



Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

## Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Cameco Corporation

Subject Application to Renewal Waste Facility Operating  
Licence at Decommissioned Beaverlodge Mine  
and Mill Site

Public Hearing  
Dates April 3-4, 2013

**RECORD OF PROCEEDINGS**

Applicant: Cameco Corporation

Address/Location: 2121-11<sup>th</sup> Street West, Saskatoon, Saskatchewan, S7M 1J3

Purpose: Application to renew the Waste Facility Operating Licence at the decommissioned Beaverlodge Mine and Mill Site.

Application received: May 23, 2012

Dates of public hearing: April 3-4, 2013

Location: Hilton Garden Inn, 90-22<sup>nd</sup> Street East, Saskatoon, Saskatchewan

Members present: M. Binder, Chair      R. Velshi  
                                  R. J. Barriault      D.D. Tolgyesi  
                                  M. J. McDill

Secretary: K. McGee  
 Recording Secretary: T. Johnston  
 General Counsel: L. Thiele

<b>Applicant Represented By</b>			<b>Document Number</b>
<ul style="list-style-type: none"> <li>• L. Mooney, Vice-President of Safety, Health, Environment and Quality and Regulatory Relations</li> <li>• K. Nagy, Director of Compliance and Licensing</li> <li>• M. Webster, Reclamation Coordinator for the Beaverlodge properties</li> </ul>			CMD 13-H4.1 CMD 13-H4.1A
<b>CNSC staff</b>			<b>Document Number</b>
<ul style="list-style-type: none"> <li>• R. Jammal</li> <li>• P. Elder</li> <li>• R. Dwyer</li> </ul>	<ul style="list-style-type: none"> <li>• M. Rinker</li> <li>• J. Leclair</li> </ul>	<ul style="list-style-type: none"> <li>• K. Mann</li> <li>• S. Demeter</li> </ul>	CMD 13-H4

<b>Other Representatives</b>
<ul style="list-style-type: none"> <li>• Saskatchewan Ministry of Environment: D. Kristoff</li> <li>• Medical Health Officer: J. Irvine</li> <li>• Fisheries and Oceans Canada: C. Berryman</li> </ul>
<b>Intervenors</b>
See appendix A

**Licence: Renewed**

## Table of Contents

<b>1.0 INTRODUCTION</b> .....	1
<b>2.0 DECISION</b> .....	2
<b>3.0 ISSUES AND COMMISSION FINDINGS</b> .....	3
<b>3.1 Management System</b> .....	3
3.1.1 Quality Management.....	3
3.1.2 Path Forward Plan.....	3
3.1.3 Facility Management .....	4
3.1.4 Conclusion on Management System.....	5
<b>3.2 Human Performance Management</b> .....	5
<b>3.3 Operating Performance</b> .....	5
3.3.1 Conduct of Operations .....	5
3.3.3 Operating Experience.....	7
3.3.4 Conclusion on Operating Performance.....	8
<b>3.4 Safety Analysis</b> .....	8
3.4.1 Quantitative Site Model .....	8
3.4.2 Country Food Study.....	9
3.4.3 Institutional Control Program .....	9
3.4.4 Assessment and Proposal of Remedial Options.....	11
3.4.5 Performance Objectives .....	12
3.4.6 Path Forward Report.....	13
3.4.7 Conclusion on Safety Analysis .....	14
<b>3.5 Physical Design</b> .....	14
3.5.1 Diverting Zora Creek around the Bolger Waste Rock Pile.....	15
3.5.2 Boreholes .....	16
3.5.3 Replacing Concrete Caps.....	16
3.5.4 Covering of Waste Rock and Tailings Areas.....	16
3.5.5 Conclusion on Physical Design .....	16
<b>3.6 Fitness for Service</b> .....	17
<b>3.7 Radiation Protection</b> .....	17
3.7.1 Public Radiation Exposure.....	17
3.7.2 Conclusion on Radiation Protection .....	18
<b>3.8 Conventional Health and Safety</b> .....	18
<b>3.9 Environmental Protection</b> .....	19
3.9.1 Environmental Monitoring.....	19
3.9.2 Conclusion on Environmental Protection .....	20
<b>3.10 Emergency Management and Fire Protection</b> .....	20
<b>3.11 Waste Management</b> .....	21
<b>3.12 Security</b> .....	21
<b>3.13 Safeguards and Non-Proliferation</b> .....	22
<b>3.14 Packaging and Transport</b> .....	23
<b>3.15 Application of the <i>Canadian Environmental Assessment Act</i></b> .....	23
<b>3.16 Aboriginal Consultation</b> .....	23
<b>3.17 Public Information Program</b> .....	25

<b>3.18 Financial Guarantee .....</b>	<b>26</b>
<b>3.19 Cost Recovery .....</b>	<b>27</b>
<b>3.20 Licence Length and Conditions .....</b>	<b>27</b>
<b>4.0 CONCLUSION .....</b>	<b>28</b>
<b>Appendix A – Intervenors .....</b>	<b>A</b>

## 1.0 INTRODUCTION

1. Cameco Corporation (Cameco) has applied to the Canadian Nuclear Safety Commission<sup>1</sup> for the renewal of the Waste Facility Operating Licence (WFOL) for a period of 10 years for its decommissioned Beaverlodge Mine and Mill Site, located in the northwest corner of Saskatchewan, near Uranium City. The current operating licence WFOL-W5-2120.0/2013 expires on May 31, 2013. The proposed 10-year licence term would allow Cameco to implement the proposed remedial options identified during the current licence term and complete the necessary follow-up monitoring.
2. The former Beaverlodge mine was operated by Eldorado Nuclear Limited from 1952 to 1982 and decommissioned from 1982 to 1985. Since 1988, Cameco has been the licence holder for the Beaverlodge site and has been assigned the responsibility of managing the on-going reclamation, maintenance and monitoring activities on the site. Canada Eldor Inc., a subsidiary of the Federal Crown Corporation, Canada Development Investment Corporation, provides the funding for all activities associated with Cameco's decommissioned Beaverlodge site. In 2012, a licence renewal, for a period of six months, was issued to Cameco for their Waste Facility Operating Licence, WFOL-W5-2120.0/2013, for the decommissioned Beaverlodge facilities without any changes to the operations.
3. The licensed Beaverlodge facilities consist primarily of several decommissioned uranium mines, a decommissioned uranium mill and a tailings management area near Beaverlodge Lake, which is located north of Lake Athabasca in northern Saskatchewan. Sixty-two individual decommissioned properties ranging in size from one to 30 hectares are included under this licence.

### Issue

4. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*<sup>2</sup> (NSCA):
  - a) if Cameco is qualified to carry on the activity that the licence would authorize; and
  - b) if, in carrying on that activity, Cameco would make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

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<sup>1</sup> The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

<sup>2</sup> Statutes of Canada (S.C.) 1997, chapter (c.) 9.

## Public Hearing

5. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to review the application. The Commission, in making its decision, considered information presented for a public hearing held on April 3 and 4, 2013, in Saskatoon, Saskatchewan. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*<sup>3</sup>. During the public hearing, the Commission considered written submissions and heard oral presentations from CNSC staff (CMD 13-H4) and Cameco (CMD 13-H4.1). The Commission also considered oral and written submissions from 8 intervenors (see Appendix A for a detailed list of interventions).

## **2.0 DECISION**

6. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*, the Commission concludes that Cameco is qualified to carry on the activity that the licence will authorize. The Commission is of the opinion that Cameco, in carrying on that activity, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews Cameco Corporation's Waste Facility Operating Licence for its decommissioned Beaverlodge Mine and Mill Site located in the Northwest corner of Saskatchewan near Uranium City. The renewed licence, WFOL-W5-2120.0/2023, is valid from June 1, 2013 to May 31, 2023.

