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CMD : 25-H3

Date signed/Signé le : 03 OCTOBER 2024/  
03 OCTOBRE 2024

A Licence Revocation

Révocation d'un permis

**Cameco Corporation**

**Cameco Corporation**

**Request to Revoke the  
Current Licence and  
Release the Beaverlodge  
Project to the  
Institutional Control  
Program**

**Demande de révocation  
du permis actuel et de  
transfert du projet de  
Beaverlodge au  
Programme de contrôle  
institutionnel**

Commission Public Hearing

Audience publique de la Commission

Scheduled for:

29-30 January 2025

Prévue pour :

29 et 30 janvier 2025

Submitted by:

CNSC Staff

Soumis par :

Le personnel de la CCSN

## Summary

This Commission member document presents information about the following matter of regulatory interest with respect to Cameco Corporation's Beaverlodge Project:

- Application for revocation of the Beaverlodge Waste Facility Operating Licence WFOL-W5-2120.0/2025, to facilitate the transfer of the remaining portions of the site to Saskatchewan's Institutional Control Program

CNSC staff recommend the Commission consider taking the following actions:

- Revoke Waste Facility Operating Licence WFOL-W5-2120.0/2025
- Exempt the Government of Saskatchewan from licensing under the *Nuclear Safety and Control Act* for the 27 properties, or portions thereof, proposed for transfer into Saskatchewan's Institutional Control Program

The following items are attached:

- Current licence WFOL-W5-2120.0/2025
- Current licence conditions handbook LCH-WFOL-W5-2120.0/2025

## Résumé

Le présent document à l'intention des commissaires fournit de l'information sur la question d'ordre réglementaire suivante concernant le projet de Beaverlodge de Cameco Corporation :

- Demande de révocation du permis d'exploitation de l'installation de gestion des déchets de Beaverlodge WFOL-W5-2120.0/2025, afin de faciliter le transfert des parties restantes du site vers le programme de contrôle institutionnel de la Saskatchewan.

La Commission pourrait considérer prendre les mesures suivantes :

- Révoquer le permis d'exploitation d'une installation de gestion des déchets WFOL-W5-2120.0/2025
- Exempter le gouvernement de la Saskatchewan de l'obligation de détenir un permis en vertu de la *Loi sur la sûreté et la réglementation nucléaires* pour les 27 propriétés (ou des parties de celles-ci) dont le transfert au Programme de contrôle institutionnel de la Saskatchewan est proposé

Les pièces suivantes sont jointes :

- Le permis actuel, WFOL-W5-2120.0/2025
- Manuel de conditions de permis actuel LCH-WFOL-W5-2120.0/2025

**Signed/Signé le**

03 October 2024 / 03 octobre 2024

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Luc Sigouin

**Director General**

Directorate of Nuclear Cycle and Facilities Regulation

**Directeur général de la**

Direction de la réglementation du cycle et des installations nucléaires

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## Plain Language Summary

The Beaverlodge mine and mill site, which operated from 1952 to 1982, is located in northwestern Saskatchewan, near Uranium City. The Beaverlodge site is situated within historic Treaty 8 (1899) and Homeland of the Métis and is within the traditional territories of the Dene, Cree and Métis peoples. Clean-up and decommissioning began when the site closed in 1982, and decommissioning was completed in 1985.

Cameco Corporation (Cameco), who is the operator (on behalf of the Government of Canada) and the CNSC licensee, has been monitoring the site and conducting work to enable the site to be transferred to the Government of Saskatchewan's Institutional Control Program (ICP). Originally, there were 70 separate properties on the Beaverlodge site area and, in 2009, 5 of these properties were removed from the licence issued by the Canadian Nuclear Safety Commission (CNSC) and transferred to the ICP. After a public hearing in 2019, the Commission released an additional 20 properties of which 19 properties were transferred to the ICP. One property, which had no associated risk and therefore did not require institutional control measures, was not transferred to the ICP.

After a public hearing in 2022, the Commission released an additional 18 properties, which were transferred to the ICP. There are now 27 properties remaining within the CNSC-issued licence. Cameco has applied for the release of these remaining properties, and licence revocation. Cameco has submitted a closure report to demonstrate that the properties meet the performance objectives established for the site, and has established a long-term monitoring program to continue to monitor the recovery of the site and downstream water bodies, including Beaverlodge Lake. The monitoring program has also been designed to assist the province of Saskatchewan in determining when the current Healthy Fish Consumption Guideline can be removed from Beaverlodge, Martin and Cinch lakes.

In order for a transfer to the ICP to happen, the CNSC, Saskatchewan Ministry of Environment and Saskatchewan Ministry of Energy and Resources must work together. The CNSC must be assured that the site is safe and expected to remain so in the long-term. In order to make sure this takes place, the CNSC established site-specific conditions that must be met. These conditions are summarized below:

- gamma radiation levels are low (which will allow for traditional activities at the site)
- drilled boreholes created during mining and exploration have been sealed to prevent water from flowing out of them, preventing contamination of surface water
- openings to the underground mines have been durably sealed to prevent access and make them safe
- rubbish has been removed
- the ground above the underground mines is stable and safe with very low risk of ground collapse
- water quality is expected to be stable and/or improve in the long term.

CNSC staff determined that Cameco has met the established performance indicators and regulatory acceptance criteria for the remaining Beaverlodge properties. These performance indicators have been set in order to prevent risk; in CNSC's staff's view, meeting the indicators means that the environment and the health and safety of persons will be adequately protected, provided the Healthy Fish Consumption Guideline is followed.

A public hearing will be conducted, which is scheduled for January 29–30, 2025 and this hearing will provide the opportunity for the Commission to hear from Indigenous Nations and communities directly on Cameco's application.

CNSC staff recommend the Commission consider taking the following actions:

- Revoke Waste Facility Operating Licence WFOL-W5-2120.0/2025
- Exempt the Government of Saskatchewan from licensing under the *Nuclear Safety and Control Act* for the 27 properties proposed for transfer into Saskatchewan's Institutional Control Program

This CMD prepared by CNSC staff along with a CMD from Cameco will be presented at the hearing. If the Commission revokes the licence and grants the exemption to the province discussed in this CMD, the properties will be transferred to the ICP; under that program, the Government of Saskatchewan would manage any monitoring and maintenance and respond to any unforeseen events at the properties indefinitely.

Referenced documents in this CMD are available to the public upon request, subject to confidentiality considerations.

## CMD STRUCTURE

This Commission Member Document (CMD) is presented in 2 parts.

**Part 1 of this CMD** includes:

1. an overview of the matter being presented;
2. overall conclusions and overall recommendations;
3. general discussion pertaining to the safety and control areas (SCAs) that are relevant to this submission;
4. discussion about other matters of regulatory interest; and
5. appendices material that complements items 1 through 4.

**Part 2 of this CMD** provides all available information pertaining directly to the current licence and Licence Conditions Handbook.

## 1. Overview

### 1.1 Background

The decommissioned Beaverlodge mine and mill site is located in northwestern Saskatchewan, approximately 8 kilometres from Uranium City, as shown in figure 1.1. The Beaverlodge licensed areas are shaded in green.

