Quality</u> (cont.). The data shall consist, at a minimum, of the following sampling and analyses: E. The licensee shall submit all mine unit hydrologic test packages to the NRC for review.</p>	<p>Comment: None.</p>
<p>11.4 <u>Establishment of UCLs</u>. The licensee shall establish upper control limits (UCLs) in designated upper aquifer and perimeter monitoring wells before lixiviant is injected in each well field unit. The UCLs shall be established by collecting and analyzing groundwater samples from those designated wells according to the following criteria:</p> <p>A. 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 well field area, and 2) all perimeter monitoring wells. These samples shall be collected at least 14 days apart.</p> <p>B. The samples shall be analyzed for the following indicator parameters: chloride, conductivity, and total alkalinity.</p> <p>C. The UCLs shall be calculated for each indicator parameter, in each monitoring well, as equal to 20 percent above the maximum concentration measured for that parameter, among the three baseline samples. For those indicator parameters with baseline concentrations that average 50 mg/L or less, the UCL for that parameter may be calculated as equal to 20 percent above the maximum baseline concentration, the baseline average plus five standard deviations, or the baseline average plus 15 mg/L.</p>	<p>Comment: In both instances in this license condition, please delete “wellfield ” and replace with “mine unit”. UCLs apply at the “mine unit” level.</p>
<p>11.5 <u>Excursion Monitoring</u>. All designated perimeter and upper aquifer monitor wells shall be sampled and tested no more than 14 days apart, except in the event of the situations identified in the licensee's submittal dated March 19, 1998. If a designated monitor well is not sampled within 14 days of a previous sampling event, the reasons for the postponement of sampling shall be documented. Sampling shall not be postponed for greater than five days.</p> <p>If two UCLs are exceeded in a well, or if a single UCL is exceeded by 20 percent, the licensee shall take a confirming water sample within 48 hours after the results of</p>	<p>Comment: In the second paragraph, third sentence, please correct the condition to say “second sample” instead of “second set of samples”. In that same sentence, “with” should be “within”.</p>

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<p>the first analyses are received and analyze the sample for the indicator parameters. If the second sample does not indicate an exceedance, a third sample shall be taken and analyzed in a similar manner with 48 hours after the second set of samples was acquired. If neither the second nor the third sample indicates an exceedance, the first sample shall be considered in error.</p> <p>If either the second or third sample confirms that a UCL(s) has been exceeded, the well in question shall be placed on excursion status. Upon confirmation of an excursion, the licensee shall notify NRC in accordance with LC 11.6, implement corrective action, and increase the sampling frequency for the indicator parameters at the excursion well to once every seven (7) days. Corrective actions for confirmed excursions may be, but are not limited to, those described in Section 5.8.8 of the approved license application. An excursion is considered concluded when the concentrations of the indicator parameters are below the concentration levels defining an excursion for three (3) consecutive weekly samples.</p>	
<p>11.6 Until license termination, the licensee shall maintain documentation on unplanned releases of source or byproduct materials (including process solutions) and process chemicals. Documented information shall include, but not be limited to: date, spill volume, total activity of each radionuclide released, radiological survey results, soil sample results (if taken), corrective actions, results of post remediation surveys (if taken), a map showing the spill location and the impacted area, and an evaluation of NRC reporting criteria.</p> <p>The licensee shall have written procedures for evaluating consequences of the spill or incident/event against 10 CFR 20, Subpart M, and 10 CFR 40.60 reporting criteria. If the reporting criteria are met, the license shall report the spill or incident/event to the NRC Operations Center as required. If the licensee is required to report any well field excursions and spills of source, byproduct material, and process chemicals that may have an impact on the environment, or any other incidents/events, to any State or other Federal agency, a report shall be made to the NRC Headquarters Project Manager by telephone or electronic mail (e-mail) within 24 hours. This notification shall be followed, within 30 days of the notification, by submittal of a written report to NRC Headquarters, as per LC 9.3, detailing the conditions leading to the spill or incident/event, corrective actions taken, and results achieved.</p>	<p>Comment: None.</p>

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<p>11.7 During well field operations, injection pressures shall not exceed the integrity test pressure at the injection well heads.</p>	<p>Comment: This seems an odd place to document an operating requirement in the license.</p>
<p>11.8 Any time uranium in a workers urine specimen exceeds 15 micrograms per liter (ug/l), the annual ALARA audit will indicate what corrective actions were considered or performed.</p>	<p>Comment: None</p>
<p>11.9 Any time a uranium action level of 35 ug/l for two consecutive urine specimens or 130 ug/l for any one specimen is reached or exceeded, the licensee shall provide documentation, within 30 days, to the NRC, indicating what corrective actions have been performed.</p>	<p>Comment: None</p>
<p>11.10 The licensee shall establish and conduct an effluent and environmental monitoring program in accordance with the program submitted by letter dated March 18, 1999.</p>	<p>Comment: Delete. The March 18, 1999 program is out of date.</p>
<p>11.11 The licensee shall perform and document inspections in accordance with the February 5, 1996, revision to its Evaporation Pond Onsite Inspection Program.</p> <p>Any time 6 inches or more of fluid is detected in a commercial pond standpipe, it shall be analyzed for specific conductance. If the water quality is degraded beyond the action level, the water shall be further sampled and analyzed for chloride, alkalinity, sodium, and sulfate. Any time 6 inches or more of fluid is detected in an R&D pond standpipe, it shall be analyzed for specific conductance, chloride, alkalinity, sodium, and sulfate.</p> <p>Upon verification of a liner leak, the licensee shall notify NRC in accordance with LC 11.6 within 30 days, lower the fluid level sufficiently to eliminate the leak by transferring the pond's contents to an alternate cell or approved destination, and undertake repairs, as needed. Water quality in the affected standpipe shall be analyzed for the five parameters listed above once every 7 days during the leak period and once every 7 days for at least 14 days following repairs.</p> <p>The licensee shall submit a corrective action plan to NRC for review and approval. The corrective action plan will document steps undertaken to adequately address the leak and procedures used to verify that the leak has been adequately addressed and permanently fixed. The leak detection system must be restored to enable it to perform its function for future leaks.</p>	<p>Comment: None.</p>