7. The Commission includes in the licence the conditions as recommended by CNSC staff and set out in the draft licence included in CMD 13-H4.
8. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority in the Licence Conditions Handbook (LCH). The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the LCH.
9. With this decision, the Commission directs CNSC staff to provide annual reports on the performance of Cameco's decommissioned Beaverlodge Mine and Mill Site as part of the annual safety performance reports on uranium mines and mills in Canada. CNSC staff shall present these reports at public proceedings of the Commission. CNSC staff shall include property-by-property timeline estimates for institutional control transfer

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<sup>3</sup> Statutory Orders and Regulations (SOR)/2000-211.

eligibility with a maximum estimate of 1000 years. The Commission also requests that, in the first annual report, CNSC staff define predicted performance objectives and actual performance indicators for each property of the decommissioned Beaverlodge mine and mill site.

### **3.0 ISSUES AND COMMISSION FINDINGS**

10. In making its licensing decision, the Commission considered a number of issues relating to Cameco's qualification to carry out the proposed activities and the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.

#### **3.1 Management System**

11. The Commission examined Cameco's Management System which covers the framework that establishes the processes and programs required to ensure that the organization achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture.
12. CNSC staff reported that, during the current licensing term, they verified and are satisfied that Cameco has had an appropriate management system in place to monitor and maintain the Beaverlodge site.

##### **3.1.1 Quality Management**

13. CNSC staff stated that Cameco is developing a site specific management system in order to ensure that the implementation of remedial options is effectively managed and controlled.
14. CNSC staff reported that they will review Cameco's program documents to ensure that appropriate measures are in place prior to the implementation of the proposed remedial options and will verify that the program is effectively implemented during the proposed licence term as Cameco has previously demonstrated for its operating mine sites.

##### **3.1.2 Path Forward Plan**

15. Cameco reported that the Path Forward plan was developed under the guidance of the Management Framework and through extensive consultations with public stakeholders, Canada Eldor Inc. and the regulatory agencies.
16. Cameco reported that the necessary information to develop the Path Forward plan was compiled by moving the properties through the first three stages of the Management Framework, which included a comprehensive assessment of risk to people and

environmental receptors in the area. Cameco noted that, as part of this effort, a quantitative site model (QSM) was developed to provide the means to assess site-specific risks as well as to measure the potential benefit of various remedial options. Cameco added that a conceptual-level cost assessment was completed for the remedial activities identified.

17. Cameco stated that the QSM was developed specifically to assess a number of potential remedial options or any combination of options based on the outcomes of the 2009 and 2012 Remedial Options Workshops.
18. Cameco reported that, based on the information assessed through the Management Framework, there are no practical measures that could be implemented to meaningfully reduce the overall recovery time of water bodies downstream of the Beaverlodge properties, specifically Beaverlodge and Martin lakes.
19. Cameco reported that the Path Forward plan provides clear direction regarding additional remedial activities on the Beaverlodge properties to facilitate their eventual transfer into the Institutional Control Program (ICP). Cameco added that the identified remedial activities are outlined in CMD 13-H4.1 and include measures considered to be good engineering practice. Cameco noted that some remedial activities may improve localized conditions in the aquatic environment while other measures will ensure ongoing safety for people and the environment.

### 3.1.3 Facility Management

20. Cameco reported that the Beaverlodge Management Framework was developed with the goal to protect the health and safety of the public and the environment and to meet the requirements for transfer of the properties to the provincial ICP. Cameco added that the Beaverlodge properties are systematically assessed to ensure that all reasonable measures are taken to maintain the long-term security and stability of all the properties and the areas immediately downstream of the licensed properties.
21. Cameco and Canada Eldor Inc. reported that a management framework and an action plan were developed in consultation with the Joint Regulatory Group (JRG), in order to provide the guiding principles to the activities at the Beaverlodge site. Cameco noted that a JRG was established to coordinate and optimize the regulatory effort. The Beaverlodge JRG consists of CNSC staff, Environment Canada (EC), Department of Fisheries and Oceans (DFO), and the Saskatchewan Ministry of Environment (SMOE). One of the first steps in the implementation of the management framework process was to perform a risk assessment. Following the risk assessment, it was determined that all risks were deemed to be low, since the site was decommissioned in the mid-1980s. Canada Eldor Inc. added that a cost-benefit approach was also used to determine the usefulness of possible remediation activities.
22. CNSC staff will review Cameco's site specific management system prior to the

implementation of the proposed remedial options and will verify the effective implementation of the program. CNSC staff rated the performance in the Management System Safety and Control Area (SCA) as satisfactory.

#### 3.1.4 Conclusion on Management System

23. Based on its consideration of the presented information, the Commission concludes that Cameco has appropriate organization and management structures in place that provide a positive indication of Cameco's ability to adequately carry out the activities under the proposed licence.

### **3.2 Human Performance Management**

24. Human performance management encompasses activities that enable effective human performance through the development and implementation of processes that ensure the licensee's staff have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.
25. Cameco reported that a Contractor Management Program (CMP) was developed and implemented to apply quality principles to management and oversight of contractors at all sites. The CMP ensures that such contractors, including those at Beaverlodge, work in accordance with, or equivalent to, the standard set out in Cameco's corporate Integrated Safety, Health, Environment and Quality (SHEQ) Policy and the integrated requirements for the management of contractors.
26. CNSC staff noted that all site activities including monitoring and maintenance are conducted by qualified third parties.
27. Based on its consideration of the presented information, the Commission concludes that current efforts related to human performance management provide a positive indication of Cameco's ability to adequately carry out the activities under the proposed licence.

### **3.3 Operating Performance**

28. Operating performance includes operating policies, reporting and trending, and application of operating experience that enable the licensee's effective performance, as well as improvement plans and significant future activities.

#### 3.3.1 Conduct of Operations

29. Cameco reported that monitoring activities are carried out through contractors and

consultants as there are no operating facilities remaining on the Beaverlodge site, and no Cameco personnel located at the site on a full-time basis.

30. Cameco reported that activities at the Beaverlodge site are limited to ongoing monitoring and maintenance, and that its management of Beaverlodge is overseen by the JRG. The JRG's management system ensures, through procurement processes, that only qualified contractors or consultants that meet Cameco's SHEQ Policy expectations are retained to carry out any activities, aside from JRG site inspections, on the site. Cameco stated that the Beaverlodge site and Cameco's mining facilities are managed in accordance with Cameco's SHEQ policy. CNSC staff added that the Reclamation Coordinator from the SHEQ department is responsible for managing the activities at the Beaverlodge site.
31. Cameco reported that activities at the Beaverlodge site are limited to ongoing monitoring and maintenance. Cameco added that they are currently authorized to possess, store, and manage uranium mill tailings and residual waste rock for the decommissioned Beaverlodge mine and mill site. CNSC staff noted that Cameco completed additional activities such as plugging identified flowing boreholes and the rehabilitation of the Martin Lake adit to advance the remediation progress of the site.
32. Cameco reported that, at the time of decommissioning, fine-grained tailings produced at Beaverlodge were deposited in the Fookes tailings reservoir, coarse-grained tailings were used as backfill within the underground mine workings, aerially exposed tailings were covered with clean waste rock to control gamma radiation and an engineered cover was later added to prevent future aerial exposure.
33. Cameco reported that the waste rock is not acid-generating and residual gamma radiation presents minimal risk to casual users of the areas. CNSC staff concurred with Cameco.
34. CNSC staff reported that, during the current licence term, Cameco identified boreholes where collected samples demonstrated elevated levels of uranium which could have a negative impact on the Dubyna Lake, Beaverlodge Lake, and surrounding water bodies. CNSC staff further noted that, as part of the CNSC's and the JRG's annual inspections of the Beaverlodge site, it was verified that Cameco plugged all identified flowing boreholes to minimize the contamination. CNSC staff noted that this situation would be monitored during future annual inspections. CNSC staff added that Cameco also identified non-flowing boreholes and committed to plugging them as well as any additional boreholes identified as part of the proposed remediation plan.