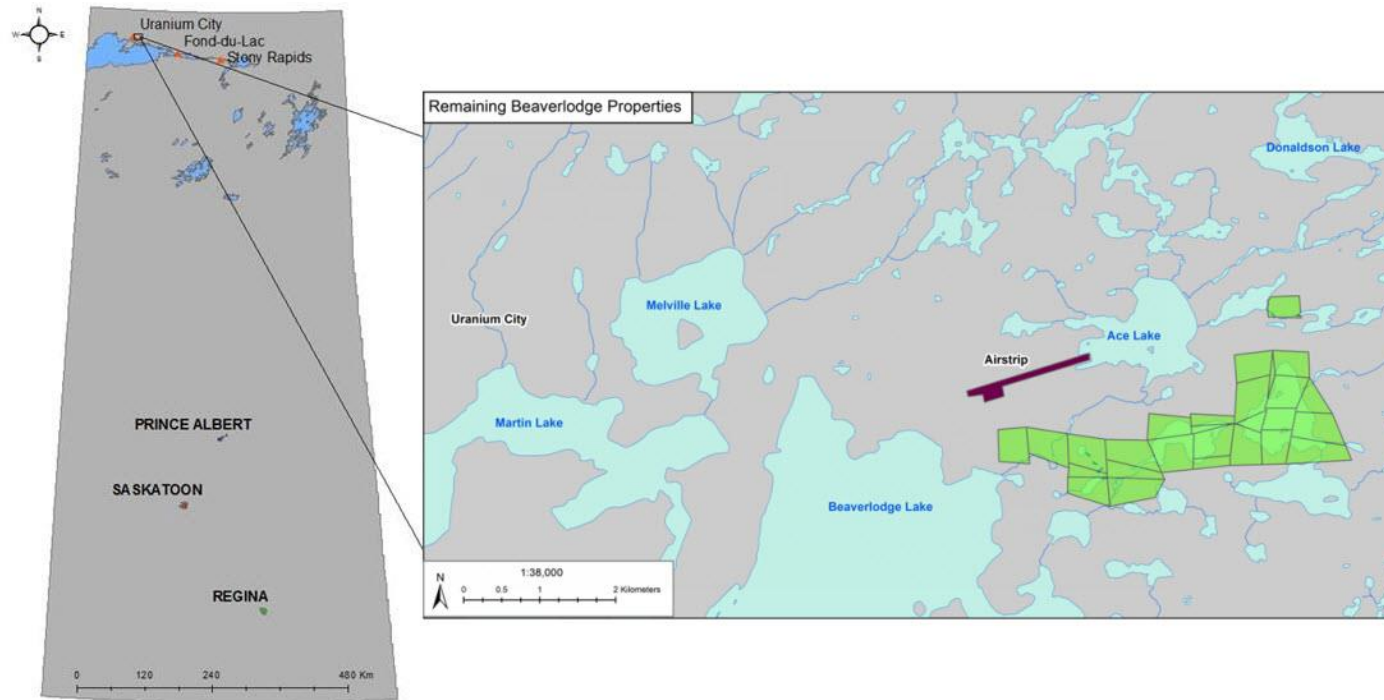
Eldorado Nuclear Limited, a federal Crown corporation, operated the Beaverlodge Project site from 1952 to 1982. During the operational phase, tailings were deposited directly into lake basins and impacts occurred downstream as a result of the tailings management practices. Decommissioning was completed in 1985 following the decommissioning plan. The plan had been approved by the Joint Regulatory Group. The Joint Regulatory Group comprised government organizations currently known as Environment and Climate Change Canada, Fisheries and Oceans Canada, Saskatchewan Ministry of Environment and the Canadian Nuclear Safety Commission (CNSC). The approved plan stated that the site water quality and vegetation were expected to recover naturally in the long term.

In 1988, Eldorado Nuclear Limited and the Saskatchewan Mining and Development Corporation, a provincial Crown corporation, merged to form Cameco Corporation (Cameco). As a result of this merger, Cameco was assigned the responsibility of maintaining and monitoring of the Beaverlodge site. Canada Eldor Inc., a subsidiary of the federal Crown corporation, Canada Development Investment Corporation, was to provide the funding for all site activities. Cameco holds the licence issued by the CNSC and is being financed by Canada Eldor Inc. to manage the site.

With the coming into force of the *Nuclear Safety and Control Act* ([NSCA](#)) in 2000, CNSC staff requested that Cameco provide historical and updated monitoring data regarding potential impacts to human health and waterbodies at the Beaverlodge site. Based on the reports provided by Cameco, CNSC staff concluded that there were impacts to nearby waterbodies from historical practices, however, public health was adequately protected through the provincial fish and water consumption advisory originally issued in 2003. The CNSC requested Cameco to complete a detailed assessment from 2009 through to 2013 of the potential options that could advance the environmental recovery and remediation efforts in the Beaverlodge area waterbodies.



**Figure 1.1: Beaverlodge Project - location map**



*Source: Cameco Corporation*

To create a remediation plan, Cameco developed a Quantitative Site Model (QSM), hereafter referred to as “the model”, to characterize the interaction between the properties and the downstream receiving environments through source characterization and dispersion modelling. Cameco completed over 20 studies to gather additional information to aid in the development of the model. The model was built using previous geochemical and pathways modelling efforts and integrated the source contributions from all properties into a single comprehensive model. The model was used to predict the long-term natural recovery of select waterbodies, the expected environmental benefit of the remedial options, and to assess the cost benefit of the potential remedial options. This information was presented by Cameco at a 2012 remedial options workshop in order to obtain input from Indigenous Nations and Uranium City residents. The results of the workshop aided in the development of the path forward. This remediation plan was presented to the Commission at the licence renewal hearing in April 2013; the Commission concluded the licensee identified reasonable options to support the natural recovery of the site. The selected remediation options were expected to result in localized improvements in water quality. However, it was also recognized that due to the type of historical mining practices and legacy impacts associated with the operation of the facilities, the results of the studies showed that with the implementation of all the practical remedial options assessed, there would be little effect on the recovery of Beaverlodge Lake, which contained elevated levels of selenium and uranium.

On May 27, 2013, the Commission accepted the path forward and issued Cameco a 10-year licence to proceed with the remedial work and continued management of the properties. During the 2013 hearing, CNSC staff committed to providing additional information on the following items:

- defined performance objectives and actual performance indicators for each property
- property-by-property timeline estimates for institutional control transfer eligibility.

Cameco developed and provided the information on performance objectives, indicators and timeline estimates in April of 2014 which was reviewed and accepted by CNSC staff. This information was summarized and presented to the Commission on October 1, 2014, fulfilling the commitment made by staff.

The broad performance objectives for the decommissioned Beaverlodge site have been defined as safe, secure, and stable/improving. These terms are defined by the performance indicators and regulatory acceptance criteria which have been established to ensure that these performance objectives are met, as described in section 2 of this CMD.

Cameco outlined a proposed schedule for submissions in support of their application to transfer all Beaverlodge properties into either the [Institutional Control Program](#) (ICP) or for releasing properties, or portions thereof, from licensing over their current 10-year licensing period. As the landowner and manager of the ICP, the Government of Saskatchewan has identified the areas of the Beaverlodge site that will require transfer to the ICP and areas that can be released from licensing and transferred to the province's management without institutional control restrictions.

The process to transfer decommissioned Beaverlodge properties to the Government of Saskatchewan's ICP was first initiated in 2009 when the Commission granted Cameco an exemption from licensing with respect to 5 of the Beaverlodge properties. These 5 properties were transferred to the ICP. In 2019, the Commission granted a release of 20 properties from Waste Facility Operating Licence WFOL-W5-2120.0/2023 of which 19 properties, or portions thereof, were transferred to the ICP. One property did not require institutional control measures as there was no environmental or public safety risk associated with the property.

In 2021, Cameco applied for a licence amendment to remove an additional 18 of the remaining 45 properties from their CNSC-issued licence. In September 2022 the Commission accepted this request as a result of the release, there are currently 27 properties under the CNSC-issued licence. These include properties in Verna/Bolger, Lower Ace Creek and the Tailings Management Area.

Cameco's original schedule that was presented to the Commission in 2014 projected submitting a request for the release of all properties by the end of the previous licence term (2023). However, Cameco determined that the original schedule was no longer feasible due to the time it would take to conduct increased engagement activities, submit a request, the request to be reviewed, and a Commission proceeding planned. Cameco therefore requested a 2-year licence renewal, which was accepted by the Commission in May 2023. A new licence was issued which is valid until May 31, 2025. A copy of this licence is included in Part 2 of this CMD.

## 1.2 ICP Overview, Release and Transfer Process

An overview of the ICP and transfer process was presented on October 3, 2018, by CNSC staff to Commission members. Pertinent information from that CMD has been included within this section along with a summary of the release and ICP transfer process in order to provide information relevant to Cameco's current application.

### 1.2.1 ICP Overview

Established in 2007 by the Government of Saskatchewan, the [ICP](#) implements a process for the long-term monitoring and maintenance of former mine/mill sites located on provincial Crown land. This process occurs after mining/milling activities have ended, decommissioning has been completed, and post closure monitoring has demonstrated the site is safe and stable. Sufficient funds must also be provided by the property holder for long-term monitoring and maintenance and for unforeseen events.

The Government of Saskatchewan states that the primary objectives of the ICP are to:

- protect human health and safety
- protect the environment
- ensure future generations are not burdened with the costs of long-term monitoring and maintenance for current mining development
- be sustainable
- recognize federal jurisdiction, regulatory roles and responsibilities for national and international obligations.