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<p><i>The following information discussed in LC 11.12 – 11.15 shall be provided to NRC staff within sixty days of the effective date of this license. Upon acceptance by NRC staff, such information will become part of the licensing basis.</i></p>	
<p>11.12 The licensee shall develop a survey program for beta/gamma contamination for personnel contamination from restricted areas, and beta/gamma contamination in unrestricted and restricted areas that will meet the requirements of 10 CFR Part 20, Subpart F. The licensee shall provide for NRC review and approval the surface contamination detection capability (scan MDC) for radiation surveys meters used for contamination surveys to release equipment and materials for unrestricted use and for personnel contamination surveys. The detection capability in the scanning mode for the alpha and beta radiation expected shall be provided in terms of dpm per 100 cm².</p>	<p>Comment: Consistent with the attached sampling plan, Cameco has undertaken a beta/gamma survey campaign that will fully address license condition 11.12. As noted in the sampling plan, any necessary changes to the Crow Butte Radiation Protection Program will be documented in accordance with license condition 9.4.</p> <p>As a result, Cameco proposes deleting this condition.</p>
<p>11.13 The licensee shall provide the following information for the airborne effluent and environmental monitoring program in which it shall:</p> <p>A) Discuss how, in accordance with 10 CFR 40.65, the quantity of the principal radionuclides from all point and diffuse sources will be accounted for, and verified by, surveys and/or monitoring.</p> <p>B) Evaluate the member(s) of the public likely to receive the highest exposures from licensed operations consistent with 10 CFR 20.1302.</p> <p>C) Discuss and identify how radon (radon-222) progeny will be factored into analyzing potential public dose from operations consistent with 10 CFR Part 20, Appendix B, Table 2.</p> <p>D) Discuss how, in accordance with 10 CFR 20.1501, the occupational dose (gaseous and particulate) received throughout the entire License Area from licensed operations will be accounted for, and verified by, surveys and/or monitoring.</p>	<p>Comment: Cameco will perform the environmental monitoring described in the attached sampling plan to address license condition 11.13. As noted in the sampling plan, any necessary changes to the Crow Butte Radiation Protection Program will be documented in accordance with license condition 9.4. Consistent with the plan, Cameco will use the results and a risk-based approach to determine the need for additional data collection over the license term.</p> <p>For that reason, Cameco proposes deleting this condition.</p>
<p>11.14 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.</p>	<p>Comment: Cameco will monitor production fluid for Radium-226 in accordance with the attached sampling plan and will use an approach similar to that discussed in the Safety Evaluation Report For the Moore Ranch ISR Project (ML101310291, pg. 73).</p> <p>For that reason, Cameco proposes deleting this condition.</p>

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<p>11.15 The licensee shall submit for NRC review and approval justification for using an inhalation classification other than Class W for uranium products encountered during operations or use Class W for all uranium products encountered during operations.</p>	<p>Comment: Cameco proposes modifying the DAC for U^{Nat} in accordance with information submitted to Ron Burrows of the NRC by email on March 15, 2011. As a 10 CFR §2.390 privileged and confidential submission, no ML number is available. A further clarification was submitted by email on April 5, 2011 (ML111020132). Cameco requests that NRC evaluate those submissions in light of this draft license conditions. If the information contained in these two Cameco submissions is acceptable, the change to current license or the upcoming license will be documented in accordance with license condition 9.4. For that reason, Cameco proposes deleting this condition.</p>
<p>11.16 The licensee shall conduct airborne sampling for natural U, Ra-226, Po-210, and Pb-210 at each in-plant air particulate sampling location at a frequency of once every six months for the first two years and annually thereafter to ensure compliance with 10 CFR 20.1204(g). For any changes to operations, the licensee shall conduct an evaluation to determine if more frequent isotopic analyses are required for compliance with 10 CFR 20.1204(g).</p>	<p>Comment: Cameco will perform the in-plant particulate sampling and isotopic analysis contemplated by this license condition in accordance with the attached sampling plan. As noted in the sampling plan, any necessary changes to the Crow Butte Radiation Protection Program will be documented in accordance with license condition 9.4. Consistent with the plan, Cameco will evaluate the results using a risk-based approach to determine the need for and amount of additional data collection over the license term. For that reason, Cameco proposes deleting this condition.</p>