### 3.3.2 Operating Performance and Inspections

35. Cameco stated that the performance of the Beaverlodge site was assessed using the results of monitoring programs for water and air quality and gamma radiation. Cameco added that the air quality program was completed in 1987-88 confirming that the

monitoring results were below operational levels and that gamma radiation surveys were completed in 1985-86 and are now only conducted in support of special projects, such as with applications to release specific properties to the ICP. Cameco reported that the monitoring programs for water and radon continue on a scheduled basis as described in the Beaverlodge Environmental Monitoring Program (EMP) document.

36. Cameco reported that they review the monitoring results and that anomalous results are investigated. Furthermore, Cameco reported that quality assurance samples are collected as part of the Beaverlodge EMP to ensure quality-control sampling techniques between Cameco and the contract laboratory.
37. Cameco reported that a number of peripheral licensed sites that will require little or no further remediation are expected to be released to the ICP within five years, and those sites that require additional remediation may be transferred following a monitoring period to confirm performance objectives have been met.

### 3.3.3 Operating Experience

38. Cameco reported that the operating performance of the Beaverlodge site was assessed by conducting annual compliance inspections, completing technical assessments on the various studies (the proposed remediation plan) and assessing annual reports submitted to the CNSC during the licensing term. In September 2012, Cameco submitted the *Beaverlodge Project Annual Report* to the CNSC, which reviewed performance at the sites from January 1, 2011 to June 30, 2012, and provides an outlook for proposed activities to January 1, 2013. Cameco noted that the report confirms that the Beaverlodge site's performance is consistent with previous years and recovery should continue as expected. CNSC staff concurred with Cameco.
39. Cameco reported that the JRG completed an annual inspection of the Beaverlodge site in June 2012 and no actions or directives were issued. Cameco added that there are no outstanding items from previous inspections. CNSC staff confirmed that three joint compliance inspections with the JRG at the Beaverlodge site were completed during the 3-year licence term and that all action notices and recommendations are closed.
40. Cameco reported that the Beaverlodge Action Plan set out a schedule of activities to be completed during the current licence period in accordance with the Beaverlodge Management Framework. Cameco stated that the plan included over 20 special studies and investigations, the development of the QSM, and the *Beaverlodge Path Forward Report* which set out the recommendations for advancing properties for transfer to the ICP. Cameco noted that the Beaverlodge Action Plan was completed during the current licence term.
41. CNSC staff reported that compliance would continue to be verified by means of annual inspections to ensure that Cameco is maintaining the health and safety of persons and the environment. CNSC staff will continue to closely monitor Cameco's progress in

implementing the proposed remedial activities. CNSC staff rated the Operating Performance SCA as satisfactory.

### 3.3.4 Conclusion on Operating Performance

42. Based on the above information, the Commission concludes that the operating performance at the facility provides a positive indication of Cameco's ability to carry out the activities under the proposed licence.

## 3.4 Safety Analysis

43. The Commission examined issues related to the program areas of Safety Analysis in order to assess the adequacy of the safety margins provided by the design of the facility.
44. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards. It supports the overall safety case for the facility.
45. Cameco reported that by systematically identifying chemical, physical and biological hazards, risk assessment and control measures are determined. Cameco noted that this process is implemented through the use of operating history, the review of historical records, ongoing observations, special studies and inspection of the work environment.
46. Cameco reported that an initial safety analysis was completed in September 2010 and that, following the completion of studies including the QSM and the Country Food Study that were done to support the proposed remediation plan, the results were updated in the Path Forward Report. CNSC staff reviewed the reports and while the Population Health Unit and the SMOE issued a fish consumption advisory for the Beaverlodge and Martin lakes in 2003 regarding elevated levels of selenium in fish, CNSC staff found that the methodology and conclusions were acceptable.

### 3.4.1 Quantitative Site Model

47. Cameco reported that the QSM was designed as a means to support risk-based decisions regarding the benefit of additional remediation of historical contaminant sources at the properties and predict environmental recovery of water bodies in the Beaverlodge area so that performance objectives could be established going forward.
48. Cameco reported that the information assessment stage of the Beaverlodge Management Framework featured more than 20 studies that were completed over the current licence period, and together, these studies are referred to as the Beaverlodge

Action Plan. Cameco added that this information was required to support the development of the Beaverlodge QSM to assess the risks to the aquatic environment from the respective properties, predict the recovery of the properties and to evaluate the potential benefit of additional remedial options to the predicted recovery.

49. Cameco reported that none of the remedial options were predicted by the QSM to have a significant benefit to the environment over the next 150 years. However, Cameco noted that the QSM predicted a small, localized improvement to water quality at two stations (Verna and Dubyna lake outlets) as a result of remedial action.
50. The Commission enquired about the criteria used to establish the QSM. CNSC staff responded that multiple factors were considered, such as historical monitoring data, rate of leaching and the concentration of water that passes through a property annually. CNSC staff noted that the accuracy of the model varies greatly depending on the amount of historical monitoring data that is available and the amount of precipitation that has accumulated annually.

#### 3.4.2 Country Food Study

51. Cameco reported that, from 2010 to 2012, third-party environmental experts conducted the Country Foods Study in the Uranium City area to address stakeholder questions related to traditional harvesting of local country foods and to provide data for the risk assessment stage of the Management Framework.
52. Cameco reported that the overall results of the study indicated that traditional harvesting of country foods does not present health risks to Uranium City residents as long as the posted fish consumption advisories are followed. CNSC staff reviewed the Country Food Study and supports the provincial fish and water advisory for Beaverlodge and Martin lakes. CNSC staff confirmed that traditional harvesting of country food does not pose any risks to the health or safety of persons and the environment and that the Country and Food Study also confirmed that it is safe to consume locally harvested food.
53. The Commission sought clarification on the areas affected by the fish consumption advisory. CNSC staff responded that the fish consumption advisory is isolated to Beaverlodge Lake and that the advisory provides a limit on the amount of fish an individual can safely consume in a given period of time rather than an absolute zero tolerance fish consumption ban. CNSC staff added that there are currently no commercial fishing operations on Beaverlodge Lake.

#### 3.4.3 Institutional Control Program

54. CNSC staff reported that the Path Forward Report was developed by Cameco and that it summarizes the proposed remediation plan. Following the implementation of

remedial options, affected properties will be continuously monitored and measured against Cameco's performance objectives. For properties that meet the performance objectives and the requirements for ICP transfer, an application to transfer would be submitted by Cameco to the CNSC and the province of Saskatchewan for review. If accepted, the information would be presented to the Commission to release the property from CNSC licensing to transfer control and ownership of the property back to the province of Saskatchewan.