With respect to former uranium mine/mill properties, the Government of Saskatchewan has crafted the ICP with a view of International Atomic Energy Agency publications and Canada's international obligations, including the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*. The ICP ensures that there is record-keeping, monitoring and access control for properties under institutional control.

Operation of the ICP, including monitoring and maintenance, is managed by the Saskatchewan Ministry of Energy and Resources (SMER). According to provincial regulations, the licensee requesting the transfer of properties from their oversight to provincial oversight under the ICP must provide the province with sufficient funds to conduct long-term monitoring and maintenance and financial assurance to address unforeseen events. This requirement for funds is separate from the financial guarantees required by the Commission, which are intended to pay for decommissioning of a site. The funds provided by the licensee to the SMER as a condition of entry into the ICP ensures that sufficient funds are readily available to carry out monitoring, maintenance and any other necessary unforeseen work on the properties.

When a decommissioned and reclaimed uranium mine/mill site enters the ICP the province will be responsible for the long-term oversight and maintenance of the property. The CNSC would no longer exercise regulatory oversight of the property by virtue of the exemption from the application of the [NSCA](#).

The primary components of the ICP are the Institutional Control Registry (Registry) and 2 Institutional Control funds: the Institutional Control Monitoring and Maintenance Fund (ICMMF) and the Institutional Control Unforeseen Events Fund (ICUEF).

The ICP Registry includes the maintenance of records, including:

- location of closed property/site
- description of former operator(s)
- site description
- historical records of activities
- description of the site monitoring and maintenance obligations
- description of surface land use and mineral disposition restrictions.

The ICMMF is for future monitoring and maintenance costs in perpetuity. The monies in this fund can only be used for monitoring and maintenance of the closed property to which that account is associated.

The ICUEF is for costs of unforeseen events. This fund is for any maintenance obligation, including the determination of maintenance costs that were not covered by the ICMMF.

These 2 institutional control funds, provided by the property holder to the province, will replace the financial guarantee required by the CNSC once the property holder/licensee is released from regulatory oversight by the Commission. Through this approach, assurance is maintained that sufficient funds are available to carry out any necessary work on behalf of the site-holder/licensee.

Because there are very few properties currently in the ICP, SMER has temporarily implemented a licensee-backed financial assurance requirement for the ICUEF. The financial assurance requirement has been implemented and will remain in place until the province determines that there are sufficient funds available in the ICUEF to manage the total costs for unforeseen events. This measure is to minimize the ICP's financial risk. The assurance amount is based on the cost of a maximum failure event at a site and can only be used for the site for which it was established. The maximum failure event will depend on the residual structures and risks at a site. For example, at a mine site, the event could be the premature failure of a shaft cap whereas for a mill site, it could be the repair of a tailings dam or cover due to an extreme rainfall event. It is SMER's intent to return unused financial assurance once the ICUEF has reached a sufficient amount.

Payment of both the ICMMF and ICUEF are made by the site holder who requested the transfer into the ICP. The 2 funds are completely separate from the financial guarantees/assurances that were in place during mine/mill operations to ensure proper decommissioning, reclamation and closure. The ICMMF and ICUEF amounts do not require approval by the Commission.

A well-structured, informed, and sustainable program must be in place to ensure future safety and financial surety for a successful ICP. The Government of Saskatchewan has implemented such a program and manages the long-term monitoring and maintenance for uranium mine/mill sites within the ICP.

The ICP is effective in ensuring that properties accepted into the program are safe, secure and stable, and will not:

- pose an unreasonable risk to the environment or the health and safety of persons
- pose an unreasonable risk to national security
- result in a failure to achieve conformity with measures of control and international obligations to which Canada has agreed.

The ICP ensures that properties in the program will continue to meet the above-noted requirements in the long term through monitoring and maintenance of the properties as well as land use controls.

### 1.2.2 Release and Transfer Process

Under the NSCA, upon closure and completion of decommissioning, release of CNSC-licensed properties, or portions thereof, from licensing may occur through different mechanisms. The mechanisms will be determined by activities which have occurred at the site, the inventory of nuclear substances and residual risks, and the monitoring and management requirements. The types of legislative mechanisms will depend on the following characteristics of the property:

- undisturbed areas (i.e., undeveloped areas within the surface lease boundary)
- remediated areas that have an inventory of nuclear substances below exemption quantities/clearance levels, in accordance with section 5.1(1) of the *Nuclear Substances and Radiation Devices Regulations* (e.g., camp sites that have been reclaimed)
- remediated areas that have an inventory of nuclear substances below exemption quantities/clearance levels and have residual risks, such as the presence of hazardous substances (e.g., mines with shallow crown pillars and/or mine openings)
- remediated areas where radioactive materials in excess of exemption quantities/clearance levels are present which require institutional control (i.e., tailings management facility).

Undisturbed and remediated areas that have an inventory of nuclear substances below exemption quantities/clearance levels and that do not require institutional control would not require a licence under the NSCA. Therefore, these areas do not require an exemption from a licensing requirement. Thus, it can be said that it is “by operation of law” that these areas can be free-released, as they do not require a licence under the NSCA.

Areas that have quantities of nuclear substances above exemption quantities/clearance levels, and that need institutional control, would require a release from CNSC licensing and an exemption for the Government of Saskatchewan in order for them to be transferred into the ICP.

A condition of acceptance by the Government of Saskatchewan to transfer properties/sites into the ICP is that closed uranium mine/mill properties receive a release from any and all Government of Canada issued licences including those issued by the CNSC pursuant to the NSCA, thus reverting total custodial responsibility back to the province. The Commission has the authority to grant an exemption from the application of the NSCA pursuant to section 7 of the NSCA.

Section 7 of the NSCA states:

*The Commission may, in accordance with the regulations, exempt any activity, person, class of person or quantity of a nuclear substance, temporarily or permanently, from the application of this Act or the regulations or any provision thereof.*

Section 11 of the *General Nuclear Safety and Control Regulations* provides that the Commission may grant an exemption from licensing if doing so will not

- (a) pose an unreasonable risk to the environment or the health and safety of persons;
- (b) pose an unreasonable risk to national security; or
- (c) result in a failure to achieve conformity with measures of control and international obligations to which Canada has agreed.

There is a well-defined process to be followed when properties, or portions thereof, are to be released from licensing and exemptions granted in order to transfer properties to the ICP. The process, as related to the current request from Cameco, is summarized below.

#### **Application and review of release request**

In order to transfer a property into the ICP, a licensee must first submit an application to the CNSC and provincial government. Staff from both the CNSC and Government of Saskatchewan then review this application. The Saskatchewan Ministry of Environment (SMOE) and SMER are the primary provincial agencies involved in any transfers of properties to the ICP.

Staff from both CNSC and the Government of Saskatchewan must agree that the application meets the established criteria. If these criteria are met, CNSC staff will recommend that the Commission release the properties from CNSC licensing and exempt the Government of Saskatchewan from licensing under the *NSCA*.

#### **Province signifies properties can be transferred to the ICP**

If the application is acceptable, SMOE will issue a letter of intent to grant a *Release from Decommissioning and Reclamation* to the licensee. SMER will also confirm that the properties proposed are all eligible for transfer to the ICP. Both of these provincial agencies require that the Commission release these properties, or portions thereof, from licensing.

### **CNSC releases site and grants exemption**

Once the province has confirmed that the properties are eligible for transfer to the ICP, a Commission decision is required. The properties must be released from the current CNSC licence, and the Government of Saskatchewan must be exempted from licensing under the NSCA in order for the properties to be transferred into the ICP.

### **Transfer of properties to the ICP**

The licensee receives approval from the Government of Saskatchewan for the properties to be added to the ICP Registry. As part of the process, the properties are removed from the provincial surface lease and the mineral rights are surrendered. Funds must also be provided for the long-term monitoring and maintenance of the properties, as well as funds to address any unforeseen events.

### **Long-term monitoring and management**

The Government of Saskatchewan maintains sole regulatory authority and manages the administrative controls over the properties as well as the monitoring and maintenance requirements.

## **1.3 Highlights**

Cameco submitted a [closure report](#) in November 2023 [1] proposing the release of the remaining 27 properties and therefore revocation of the CNSC issued licence. If granted this would enable the entire Beaverlodge site to be transferred to the ICP.