55. CNSC staff noted that the ICP is a program of the province of Saskatchewan and is designed for the long-term monitoring and maintenance of decommissioned mine sites. The program consists of two primary components, the Institutional Control Registry and the Institutional Control Funds, which maintain a formal registry of transferred properties and provide and manage funding for long term monitoring and maintenance, respectively.
56. In their intervention, a representative from the Saskatchewan Environmental Society expressed concern regarding the release of contaminated Beaverlodge properties to ICP. The Commission requested clarification regarding the transfer of properties from the CNSC to the ICP. CNSC staff responded that once properties have been transferred to the province of Saskatchewan, the CNSC would no longer have federal regulation over the properties. However, CNSC staff added that under the ICP, annual reports are produced and made available to the public whereby the CNSC would continue to monitor the environmental and remedial aspects of the transferred properties. The Cameco representative noted that minimal monitoring and remediation would be required when a property is accepted into the ICP.
57. The Commission enquired about additional criteria for ICP property transfers. CNSC staff responded that the properties must be considered stable and that the performance of properties is determined based on historical monitoring data. CNSC staff added that if the condition of a property under ICP were to worsen, the Commission expects to require additional remedial actions. A representative from the SMOE reported that the goal of Cameco and the JRG is to transfer the properties to the ICP whereby the application to transfer will identify the condition of the property, potential risks, funding, future monitoring activities, and potential unforeseen events. The SMOE representative added that the acceptance of properties into institutional control is based on site-specific risk analyses. A representative from Canada Eldor Inc. stated that the accepted criterion in the framework for transitioning properties is that they are stable or improving.
58. The Commission enquired about the advantages of transferring properties to the ICP. CNSC staff responded that regulatory efficiency is enhanced by transferring properties to the province of Saskatchewan as the province currently performs long-term monitoring on existing inactive mine sites. CNSC staff added that the province of Saskatchewan has regulatory processes in place which include funds, reporting requirements and publications of the reports to support long-term management, monitoring, and health and safety. Canada Eldor Inc. supports the transfer to

institutional control as it considers it efficient from a regulatory perspective.

59. The Commission asked if all Beaverlodge properties would be eligible for ICP transfer at the end of the proposed 10-year licence term. A representative from Canada Eldor Inc. responded that, of the 62 Beaverlodge properties, a large number are expected to be eligible for transfer. The Canada Eldor Inc. representative added that the remaining properties would require continued monitoring and that the Path Forward Report would be revised according to their environmental performance.

#### 3.4.4 Assessment and Proposal of Remedial Options

60. CNSC staff reported that Cameco assessed a total of 35 individual remedial options. Following Cameco's criteria-based evaluation, a total of four remedial options were found to have localized benefits to the lakes most impacted by the mining operations:
  - Diverting Zora Creek around the Bolger Waste Rock Pile;
  - Plugging boreholes;
  - Replacing caps on all vertical mine openings to improve their long term safety; and
  - Covering all easily accessible waste rock and tailings areas that have elevated gamma fields.
61. CNSC staff reported that the water quality in the surrounding lakes affected by the mining operations is expected to remain above the Saskatchewan Surface Water Quality Objectives (SSWQOs) for years despite remediation. CNSC staff noted that the remedial option selection process demonstrated that there is no reliable or reasonable method for accelerating the recovery of Beaverlodge Lake.
62. The Commission sought information on the percentage of proposed properties surrounding the decommissioned Beaverlodge mine and mill site to undergo remediation in the following five years. CNSC staff responded that the properties that are not undergoing remediation were determined based on over 30 years of monitoring data and the expectation is that the trends are stable and will not change. CNSC staff added that the percentage of the properties that are proposed to undergo remediation is low and involves the Bolger/Verna and Lower Ace Creek areas where tailings will be assessed and stream diversion is planned.
63. In their intervention, representatives from the Saskatchewan Environmental Society expressed concerns regarding Cameco's consideration of remedial options. The Commission sought information on permeable reactive barriers. A Cameco representative responded that permeable reactive barriers were assessed for the Lower Ace Creek and were discussed in the remedial options workshop. CNSC staff responded that permeable reactive barriers require rigorous control and monitoring and are limited to short-term applications. The Cameco representative stated that this option was considered but deemed unreasonable at that time. The Cameco representative added that the current path forward includes meaningful remedial

actions but that if the remedial actions have not performed as efficiently as expected after the 10 year licensing period, they will be reassessed.

64. Representatives from the Saskatchewan Environmental Society expressed concern regarding Cameco's consideration of climate change with respect to remediation planning activities. The Commission sought information regarding alternative remedial options and the consideration of additional environmental factors in the QSM modelling process. CNSC staff responded that many alternative remedial options were assessed, such as permeable reactive barriers and phytoremediation, and determined to have limited applications and negative impacts on the surrounding ecosystems. CNSC staff added that climate change was also considered and that geotechnical inspectors and members of the Canadian Dams Association are involved with the design of remedial options and would perform inspections following implementation.
65. The Commission enquired about the possibility of making the studies on remedial options available to interested persons. CNSC staff and a Cameco representative responded that the information could be provided upon request.

#### 3.4.5 Performance Objectives

66. Cameco reported that, using the QSM, performance objectives were derived for the Beaverlodge site for uranium, radium, and selenium which are considered as Constituents of Potential Concern (COPC). The performance objectives were set higher than the predicted values such that they are indicators of improving water quality trends. If the water quality trends exceed the performance objectives, reassessment of the site risks would be required as per the Management Framework.
67. Cameco reported that performance objectives consist of key parameters, including upper and lower bound values. If the upper bound on a prediction was above the applicable SSWQO, then the upper-bound value was selected as the performance objective. CNSC staff reported that for all COPC below the lower bound parameters, the SSWQOs were used as the performance objectives as they are the most sensitive aquatic receptor.
68. CNSC staff stated that the performance objectives would be used as a relatively short term measure to determine if remedial options are performing as expected. If the remedial options are performing as expected, Cameco may apply to the CNSC to transfer the site specific properties into the ICP.
69. The Commission enquired as to how the SSWQOs compare to natural surface water objectives. CNSC staff responded that the SSWQOs and natural surface water levels are comparable because within their limits, the environment is deemed safe.
70. The Commission sought clarification regarding the predicted performance objectives for selenium, radium, and uranium. CNSC staff responded that the performance

objectives are not predicted water quality levels but indicators that would trigger reassessment of remedial activities for further mitigation. A Cameco representative noted that the QSM model was based on a limited set of data for 2012 that predicts a range of values and that the performance objectives are trying to capture the upper bound of the water quality values in the 2020 prediction. CNSC staff added that if the upper bound performance objectives are exceeded, it would indicate that there is another source that was not previously mitigated and should be re-evaluated in the QSM.

71. The Saskatchewan Environmental Society, in its intervention, expressed the view that the performance objectives are not aggressive enough and recommended setting performance objectives for selenium and uranium equal to the SSWQOs for Martin and Cinch lakes and the Crackingstone River. The Commission sought comments on Cameco's confidence regarding its performance objectives. A Cameco representative responded that the performance objectives were set following a rigorous assessment process of the remedial options and characterized the performance objectives as reasonable and achievable. The Cameco representative added that the upper bound performance objectives that were selected will allow Cameco to measure the effectiveness of an option over the licence term. The Cameco representative further noted that the model will be updated after a period of monitoring for accuracy. The Cameco representative also reported that, as the remedial activities are not expected to have a significant benefit, water bodies downstream Beaverlodge Lake are expected to naturally improve as Beaverlodge Lake improves.
72. The Commission sought comments from Cameco regarding the Saskatchewan Environmental Society's recommendation to set performance objectives for Martin Lake and Crackingstone River. A Cameco representative responded that, where remedial actions will have little impact on the recovery of Beaverlodge Lake, it is expected to recover naturally in time followed by the natural recovery of the downstream water bodies such as Martin Lake and Crackingstone River.
73. The Commission sought clarification between the short and long term measures of remediation performance. A Cameco representative responded that the overall goals of the management framework are to ensure that the sites are safe, secure and stable. The Cameco representative further stated that properties would be transferred to the ICP when the short-term performance objectives have been met and subsequently, longer-term performance objectives would be used to ensure they are continuing to perform as expected.