Outlined within this closure report, Cameco and representatives from SMOE and SMER determined which portions of each property would and would not require institutional control. As described in section 4, most properties are within the ICP boundary, while 7 properties will have the majority of the property within the boundary. These 7 properties are located at the very south or southeast of the Tailing Management Area. These portions of the properties outside of the ICP boundary do not require institutional control as they were not disturbed by mining, nor do they pose any elevated risk compared to their surroundings. CNSC staff have no concerns with the proposed institutional control boundaries for the Beaverlodge site. The adequacy of the closure report has been confirmed by CNSC staff and the Government of Saskatchewan.

Cameco also submitted a [Long-Term Monitoring Program](#) [2] which outlines the water quality and fish chemistry monitoring that will be conducted in the long term. The fish sampling and chemical analysis is proposed until such time as Beaverlodge, Martin and Cinch lakes are able to be removed from the consumption Healthy Fish Consumption Guideline [3] currently in place.

Cameco subsequently submitted the [application](#) [4] to the Commission on February 5, 2024 for the release of the remaining properties under the CNSC licence, and therefore licence revocation.



The closure report contains information on each of the properties under consideration and a comparison to the established performance indicators for Beaverlodge. These performance indicators and regulatory acceptance criteria were proposed by Cameco, reviewed and accepted by CNSC staff, and presented to the Commission on October 1, 2014.

CNSC staff completed their technical review and evaluation of Cameco's request and agreed that the properties meet the regulatory criteria for consideration by the Commission to release the properties from the CNSC licence and therefore revoke the licence. All 27 properties meet the performance indicators and regulatory acceptance criteria applicable to each property, as described in section 2. In CNSC's staff's view, meeting the indicators and regulatory acceptance criteria means that the environment and the health and safety of persons will be adequately protected, provided the Healthy Fish Consumption Guideline is followed. Furthermore, Cameco has developed a long-term monitoring program to monitor the recovery of the site and downstream environment.

According to section 3(f) of *The Reclaimed Industrial Sites Regulations*, an exemption from the requirement to hold a CNSC licence is required for the province before properties are accepted into the ICP. In order to allow the properties, or portions thereof to enter into the ICP, the Government of Saskatchewan must be granted an exemption from licensing under the *NSCA* by the Commission. As note in section 1.2, authority to exempt comes from section 7 of the *NSCA* and the conditions under which the Commission may grant an exemption are specified in section 11 of the *General Nuclear Safety and Control Regulations*.

SMOE has indicated that they are prepared to grant a *Release from Decommissioning and Reclamation* in accordance with section 22 of *The Mineral Industry Environmental Protection Regulations, 1996*. SMER has also confirmed that the properties proposed for transfer to the ICP are all eligible, subject to the Commission releasing these properties from licensing. Release of the properties from the CNSC licence and issuance of an exemption of the province from licensing of these properties under the *NSCA* is the next step required in the ICP transfer process. This CMD has been prepared in support of this request.

## 1.4 Overall Conclusions

Cameco applied for the request of the remaining 27 properties from CNSC licensing and licence revocation. Cameco has stated that all properties meet the performance objectives for the decommissioned Beaverlodge site. The performance indicators and regulatory acceptance criteria which were defined to ensure these performance objectives are met have also been achieved. This information is explained in greater detail in section 2 of this CMD. CNSC staff agree that the applicable indicators and criteria have been achieved for the remaining properties.

CNSC staff have completed their technical review of Cameco's submitted documentation and concur with the request to release the properties from CNSC licensing. According to section 3(f) of *The Reclaimed Industrial Sites Regulations*, an exemption to hold a licence from the CNSC is required before properties can be accepted into the ICP.

Table 3.1 in section 3 of this CMD lists the 27 properties under request for release, and clearly denotes that all properties meet the applicable performance indicators and criteria accepted by the Commission in order for the sites to be released from licensing and the licence revoked. The performance indicators and criteria established and accepted by the CNSC in order to allow the release of properties from CNSC licensing are provided in section 2 of this CMD.

CNSC staff have verified that the remaining properties proposed for exemption are all stable and are expected to remain so in perpetuity due to suitable decommissioning work and the monitoring and maintenance provided by the ICP. The Government of Saskatchewan crafted the ICP with a view of Canada's international obligations as described in section 1.2.

As demonstrated by achievement of the performance indicators and regulatory acceptance criteria the properties' risk to the environment and the health and safety of persons is low. The Government of Saskatchewan's ICP, which was established in accordance with Canada's international obligations, ensures that any risks to the environment and the health and safety of persons will be managed in the future. The Government of Saskatchewan is a competent authority to monitor and manage these properties in perpetuity. National security is expected to continue to be maintained due to the remoteness of the site, the inaccessibility of nuclear substances and the land use restrictions placed on the properties within the ICP.

An Environmental Protection Review under the *NSCA* was conducted for this application as described in section 3 of this CMD. CNSC staff concluded that there has been, and will continue to be, adequate provision for the protection of the environment as a result of the release of these properties from licensing under the *NSCA* and the transfer of the properties to the Government of Saskatchewan's ICP.

## 1.5 Overall Recommendations

CNSC staff recommend the Commission consider taking the following actions:

- Revoke Waste Facility Operating Licence WFOL-W5-2120.0/2025.
- Exempt the Government of Saskatchewan from licensing under the *Nuclear Safety and Control Act* for the 27 properties proposed for transfer into Saskatchewan's Institutional Control Program.

## 2. Performance Objectives and Indicators

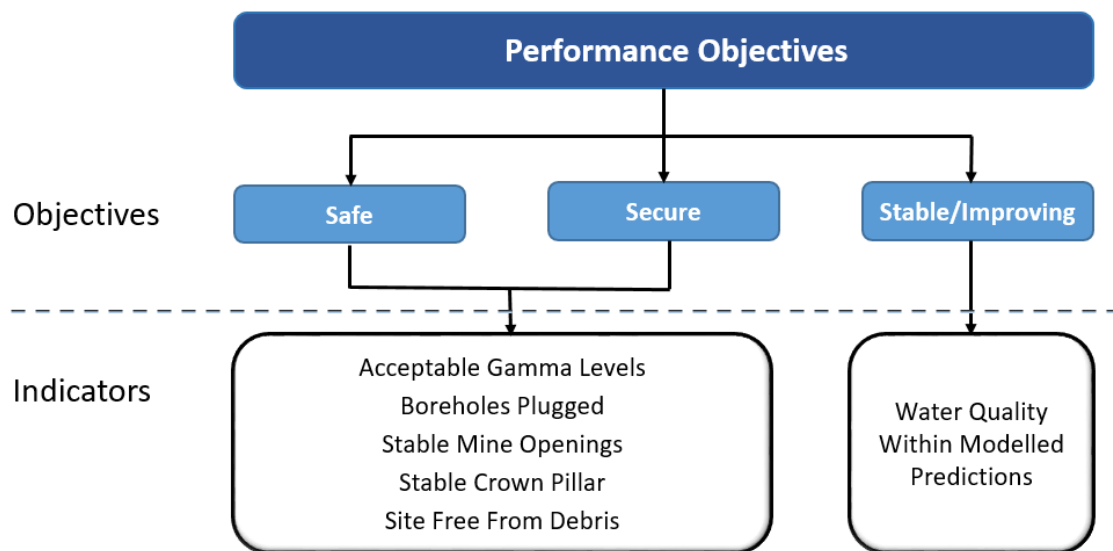
During the licence renewal in 2013, the Commission requested that CNSC staff provide further clarification on the performance objectives and actual performance indicators for the decommissioned Beaverlodge site. This requested information was presented to the Commission on October 1, 2014, and is provided in this section.

The following definitions are used to evaluate the properties at the Beaverlodge site:

- **Performance Objectives:** *The objectives for all Beaverlodge licensed properties are that they be safe, secure, and stable/improving. Safe and secure refers to the land, whereas stable/improving is in reference to water quality.*
  - *Safe* - The site is safe for general public access. This objective is to ensure that the long-term safety is maintained.
  - *Secure* - There must be confidence that long-term risks have been assessed by a qualified person and are acceptable.
  - *Stable/Improving* - Environmental conditions (e.g. water quality) on and downstream of the decommissioned properties are stable and continue to naturally recover as predicted.
- **Performance Indicators:** *Defined indicators used to verify that the performance objectives are being met.*

The performance indicators used to determine if a site is safe and secure are shown on figure 2.1 and described in further detail in table 2.1.

**Figure 2.1: Performance objectives and indicators**



Further explanation on the performance indicators and the criteria to satisfy them are presented in table 2.1. The 2024 status of the performance indicators are provided in italics within the table.

**Table 2.1: Performance indicators and criteria**

<b>Performance Indicators</b>	<b>Description</b>	<b>Regulatory Acceptance Criteria</b>
<b>Acceptable Gamma Levels</b>	<p>Cameco will complete a site-wide gamma survey which will indicate where additional material may need to be applied to cover existing waste rock or tailings. Following the application of the cover material, a final survey will be completed of the remediated areas verifying that the cover was adequate.</p> <p><i>2024 Status: Site wide gamma scan completed and risk evaluation conducted. Disturbed areas were scanned using a 10 m grid (approximately), as terrain and vegetation allowed considering safety and physical accessibility. Reports were accepted by CNSC staff in 2015 after responses to CNSC comments were addressed. The performance indicator and regulatory acceptance criteria have been met.</i></p>	Reasonable use scenario demonstrating gamma levels at the site are acceptable.
<b>Boreholes Plugged</b>	<p>Cameco will plug all identified boreholes on the site to prevent groundwater outflow to the surface.</p> <p><i>2024 Status: All boreholes identified to date have been sealed. The performance indicator and regulatory acceptance criteria have been met.</i></p>	All boreholes have been plugged at the time of transfer to institutional control.
<b>Stable Mine Openings</b>	<p>The current concrete caps on the vertical mine openings will all be replaced with new engineered caps with established designs to improve the long-term safety of the site.</p> <p><i>For completeness, CNSC staff and Cameco agreed in 2019 to expand the performance indicator and acceptance criteria to include all mine openings and reword the performance indicator to Stable Mine Openings.</i></p> <p><i>2024 Status: Installation of caps and mine closures completed. The performance indicator and regulatory acceptance criteria has been met.</i></p>	Mine openings have been secured and signed off by a qualified person, where applicable.
<b>Stable Crown Pillar</b>	<p>Based on the surface subsidence in the Lower Ace Creek area, a crown pillar assessment will be completed for the 4 areas that have mine workings close to surface including HAB, Dubyna, Verna/Bolger, and Lower Ace Creek. Cameco will complete the crown pillar assessment in 2014. If additional remediation is required, the work will be completed in 2015.</p> <p><i>2024 Status: Crown pillar assessment completed in 2014. Report accepted by CNSC staff in 2016 once comments were addressed. The performance indicator and regulatory acceptance criteria has been met.</i></p>	Crown pillar assessed, remediated (if required), and signed off by a qualified person.

Performance Indicators	Description	Regulatory Acceptance Criteria
<b>Site Free From Debris</b>	Inspection and removal of any residual debris will be completed prior to exempting the properties from CNSC licensing and accepting them into the provincial Institutional Control Program.  <i>2024 Status: Site wide cleanup completed and absence of debris confirmed through inspections. The performance indicator and regulatory acceptance criteria has been met.</i>	Site free of former mining debris at the time of transfer to institutional control.
<b>Water Quality Within Modelled Predictions</b>	Trends established from past and future water monitoring will be compared to modelled predictions to verify: <ol style="list-style-type: none"> <li>1. that remedial options expected to result in localized improvements are having the desired effects and,</li> <li>2. that natural recovery on and downstream of the decommissioned properties is continuing as predicted.</li> </ol> <i>2024 Status: Reports submitted annually by Cameco which compare water quality with modelled predictions. The performance indicator and regulatory acceptance criteria has been met.</i>	Water quality data is stable/improving.

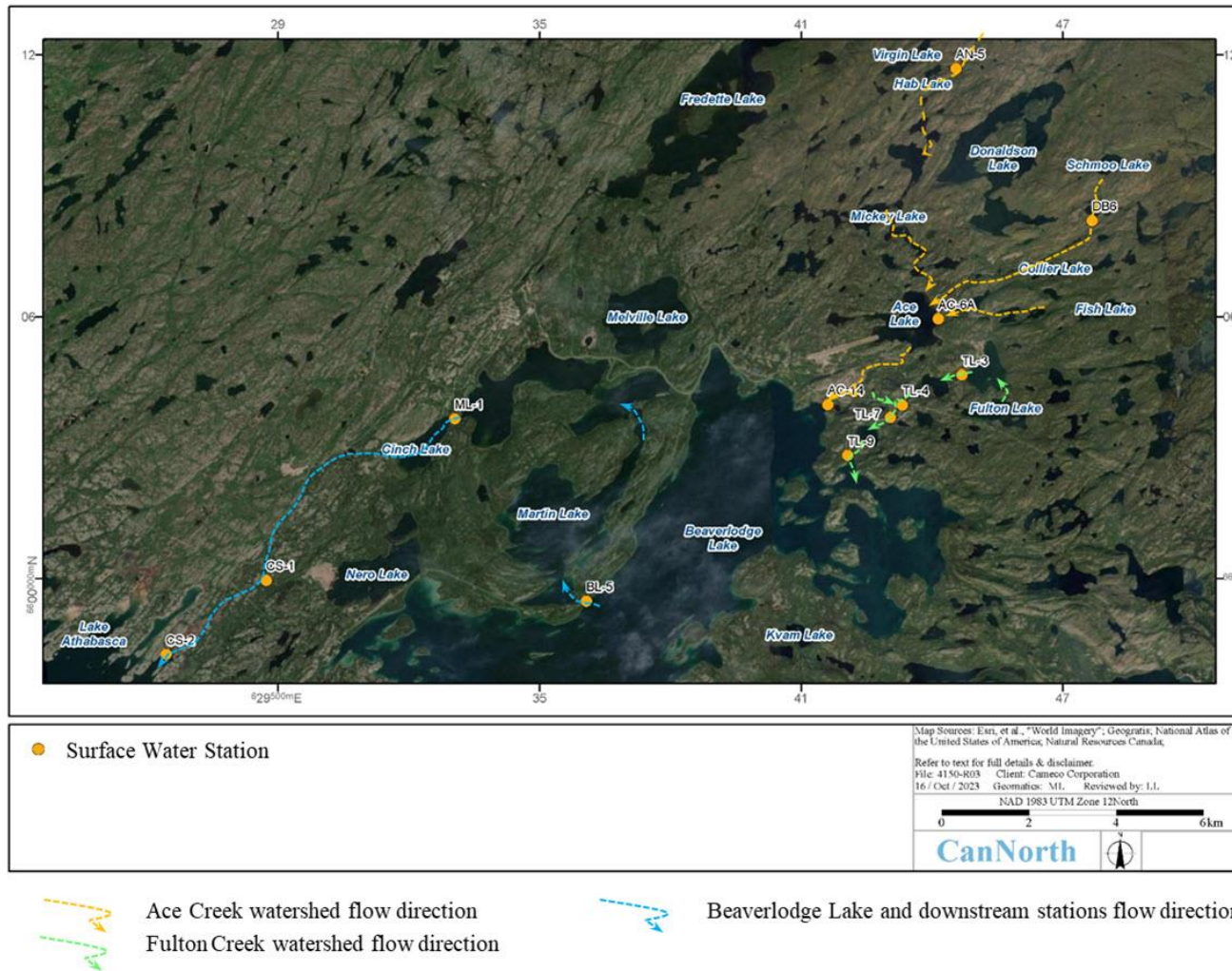
Note: Refer to the glossary within this CMD for definitions of the mining terminology in this table.

Applicable waterbodies can be considered stable/improving when the water quality monitoring data trends are within the range of upper and lower bounds on the predictions. Realistic high and low values of the model assumptions were used to generate the range of upper and lower bounds. If the results are found to be within the predicted range or lower, they will be considered stable/improving. If the monitoring data trends fall above the predicted range, CNSC staff will require Cameco to complete a reassessment of the risk.

Twelve stations, shown on figure 2.2, have been established for the long-term monitoring program. In addition to water quality sampling, fish collection and analysis is proposed for Beaverlodge, Marin and Cinch lakes as described in section 4.6.

Water quality results are discussed for those properties for which the established water quality performance criteria are applicable. Other properties have no water quality performance indicators associated with them as the properties do not affect water quality. This is either because the properties are not adjacent to a waterbody or, if the properties are adjacent, adequate remediation was completed to limit releases to surface water.