#### 3.4.6 Path Forward Report

74. The Commission requested a property-by-property timeline in the first annual performance report. A representative from Cameco responded that current models are projected out to 150 years and that beyond that timeline, the reliability of the model decreases as uncertainties and variances increase. CNSC staff and a representative from

the Ministry of Environment are satisfied with Cameco's environmental monitoring QSM and performance objectives. The Cameco representative confirmed that monitoring progress will be included in the first annual report.

75. CNSC staff noted that a cost study was also conducted to determine the conceptual level costs of the remedial options which form the basis for the cost/benefits analysis.
76. It is CNSC staff's opinion that the initial safety analysis, the QSM and the Country Food Study effectively identified and recorded the risks associated with the site. CNSC staff reported that the residual risks were assessed and that reasonable efforts were made to manage them.
77. CNSC staff reported that the performance of the Safety Analysis SCA was rated as satisfactory and that they will continue to monitor the water quality within Beaverlodge Lake to ensure that it is recovering as expected and properties that meet performance objectives may be recommended for transfer to the ICP.

#### 3.4.7 Conclusion on Safety Analysis

78. On the basis of the information presented, the Commission concludes that the systematic evaluation of the potential hazards and the preparedness for reducing the effects of such hazards is adequate for the operation of the facility and the activities under the proposed licence. The Commission also considers the performance objectives, which are effectively performance indicators, to be acceptable.

### 3.5 Physical Design

79. Physical design relates to activities that impact the ability of structures, systems and components to meet and maintain their design basis given new information arising over time, planned modifications to the facility, and taking changes in the external environment into account. During the licensing period, design efforts were focused on preliminary designs of various remedial options that include diverting Zora Creek around the Bolger Waste Rock Pile, plugging all identified boreholes, replacing caps on all vertical mine openings, and covering all waste rock and tailings areas that have an elevated gamma field.
80. Cameco reported that all buildings associated with Beaverlodge mines and mills were decommissioned by 1985. Cameco added that remnant aspects related to mining activities at the site consist of concrete caps on vertical mine openings, numerous boreholes, small mining pits, waste rock piles and the tailings management area which is made up of a series of small interconnected water bodies. Cameco noted that engineered covers for surface-placed portions of the tailings were developed and installed.

81. An intervenor, D. Classen, expressed concerns on hazards with buildings left abandoned in Uranium City. The Commission asked for more information on this issue. The Cameco representative noted that the focus of the clean-up activities had been on the decommissioning of the Beaverlodge properties but that discussions on this topic were ongoing. The Canada Eldor Inc. representative noted that this is principally a provincial matter, and that discussions with the Province of Saskatchewan are in the early stages.
82. The Commission sought comment from Cameco regarding its planned activities over the proposed 10-year licence with respect to the cleanup of the Beaverlodge mine and mill site. The Cameco representative clarified that the site was successfully decommissioned over a period of 2 years in 1985. The Cameco representative added that, since the completed decommissioning of the site, environmental monitoring has been ongoing with plans to further decrease the contamination levels of the existing decommissioned areas.
83. The Commission asked CNSC staff to comment on the time it would take for the decommissioned Beaverlodge mine and mill site to recover. CNSC staff responded that 100 years is an acceptable recovery timeline considering that, prior to the implementation of remedial options, hundreds of years were predicted. CNSC staff added that it is a difficult situation as the CNSC is regulating a bad practice from the past and, without hundreds of millions of dollars, little can be done to speed up the recovery of Beaverlodge Lake. A Cameco representative concurred with CNSC staff.
84. Cameco reported that, through the Management Framework, activities have been identified to be carried out that meet the practice of good engineering with respect to physical design and provide localized benefits albeit minor overall environmental benefits in the Beaverlodge area.
85. CNSC staff noted that the performance of the Physical Design SCA was rated as satisfactory and that, prior to the implementation of remedial options, Cameco would submit a detailed design report to be assessed and accepted by the CNSC.

#### 3.5.1 Diverting Zora Creek around the Bolger Waste Rock Pile

86. As outlined in the Beaverlodge Path Forward Report, Cameco reported that they plan to re-establish the ephemeral flow path from Zora Creek into Verna Lake by excavating a channel through the Bolger waste rock pile. Cameco noted that, currently, uranium and radium-226 exceed the SSWQO at the outflow from Verna Lake. CNSC staff reported that several variations of the stream diversion will be considered in the detailed design of this option but they all have the same purpose, which is to eliminate contact of Zora Lake discharge with the waste rock between Zora Creek and Verna Lake.
87. The Commission enquired about the anticipated degree of improvement of the Zora

Creek diversion. A Cameco representative responded that their modelling process showed a potential significant improvement to the water quality, specifically uranium and radium levels, in the Verna Lake as a result of the Zora Creek diversion. CNSC staff added that a significant reduction in uranium, for example, is expected after two years of the remedial option implementation.

### 3.5.2 Boreholes

88. CNSC staff noted that all identified flowing boreholes on the Beaverlodge site have been plugged with grout to prevent groundwater outflow from reaching the surface. CNSC staff added that Cameco committed to plugging all identified non-flowing boreholes and any additional boreholes that may be discovered during the implementation of the proposed remediation plan.
89. In regards to plugging boreholes, the Commission enquired about the measurable environmental impacts. A Cameco representative responded that the boreholes do not represent a significant source of contamination rather it is the water bodies flowing through the boreholes. The Cameco representative added that the measurable improvements in water quality will differ between water bodies as a result of plugging the identified boreholes. CNSC staff noted that, once boreholes are sealed, the natural flow path will be restored as it had been prior to all mill and mining activities.

### 3.5.3 Replacing Concrete Caps

90. CNSC staff stated that the current concrete caps on the vertical mine openings would be replaced with new engineered caps with established designs to improve the long term safety of the site.
91. The Commission enquired if the replacement of the caps would cause an environmental impact. A Cameco representative responded that the replacement of caps is to ensure the long-term safety and stability of the caps and surrounding properties.

### 3.5.4 Covering of Waste Rock and Tailings Areas

92. CNSC staff reported that Cameco would cover any areas with elevated gamma fields that are easily accessible to the public in accordance with the ALARA principle.

### 3.5.5 Conclusion on Physical Design

93. On the basis of the information presented, the Commission concludes that the design basis for the activities included in the proposed licence for the decommissioned Beaverlodge mine and mill site is adequate for the proposed licensing period.

### **3.6 Fitness for Service**

94. Fitness for service covers activities that are carried out to ensure that the physical condition of systems, components and structures remain effective over time. This includes programs that ensure all equipment is available to perform its intended design function when called upon to do so.
95. CNSC staff stated that this SCA is not relevant to CMD 13-H4 as the site is currently in a stable state with current efforts focused on the identification of remedial options. Maintenance of the Beaverlodge mine and mill site has been discussed under the operating performance SCA.

### **3.7 Radiation Protection**

96. As part of its evaluation of the adequacy of the provisions for protecting the health and safety of persons, the Commission considered the past performance of the Beaverlodge mine and mill site in the area of radiation protection. The Commission also considered the Beaverlodge mine and mill site's program to ensure that both radiation doses to persons and contamination are: monitored, controlled, and kept as low as reasonably achievable (ALARA), with social and economic factors taken into consideration.