Figure 2.2: Long-term water quality monitoring stations



Source: Cameco

### 3. Environmental Protection Review

CNSC staff reviewed the licence revocation application to identify the type of environmental review required. This licence revocation does not include activities listed in the *Physical Activities Regulations* of the *Impact Assessment Act* or that meet the definition of a project on federal lands, therefore an assessment under the *Impact Assessment Act* is not required in association with the licence revocation and transfer of land to the ICP. CNSC staff performed an Environmental Protection Review (EPR) to determine if the established performance indicators and regulatory acceptance criteria were met for the properties under consideration. This section provides information specific to section 11 of the *General Nuclear Safety and Control Regulations* (GNSCR).

In accordance with section 11 of the GNSCR, the Commission may grant an exemption from the requirements for licensing under the NSCA in accordance with section 7 of the NSCA provided the conditions in section 11 of the GNSCR are met.

- According to section 11 of the GNSCR, the Commission may grant an exemption if doing so will not: pose an unreasonable risk to the environment or the health and safety of persons
- pose an unreasonable risk to national security
- result in a failure to achieve conformity with measures of control and international obligations to which Canada has agreed.

CNSC staff have determined that the licensee has achieved the established performance indicators and regulatory acceptance criteria for the remaining Beaverlodge properties, and that Cameco has developed a long-term monitoring program to monitor the recovery of the site and downstream environment. These performance indicators have been set in order to prevent risk; in CNSC's staff's view, meeting the indicators means that the environment and the health and safety of persons will be adequately protected, provided the Healthy Fish Consumption Advisory is followed. More information on CNSC staff's review as it relates to the environmental protection safety and control area can be found in section 5.1 of this CMD.

As described in section 1.2, two primary objectives of the ICP include the protection of human health and safety and the environment. This is achieved by land use controls, monitoring and maintenance, and funds for unforeseen events. The ICP is effective in ensuring oversight of the properties in the long term. The 27 properties, or portions thereof, that are to be transferred to the ICP will be monitored and managed by the Government of Saskatchewan. Therefore, these properties are expected to remain in a stable state and will not pose an unreasonable risk in the future.

Currently the licensee restricts access to tailings areas; however, access to other areas is unrestricted due to the remoteness and low risk nature of the site. National security is expected to be maintained for the site upon licence revocation and transfer to the ICP. This is due to the inaccessibility of the inventory of nuclear substances at the site, the remoteness of the site and the land use restrictions placed on the properties by the Government of Saskatchewan.

The Government of Saskatchewan's ICP accords with Canada's international obligations relating to institutional control.

It is CNSC staff's opinion that there will be adequate provision for the protection of the environment as a result of the release of these properties from licensing under the [NSCA](#).

#### 4. Matters for Consideration

The 27 properties remaining under a CNSC-issued licence are all proposed for release from licensing by the CNSC. These properties are summarized within this section along with the applicable performance objectives and regulatory acceptance criteria. Table 4.1 summarizes these objectives and regulatory acceptance criteria for each property, while figure 4.1 depicts the location of each property on a map of the site.

Milling and the main underground mines developed at the site are located in the Lower Ace Creek and Verna/Bolger areas. The tailings management area includes all properties that are part of the tailings management and water treatment areas which are located in the Fulton Creek drainage (figure 4.1). The majority of the properties under consideration are located in the tailings management area. There is also 1 property in the Verna/Bolger area and 2 in the mill (lower Ace Creek) area.

The following sections of this CMD have been broken down by either property or area. The following sections also provide a brief summary of the remaining mining and/or milling related structures and infrastructure, and information in order to demonstrate that the applicable performance indicators have been met. In order to reduce duplication, the "site free from debris" indicator is not discussed for individual properties or for areas, rather, it is discussed here for all 27 properties. Cameco has provided evidence of the completion of site inspections' clean-up activities to remove and dispose of debris at each of the properties which is included in their submission [1]. In addition, staff from both the Saskatchewan Ministry of Environment (SMOE) and CNSC have inspected the properties to confirm the adequacy of the clean-up efforts and to confirm the regulatory acceptance criteria of "site free from debris" has been met.

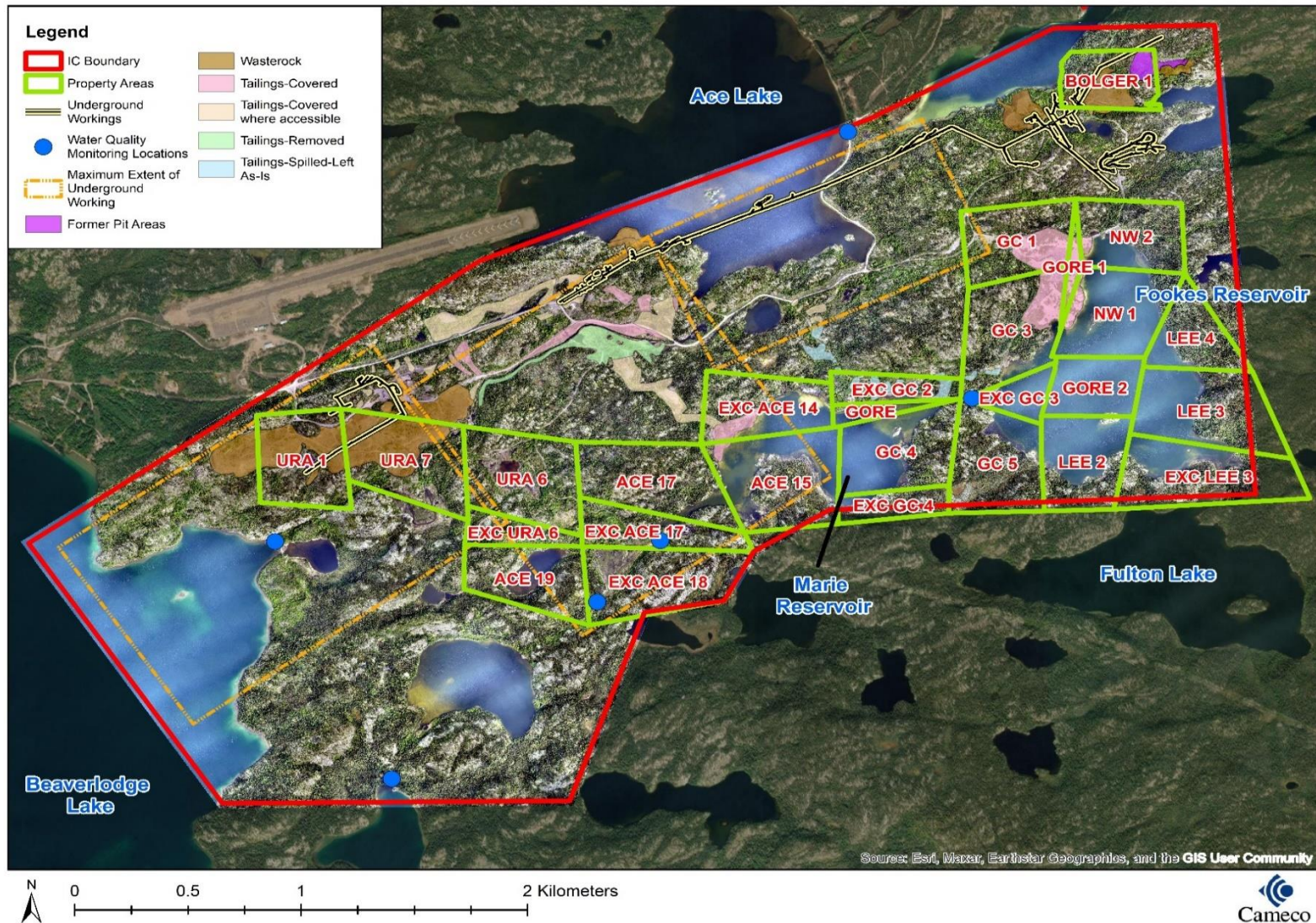


**Table 4.1: Properties proposed for release and the applicable performance objectives and indicators**

Area	Property	Performance Objective						Transfer to ICP
		Safe and Secure				Stable / Improving		
		Performance Indicator						
		Acceptable Gamma Levels	Boreholes Plugged	Stable Mine Openings	Stable Crown Pillar	Site Free From Debris	Water Quality Within Modelled Predictions	
<b>Verna/ Bolger</b>	Bolger 1	√	√	n/a	√	√	√	√
<b>TMA – Fookes Reservoir Area</b>	GC 3	√	n/a	n/a	n/a	√	√	√
	EXC GC 3	√	n/a	n/a	n/a	√	√	√
	GC 5	√	n/a	n/a	n/a	√	√	√ (majority)
	GC 1	√	n/a	n/a	n/a	√	√	√
	GORE 1	√	n/a	n/a	n/a	√	√	√
	NW 2	√	n/a	n/a	n/a	√	√	√
	NW 1	√	n/a	n/a	n/a	√	√	√
	LEE 4	√	n/a	n/a	n/a	√	√	√ (majority)
	GORE 2	√	n/a	n/a	n/a	√	√	√
	LEE 3	√	n/a	n/a	n/a	√	√	√ (majority)
	EXC LEE 3	√	n/a	n/a	n/a	√	√	√ (majority)
LEE 2	√	n/a	n/a	n/a	√	√	√ (majority)	
<b>TMA – Marie Reservoir Area</b>	EXC ACE 18	√	n/a	n/a	n/a	√	√	√
	EXC ACE 17	√	n/a	n/a	n/a	√	√	√
	ACE 17	√	n/a	n/a	n/a	√	√	√
	ACE 15	√	n/a	n/a	n/a	√	√	√ (majority)
	EXC ACE 14	√	n/a	n/a	n/a	√	√	√
	GORE	√	n/a	n/a	n/a	√	√	√
	EXC GC 2	√	n/a	n/a	n/a	√	√	√
	GC 4	√	n/a	n/a	n/a	√	√	√
	EXC GC 4	√	n/a	n/a	n/a	√	√	√ (majority)
<b>TMA – Minewater Reservoir Area</b>	URA 6	√	√	n/a	n/a	√	√	√
	EXC URA 6	√	n/a	n/a	n/a	√	√	√
	ACE 19	√	n/a	n/a	n/a	√	√	√
<b>Mill Area</b>	URA 1	√	√	n/a	√	√	√	√
	URA 7	√	√	√	√	√	√	√

n/a not applicable

Figure 4.1: Verna/Bolger, Lower Ace Creek and TMA Properties – Proposed for Release



Source: Cameco Corporation

The results of a site-wide gamma radiation scan completed at the Beaverlodge site were submitted to the CNSC in 2014. Cameco also completed a gamma radiation risk evaluation report which was submitted to the CNSC in 2015. Disturbed areas were scanned using approximately a 10 metre grid, although some variance was made to account for physical safety of personnel conducting the scan due to areas of steep terrain or heavy vegetation. The radiation risk evaluation was only conducted for those properties that had gamma radiation levels above the criteria identified in the Saskatchewan *Northern Mine Decommissioning and Reclamation Guidelines* for gamma radiation [5]. These guidelines state that final radiation levels should not be greater than a mean of 1  $\mu\text{Sv/hr}$  above the natural range of variability that is observed at reference locations (i.e. background radiation levels). The mean value is to be taken from a 100 metre by 100 metre area (1 hectare) and compared to background/reference values.

The majority of the properties proposed for release meet the above noted criteria and have an average gamma radiation range of  $<0.1 \mu\text{Sv/hr}$  to  $1.0 \mu\text{Sv/hr}$  above background. These properties therefore meet the regulatory acceptance criteria and do not require further risk evaluation.

Note that gamma radiation scans were only conducted on disturbed areas of the site, therefore, there were no gamma scans conducted on undisturbed areas of the Tailings Management Area properties. For these areas there is no known surface disturbance which would have caused gamma radiation levels to be above background levels.

#### 4.1 Verna/Bolger Area - Bolger 1 Property

The Verna/Bolger area consists of 7 properties, 6 of which have been released from licensing already. Cameco has requested release of the remaining property (Bolger 1). The property is located on the southeast shore of Verna Lake and is approximately 11.5 ha in size.

Inspections of the property have been conducted and debris, if found, has been removed and all boreholes plugged using concrete grout. None of these holes showed any evidence of artesian conditions in advance of them being plugged.

The Bolger 1 property is the site of a remediation project (Bolger Flow Path Reconstruction Project - figure 4.2) which involved the relocation of a waste rock pile and re-establishment of the historic path of Zora Creek in an effort to improve water quality (uranium concentrations) within Verna Lake. The project was completed in 2016 and water quality and geotechnical monitoring was conducted to evaluate the effectiveness of the remediation project and confirm stability of the slopes, respectively. Due to the significant volume of waste rock that was relocated Cameco conducted a gamma scan of the disturbed areas in 2016. The 2014 gamma results were then overlapped and replaced where applicable with the 2016 gamma results. The gamma radiation levels ranged from  $< 0.1 \mu\text{Sv/h}$  to  $1.0 \mu\text{Sv/h}$  above background averaged over 1 ha [1], which meets the *Northern Mine Decommissioning and Reclamation Guidelines* [5]. Figure 4.2 shows the current condition of Zora Creek.

**Figure 4.2: CNSC Staff Inspecting Zora Creek – Looking Upstream (September 2022)**



Sections of the Verna mine underground workings extend under the property. The approximate depth of the workings is 80 metres. A geotechnical assessment was completed, and the crown pillar was considered to have a low likelihood of subsidence due to its thickness and depth of the underground workings [1]. No additional investigations were suggested. CNSC staff reviewed and accepted the geotechnical assessment conclusions.

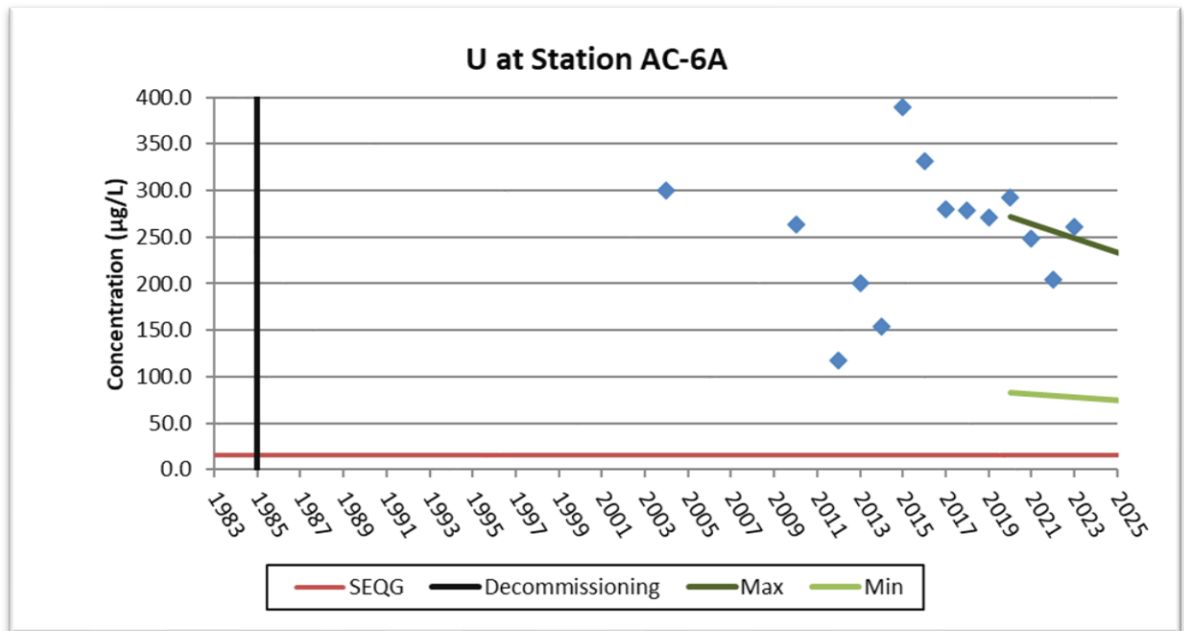
The property contains the Bolger mine pit which was the largest pit on the Beaverlodge site. The Bolger mine is reported to have produced a total of 639,300 tonnes of waste rock which covered an area of approximately 4.5 hectares, the majority of which was deposited in an area south of the pit and filling the valley that originally connected Zora and Verna Lake on the Bolger property. The pit was partially backfilled during decommissioning. A Geotechnical inspection was completed in 2010 and it was determined that due to the competent nature of the rock mass, slope failure at Bolger is not expected [1].

The majority of waste rock which had previously been placed in the valley between Zora and Verna lakes was transported to the Bolger Pit between 2014 and 2016 during the flow path reconstruction project. The waste rock placed in the pit reduced the pit wall height to approximately 15 m, and geotechnical inspections conducted post construction have not identified any concerns.