#### **3.7.1 Public Radiation Exposure**

97. Cameco reported that the effectiveness of the radiation protection program at the decommissioned Beaverlodge mine and mill site was evaluated by taking gamma measurements during inspections and reviewing Cameco's radon monitoring data. CNSC staff stated that there are no full time workers at the site and that contractors are well below the regulatory public dose limit of 1 mSv/year. Cameco noted that casual access to the Beaverlodge Lake area by hikers, hunters or persons operating recreational vehicles would result in a minimal radiation dose.
98. Cameco stated that prior to starting work, contractors are provided with health and safety and radiation protection information when applicable. Furthermore, CNSC staff noted that a job hazard analysis is completed for any new major task.
99. CNSC staff noted that, for precautionary measures, Cameco has placed signs at the entry point of each property informing visitors that the site was previously a uranium mine. CNSC staff added that the QSM and the Country Food Study assessed the site's potential dose and concluded that the radiological dose is well below the public dose limit of 1 mSv/year.
100. The Commission enquired about potential health concerns for the public with respect

to gamma radiation. Dr. S. Demeter, a nuclear medicine physicist, responded that there are no concerns or health risks for the public with Cameco's goal to achieve a maximum activity of 2.5 microsieverts per hour or less for any given property and that the public can safely engage in recreational activities outdoors.

101. The Commission asked about health risks to the public from radiation exposure in the Beaverlodge area. CNSC staff explained that dose estimates for people camping on the edge of Beaverlodge Lake for a 3 to 6 month period, show that no significant impact on health is expected.
102. CNSC staff rated the performance of the Radiation Protection SCA as satisfactory.

### 3.7.2 Conclusion on Radiation Protection

103. The Commission is of the opinion that, given the mitigation measures and safety programs that are in place or will be in place to control hazards, Cameco will provide adequate protection to the health and safety of persons, the environment and national security.

## **3.8 Conventional Health and Safety**

104. Conventional health and safety covers the implementation of a program to manage workplace safety hazards. The conventional health and safety program is mandated by provincial statutes for all employers and employees to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace. This program includes compliance with the applicable labour codes and conventional safety training.
105. CNSC staff reported that there are no full-time workers on site and that the main health and safety risks are associated with the management of contractors who conduct surveillance, maintenance, and remediation work on the decommissioned site. CNSC staff added that the contractors are required to follow Cameco's contractor management program. Cameco noted that conventional health and safety is managed primarily through public engagement initiatives during which residents are encouraged to report any incidents or potential safety issues or hazards to Cameco personnel or representatives of the provincial or federal government.
106. Cameco reported that there were no conventional health and safety incidents or lost time injuries reported by contractors during the 3-year licensing period. Cameco added that there is negligible risk to the public from casual access to the site as warning signs are posted at all Beaverlodge property boundaries informing the public that the properties are licensed nuclear facilities.
107. CNSC staff reported that they will ensure that Cameco's programs cover any increase

in activity resulting from future remediation activities and that they will continue to monitor the condition of the site through annual compliance inspections.

108. The Commission enquired if there are any health issues among the residents of Uranium City from past employment in the mines. A medical health officer, Dr. J. Irvine, responded that the overall cancer trends for workers who were involved with Beaverlodge and other Eldorado sites were the same as the Canadian general average. Dr. J. Irvine noted that there is an increased risk of lung cancer among the residents of Uranium City that could be attributed to smoking behaviours but emphasized the importance of continued radon monitoring and training for worker safety.
109. CNSC staff rated the performance of the Conventional Health and Safety SCA as satisfactory.
110. The Commission is of the opinion that the health and safety of workers and the public was adequately protected during the operation (monitoring and maintenance activities) of the facility for the current licence period, and that the health and safety of persons will also be adequately protected during the continued operation of the facility.

### **3.9 Environmental Protection**

111. Environmental Protection covers Cameco's programs to identify, control and monitor all releases of nuclear substances and to minimize the effects on the environment which may result from the licensed activities. It includes effluent and emissions control, environmental monitoring, and estimated doses to the public.

#### **3.9.1 Environmental Monitoring**

112. Cameco reported that, since the decommissioning of the Beaverlodge site, environmental efforts such as water sampling, radon monitoring and flow monitoring have been ongoing. Cameco added that the Beaverlodge Water Sampling Program monitors the long-term trends of radium-226, pH, total suspended solids, copper, zinc, arsenic, iron, lead, uranium and total dissolved solids, and compares these parameters to environmental performance objectives.
113. Cameco stated that CNSC staff reviews the results of the water sampling program and radon monitoring data in Cameco's Annual Report as well as the Status of Environmental Report which is submitted to the CNSC every five years. The water sampling portion of the program was revised and approved by the JRG in 2011.
114. Cameco reported that four additional stations were added to the sampling program at the request of community members to monitor the downstream environment of Beaverlodge Lake and to better understand the impacts from the former Bolger mine.

115. CNSC staff reported that Cameco is currently revising its EMP to include water and radon sampling to facilitate the assessment of remedial activity performance. CNSC staff added that the updated EMP will be referenced in the LCH once it has been finalized and reviewed by CNSC staff.
116. Upon completion of the QSM, Cameco predicted that radium levels in the Fulton Creek Watershed should begin to decrease in the former tailings management area in approximately 30 to 40 years. CNSC staff will continue to monitor the natural recovery of the tailings management area during the proposed licence term.
117. CNSC staff reported that Cameco is currently working with the Saskatchewan Research Council (SRC) to develop the framework for a Regional Monitoring Program to monitor the combined impacts of Beaverlodge, Gunnar, and Lorado sites on Beaverlodge Lake and downstream water bodies which will facilitate the eventual transfer of properties to the province through the ICP.
118. The Commission enquired about the current environmental health and safety condition of Fredette Lake. A representative from the SMOE responded that studies have been conducted and that water and fish samples have been collected from Fredette Lake. The SMOE representative confirmed that it is safe for the public to swim in Fredette Lake and consume its water and fish.
119. The Commission enquired about the DFO's involvement in the Beaverlodge project. A representative from DFO responded that DFO Saskatchewan was involved with the JRG and Beaverlodge site visits. The DFO representative added that DFO would continue its involvement with the path forward as it relates to its mandate regarding fish habitat and the protection of fish. The DFO representative concluded that DFO is working cooperatively in the Beaverlodge project to ensure that all remedial activities are appropriate and ecologically sound.
120. CNSC staff will continue to review the results of the environmental monitoring program. CNSC staff determined that the performance in the environmental protection SCA was rated as satisfactory.

### 3.9.2 Conclusion on Environmental Protection

121. Based on the above information, the Commission is satisfied that, given the mitigation measures and safety programs that are in place to control hazards, Cameco will provide adequate protection to the health and safety of persons and the environment.

## **3.10 Emergency Management and Fire Protection**

122. Emergency management and fire protection covers the provisions for preparedness and response capabilities which exist for emergencies and for non-routine conditions at the

decommissioned Beaverlodge mine and mill site. This includes nuclear emergency management, conventional emergency response, and fire protection and response.

123. Cameco reported that contact information is provided on warning signs that are posted at all access points to the Beaverlodge properties. Cameco added that forest fire-protection services in Uranium City are overseen by the wildfire management branch of SMOE.
124. CNSC staff reported that, during the current licensing term, the Beaverlodge site only performed monitoring and maintenance work which did not require an Emergency Management and Fire Protection program.
125. CNSC staff noted, however, that the implementation of remedial options would require construction activities during the proposed licensing term. Cameco will be developing a basic emergency management program to address the risks associated with having additional workers on site. CNSC staff noted that the program details are included in the proposed LCH.
126. CNSC staff will ensure that appropriate measures are in place prior to the implementation of the proposed remedial options and will update the LCH as required. CNSC staff rated the performance of the Emergency Management and Fire Protection SCA as satisfactory.
127. Based on the above information, the Commission concludes that the fire protection measures and emergency management preparedness programs in place, and that will be in place, at the decommissioned Beaverlodge mine and mill site are adequate to protect the health and safety of persons and the environment.

### **3.11 Waste Management**

128. Waste management covers internal waste-related programs which form part of the facility's operations up to the point where the waste is removed from the facility. It also covers the planning for decommissioning.
129. CNSC staff reported that this SCA is not relevant to CMD 13-H4 as the activities authorized by the licence are all related to the management of wastes for the decommissioned site. Therefore, the requirements for waste management are stipulated in the Operating Performance SCA.

### **3.12 Security**

130. Security covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, or in expectations for their facility or activity.

131. Cameco reported that Beaverlodge is located in a very remote area of Northern Saskatchewan and does not require significant security measures. The community of Uranium City has co-existed with the decommissioned mine and mill site therefore, the residents are aware of the site's former mining activities.
132. Cameco stated that signs with contact information are posted at all road access points to the surface lease boundaries of the Beaverlodge site to inform visitors of potential safety hazards. During the licence period, Cameco noted that there were no changes made to the security plan nor were there requests made by exploration companies to traverse the licensed properties.
133. The Commission is satisfied that Cameco's performance with respect to maintaining security at the facility has been acceptable.
134. The Commission concludes that Cameco has made adequate provisions for ensuring the physical security of the facility, and is of the opinion that Cameco will continue to make adequate provisions during the proposed licence period.

### **3.13 Safeguards and Non-Proliferation**

135. The CNSC's regulatory mandate includes ensuring conformity with measures required to implement Canada's international obligations under the Treaty on the Non-Proliferation of Nuclear Weapons. Pursuant to the Treaty, Canada has entered into safeguards agreements with the International Atomic Energy Agency (IAEA). The objective of these agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activities in this country.
136. Cameco reported that the decommissioned Beaverlodge mine and mill site is required to provide reasonable services and assistance to the IAEA inspectors, if requested, to enable the inspectors to carry out their duties and functions. Cameco added that during the licensing period, there were no requests by IAEA inspectors to inspect the Beaverlodge site. CNSC staff concurred and rated the performance of the Safeguards and Non-Proliferation SCA as satisfactory.
137. Based on the above information the Commission is satisfied that Cameco has made and will continue to make adequate provision in the areas of safeguards and non-proliferation at the decommissioned Beaverlodge mine and mill site that are necessary for maintaining national security and measures necessary for implementing international agreements to which Canada has agreed

### **3.14 Packaging and Transport**

138. Packaging and transport covers the safe packaging and transport of nuclear substances to and from the Beaverlodge site. The licensee must adhere to the *Packaging and Transport of Nuclear Substances Regulations*<sup>4</sup> and Transport Canada's *Transportation of Dangerous Goods Regulations*<sup>5</sup> for all shipments leaving the site. The *Packaging and Transport of Nuclear Substances Regulations* apply to the packaging and transport of nuclear substances, including the design, production, use, inspection, maintenance and repair of packages, and the preparation, consigning, handling, loading, carriage and unloading of packages containing nuclear substances.
139. Cameco reported that packaging and transport requirements are limited to occasional shipments of waste rock and tailings samples off site to laboratories for analysis. Cameco added that these shipments were handled in accordance with Transport Canada's *Transportation of Dangerous Goods Regulations* and CNSC's *Packaging and Transport of Nuclear Substances Regulations*. CNSC staff concurred and rated the Packaging and Transport SCA as satisfactory.
140. Base on the above information, the Commission is satisfied that Cameco is meeting regulatory requirements regarding packaging and transport.

### **3.15 Application of the *Canadian Environmental Assessment Act***

141. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act, 2012*<sup>6</sup> (CEAA 2012) have been fulfilled.
142. CNSC staff reported that it had completed an Environmental Assessment (EA) determination under the CEAA 2012. CNSC staff stated that the proposed renewal is not classified as a "designated project" pursuant to the *Regulations Designating Physical Activities* made under paragraph 84(a) of the CEAA 2012. Therefore, no federal EA is required.
143. Based upon the above assessment, the Commission is satisfied that a separate federal environmental assessment under the CEAA 2012 in addition to the environmental monitoring and evaluation that already takes place under the NSCA is not required for Cameco's application for licence renewal.

### **3.16 Aboriginal Consultation**

144. The common law duty to consult with Aboriginal groups applies when the Crown

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<sup>4</sup> SOR/2000-208

<sup>5</sup> SOR/2001-286

<sup>6</sup> S.C. 2012, c. 19, s.52

contemplates actions that may adversely affect established or potential Aboriginal or treaty rights.

145. Cameco reported that their public engagement activities relating to the Beaverlodge facilities provided opportunities for the CNSC and Cameco to effectively consult with Aboriginal groups in northern Saskatchewan.
146. CNSC staff noted that the decommissioned Beaverlodge mine and mill site is located within Treaty 8 of 1899. The Métis Nation – Saskatchewan (MN-S) represents the Métis people of Saskatchewan and the Beaverlodge site is located within MN-S Northern Region 1.
147. At the 2009 Commission hearing, the Commission requested that Cameco improve its communication with Aboriginal groups, including MN-S. From 2009 to 2012, CNSC staff attended eight public engagement events and the Remedial Options Workshop which involved community members, Northern Saskatchewan Environmental Quality Committee members, members of the MN-S, youth and provincial and federal regulators.
148. As part of CNSC staff's review of the licence application, research was conducted that led to a preliminary list of First Nation and Métis groups and organizations that may have an interest in the licensing decision. CNSC staff sent notification letters and the Notice of Hearing to the identified groups. Follow up phone calls were conducted to confirm receipt and answer questions. First Nations and Métis groups were encouraged to advise the CNSC of any adverse impacts resulting from the decision on potential or established Aboriginal rights.
149. An intervenor, D. Classen, noted that there were extra costs associated with travel to a lake further away because fish advisories are in place for lakes closer to Uranium City, and was enquiring about compensation. The Commission asked for comments on this topic. The Cameco representative stated that Cameco was not previously made aware of this issue. CNSC staff commented that their understanding is that the decision to continue remediation is the best path forward, and that they are not to look back at past activities but are looking at the decision the Commission should make on this file.
150. Intervenors, C. Natomagan and a representative from the Fond du Lac Denesuline First Nation, expressed concern regarding the lack of direct and clear communication between Cameco and communities for which there is a duty to consult. The Cameco representative responded that they made great efforts in their consultation efforts and would take into account the intervenors' feedback to improve future consultation. The Cameco representative added that information released to the public is translated into various languages to enhance the demographic with whom they can communicate. The Cameco representative emphasized that there has been significant effort with respect to engagement. The Commission encouraged that more communication activities take place between the First Nations and Cameco, particularly regarding the desired objectives.

151. The Commission enquired about resources Aboriginal communities could access for education on the nuclear industry. An intervenor, C. Natomagan, responded that it is the responsibility of the proponent to produce and provide informative materials. Furthermore, this intervenor suggested that Aboriginal people translate the information to reach more of the community members. The Cameco representative added that Cameco makes every effort to have its public information translated into Dene and Cree dialects.
152. CNSC staff is of the opinion that the Beaverlodge licence renewal should not cause adverse impacts on any potential or established Aboriginal or treaty rights.
153. Based on this information, the Commission is satisfied with Cameco's efforts made in relation to the CNSC's obligations regarding Aboriginal consultation and the Legal Duty to Consult.

### **3.17 Public Information Program**

154. A public information program is a regulatory requirement for licence applicants and licensed operators of a uranium mine. Subparagraph 3(c)(i) of the *Uranium Mines and Mill Regulations*<sup>7</sup> requires that licence applications include “*the proposed program to inform persons living in the vicinity of the mine or mill of the general nature and characteristics of the anticipated effects of the activity to be licensed on the environment and the health and safety of persons.*”
155. RD/GD-99.3 *Public Information and Disclosure* provides regulatory direction and guidance to licensees on the development and implementation of their Public Information and Disclosure Program (PIDP) and is intended to ensure that information related to health, safety, and security of persons and the environment, and other issues associated with nuclear facilities are effectively communicated to the public. Where the public has indicated an interest to know, the program is expected to include a commitment to and protocol for ongoing, timely communication of information related to the licensed facility during the course of the licence period.
156. Cameco reported that public engagement activities for Beaverlodge are managed through Cameco's corporate social responsibility (CSR) department that is based in Saskatoon with regional offices in more remote northern Saskatchewan communities. Cameco added that the CSR department also manages public engagement in northern Saskatchewan related to major project development, business development, community investment, and employment and training.
157. Cameco reported that the Beaverlodge PIDP was developed in 2012 to more fully describe the continuing effort made by Cameco to ensure that the public is fully engaged with respect to the Beaverlodge properties in accordance with the requirements. CNSC staff noted that Cameco is currently transitioning to the new

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<sup>7</sup> SOR/2000-206

requirements in RD/GD-99.3 and has committed to address CNSC's comments and submit a finalized PIDP by April 2013.

158. CNSC staff found that Cameco's PIDP over the previous licensing period met CNSC expectations. CNSC staff added that the revised PIDP has been reviewed by the CNSC and the Public Information Program SCA was rated as satisfactory.
159. Cameco reported that, throughout the review period, they were engaged in and organized numerous and regular community meetings, tours, and working and leadership groups. CNSC staff attended several of these events to verify that the communications were taking place, to provide CNSC information and to address any regulatory concerns.
160. Cameco noted that they utilized a variety of media channels, including their website and public consultation to communicate information. In addition, Cameco improved the reporting on their PIDP by keeping a log of media coverage and issues and a log of community events of their engagement with local communities and other interested stakeholders. Cameco also began keeping logs of their advertising and notices, including the type of distribution.
161. Cameco reported that, through the Beaverlodge Management Framework, they will continue to fully engage stakeholders as the Path Forward is implemented and as the properties are advanced towards the provincial ICP.
162. Based on this information, the Commission is satisfied that Cameco's public information program meets regulatory requirements and is effective in keeping the public informed on the facility operations.

### **3.18 Financial Guarantee**

163. The Commission requires that an adequate financial guarantee for realization of the planned activities is put in place and maintained in a form acceptable to the Commission throughout the licence period.
164. Cameco reported that all costs associated with the management of the decommissioned Beaverlodge mine and mill site are paid by Canada Eldor Inc., an agent of the Crown in right of Canada. Canada Eldor Inc. is a wholly-owned subsidiary of Canada Development Investment Corporation both of which report to the Federal Minister of Finance. The Department of Finance confirmed that Canada Eldor Inc.'s obligations and liabilities to decommission the Beaverlodge site and the expenses associated with possession, management, and control of nuclear substances at the site are also the obligations and liabilities of the Crown in right of Canada.
165. The Commission enquired about the provision made by Canada Eldor Inc. regarding the funding for future remediation opportunities. A representative of Canada Eldor Inc.,

responded that there are three requirements that proponents must provide the government, a sufficient deposit for ongoing monitoring; an amount to cover unexpected eventualities; and a financial guarantee agreement from the Government of Canada to support any additional work that is required and not covered by the Province of Saskatchewan or Canada Eldor Inc.

166. The Commission sought information regarding the estimated total cost of the remedial activities for the proposed 10-year licence term. The Canada Eldor Inc. representative responded the forecasted cost ongoing from January 1<sup>st</sup>, 2013, is 18 million dollars. M. Carter further responded that Canada Eldor Inc. currently has 25 million dollars set aside but if the remediation costs exceed 25 million dollars, Canada Eldor Inc. is an agent of the Federal Crown whereby financial support is an obligation of the Government of Canada.
167. The Commission enquired if there are any government liabilities as a result of previous Eldorado presence in Uranium City. Representatives from Canada Eldor Inc. and SMOE responded that infrastructure and abandoned building issues in Uranium City are a provincial matter that is governed by the Ministry of Municipal Affairs, Government Relations.
168. The Commission is satisfied that the financial guarantee, the commitment of Canada Eldor Inc. backed by the federal government, is acceptable for the purpose of the current application for licence renewal.

### **3.19 Cost Recovery**

169. CNSC staff reported that Cameco is in good standing with the CNSC's *Cost Recovery Fees Regulations*<sup>8</sup> with respect to the payment of fees for the licensing and regulatory activities at the decommissioned Beaverlodge mine and mill site.

### **3.20 Licence Length and Conditions**

170. Cameco requested the renewal of the licence for a 10-year period. CNSC staff recommended the renewal of the licence for a 10-year period. CNSC staff proposed a licence format with an LCH.
171. Based on the above information and considerations, the Commission is satisfied that a 10-year licence with an annual performance report is appropriate. The Commission accepts the licence conditions as recommended by CNSC staff in the draft licence included in CMD 13-H4. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority in the LCH, and notes that it can bring any matter to the Commission as applicable.

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<sup>8</sup> SOR/2003-212

#### 4.0 CONCLUSION

172. The Commission has considered the information and submissions of CNSC staff, the applicant and all participants as set out in the material available for reference on the record, as well as the oral and written submissions provided or made by the participants at the hearing.
173. The Commission concludes that an environmental assessment of the proposed continued operation of the facility, pursuant to the *Canadian Environmental Assessment Act*, is not required in addition to the environmental monitoring and evaluation that are required under the NSCA.
174. The Commission is satisfied that the applicant meets the requirements of subsection 24(4) of the *Nuclear Safety and Control Act*. That is, the Commission is of the opinion that the applicant is qualified to carry on the activity that the proposed licence will authorize and that the applicant will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
175. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews Cameco Corporation's Waste Facility Operating Licence WFOL-W5-2120.0/2013 for its decommissioned Beaverlodge mine and mill site located in the Northwest corner of Saskatchewan near Uranium City. The licence WFOL-W5-2120.0/2023 will be valid from June 1, 2013 to May 31, 2023.
176. The Commission includes in the licence the conditions as recommended by CNSC staff and set out in the draft licence included in CMD 13-H4.
177. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority in the LCH. The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the LCH.
178. With this decision, the Commission directs CNSC staff to provide annual reports on the performance of Cameco's decommissioned Beaverlodge Mine and Mill Site as part of the annual safety performance reports on uranium mines and mills in Canada. CNSC staff is to include property by property timeline estimates for institutional control transfer eligibility with a maximum estimate of 1000 years. The Commission also directs that in the first annual report, CNSC staff define predicted performance objectives and actual performance indicators for each property of the decommissioned Beaverlodge mine and mill site. CNSC staff shall present these reports at public proceedings of the Commission.



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MAY 27 2013

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Michael Binder  
President,  
Canadian Nuclear Safety Commission

Date

## Appendix A – Intervenors

<b>Intervenors</b>	<b>Document Number</b>
Dean Classen	CMD 13-H4.2
Canada Eldor Inc., represented by D. Thomson and M. Carter	CMD 13-H4.3
Northern Saskatchewan Environmental Quality Committee, represented by M. McDonald	CMD 13-H4.4
Canadian Nuclear Association, represented by H. Kleb	CMD 13-H5.5
Saskatchewan Environmental Society, represented by P. Prebble and A. Coxworth	CMD 13-H4.6 CMD 13-H4.6A
Clarence Natomagan	CMD 13-H4.7
Prince Albert Grand Council, represented by L. Harlotte, J. Tsannie, R. Beatty, R. McLeod, E. Hansen and A. Jobb	CMD 13-H4.8
Fond du Lac Denesuline First Nation, represented by D. McDonald and R. Froess	CMD 13-H4.9 CMD 13-H4.9A