Waste rock testing indicates that the uranium concentration in the rock ranges from less than 0.027% to 0.03% [1], which is at and/or below the low range of what is currently considered special/mineralized waste rock (>0.03% uranium) at operating uranium mines in northern Saskatchewan. The waste rock also has a low sulphide content and low acid generating potential. Visual observation and monitoring on the Beaverlodge properties for over 60 years has not identified any acid rock drainage leachate from waste rock piles, nor have there been any impacts that could be attributed to such a condition.

Water quality predictions apply to this property and there are long-term water quality predictions for radium-226, selenium and uranium for the outlet of Verna Lake (Station AC-6A). Figure 4.3 provides the long-term uranium predictions and water quality monitoring results. As selenium and radium-226 concentrations are currently below the *Saskatchewan Environmental Quality Guidelines* (SEQG) for freshwater aquatic life [6] and are predicted to remain so in the long term, a graph of the selenium and radium-226 predictions has not been included in this CMD. Figure 4.3 shows the upper (95<sup>th</sup> percentile, labelled as max) and lower (5<sup>th</sup> percentile, labelled as min) water quality prediction, water quality monitoring results and SEQG for uranium. Elevated uranium concentrations at the station were observed during the flow path reconstruction project as a result of the physical disturbance of the area and Cameco implemented sampling immediately downstream of the work at the inlet to Verna Lake to monitor the uranium concentration and recovery. The relocation of the waste rock from the creek, along with natural recovery are expected to result in the gradual reduction in uranium concentrations within Verna Lake. Due to low water flow conditions, only 2 samples were collected by Cameco in 2023 and the average uranium concentration was 252 ug/l whereas the upper bound was 249 ug/l based on interpolation of the predicted results between 2020 and 2040. Cameco indicated that the uranium concentrations will fall back into their modelled predictions once water flows return to normal. CNSC staff have accepted this explanation. The uranium concentrations in the next monitoring station downstream were below SEQG and continue to decrease.

**Figure 4.3: Long-term uranium predictions and water quality data for the outlet of Verna Lake (Station AC-6A)**



The entire property is proposed for entry into the ICP, as shown on figure 4.1. ICP inspections are expected to focus on the following aspects:

- evidence of recent human visitation
- condition of waste rock
- condition of the Zora creek channel
- water quality monitoring.

There are no structures requiring maintenance on the property.

## 4.2 TMA Area – Fookes Reservoir

The TMA is within the Fulton Creek watershed and consists of the Fookes Reservoir, Marie Reservoir and Minewater Reservoir. Fresh water flows into Fookes Reservoir from Fulton Lake while water exiting Fookes Reservoir flows into Marie Reservoir and then through Meadow Fen to Greer Lake. In addition, the small catchment which hosts Minewater Reservoir flows through the Meadow Fen into Greer Lake. Water exiting Greer Lake flows into Fulton Bay of Beaverlodge Lake. Approximately 5.8 million tonnes of tailings were placed within the TMA, the majority of which are within the Fookes Reservoir. Initial tailings placement took place in Minewater Reservoir and then Marie Reservoir before being permanently relocated to Fookes Reservoir.

The Fookes Reservoir area consists of 12 properties (GC 3, EXC GC 3, GC 5, GC 1, GORE 1, NW 2, NW 1, LEE 4, GORE 2, LEE 3, EXC LEE 3 and LEE 2) which covers an area of approximately 180 hectares (figure 4.1).

Tailings were originally discharged at the north-west corner of the reservoir and solids carried over to cover the entire reservoir (i.e. tailings covered the entire former lake bottom). A tailings delta was formed in the northwest corner of the waterbody. Cameco estimates that more than 5 million tonnes were placed in the Fookes reservoir.

The reclamation of the Fookes Reservoir area involved removal of artificial structures to return the water level in the basin to within 1 m of its natural outlet level as well as covering of the exposed tailings delta with waste rock. Initial decommissioning activities consisted of placing a waste rock cover over the tailings and along the perimeter of the basin. This cover was approximately 0.6 m in depth, however due to the creation of tailings boils (tailings migrating through the waste rock due to pressure build up), more cover material was added. In 1997 tailings boil areas were covered with layered fine sand (0.3 m) and then a coarse sand and gravel fill cover (0.3 m). In 2007 cover placement was expanded to include any area with the potential for boils to occur and this cover consisted of 0.15 m to 0.3 m of fine sand with a 0.3 m layer of general fill cover. Monitoring of the tailings delta has indicated that the cover placement was successful in preventing further tailings boils. Figure 4.4 shows the tailings delta condition in 2024.

**Figure 4.4: Fookes Tailings Delta - Looking Southeast (June 2024)**



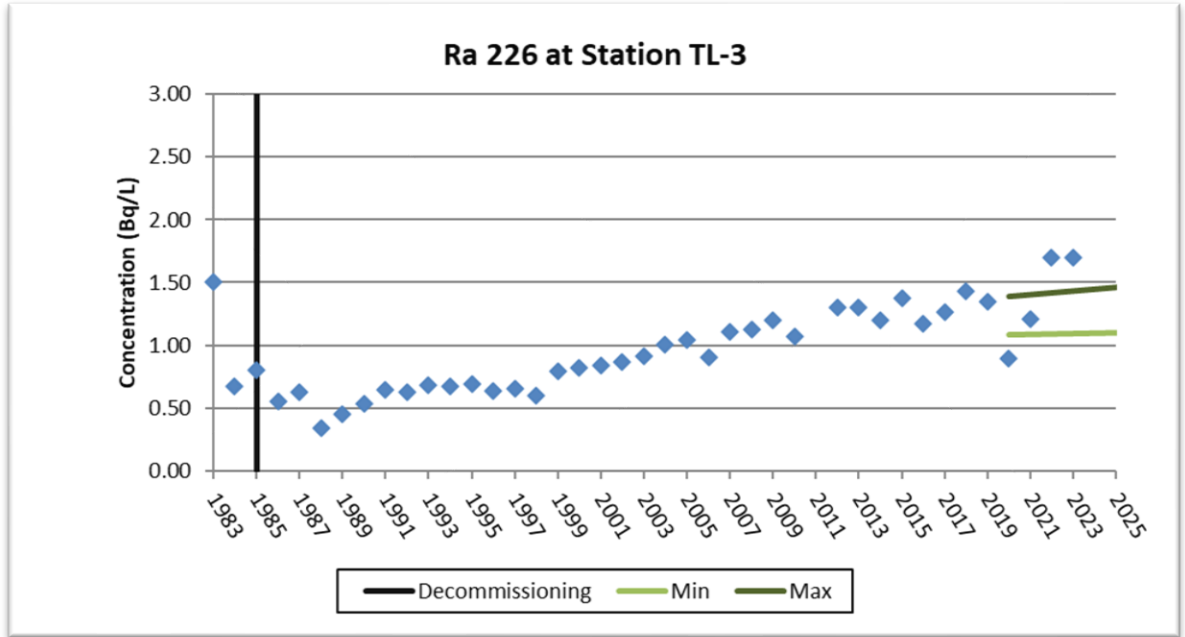
The outlet of Fookes Reservoir consists of a rip-rap lined spillway and a stilling basin. Both were intruded with grout for added erosion protection; however, the rip-rap in the spillway was designed to be stable even in the absence of grout. In 2020, Cameco commissioned a detailed geotechnical assessment of the decommissioned site which included the Fookes outlet structures. Cameco's third party consultant concluded that, from a geotechnical perspective, the conditions at the outlet structures have stabilized sufficiently to support the transfer of associated properties to the IC Program [1].

There are no boreholes, crown pillars or openings to the underground workings identified on these properties. Waste rock was used in the area to cover the exposed tailings delta and for road construction. Cameco notes that based on general waste rock samples collected on the Beaverlodge properties, uranium content is typically below the threshold considered to be special/mineralized waste rock at the operating uranium mines in northern Saskatchewan and that waste rock sampling has also shown the waste rock is non-acid generating [1]. There is no visual observation of any impacts that could be attributed to the generation of acid rock drainage. The gamma radiation levels for the reservoir area properties ranged from  $< 0.1 \mu\text{Sv/h}$  to  $1.0 \mu\text{Sv/h}$  above background averaged over 1 ha, which meets the *Northern Mine Decommissioning and Reclamation Guidelines* [5].

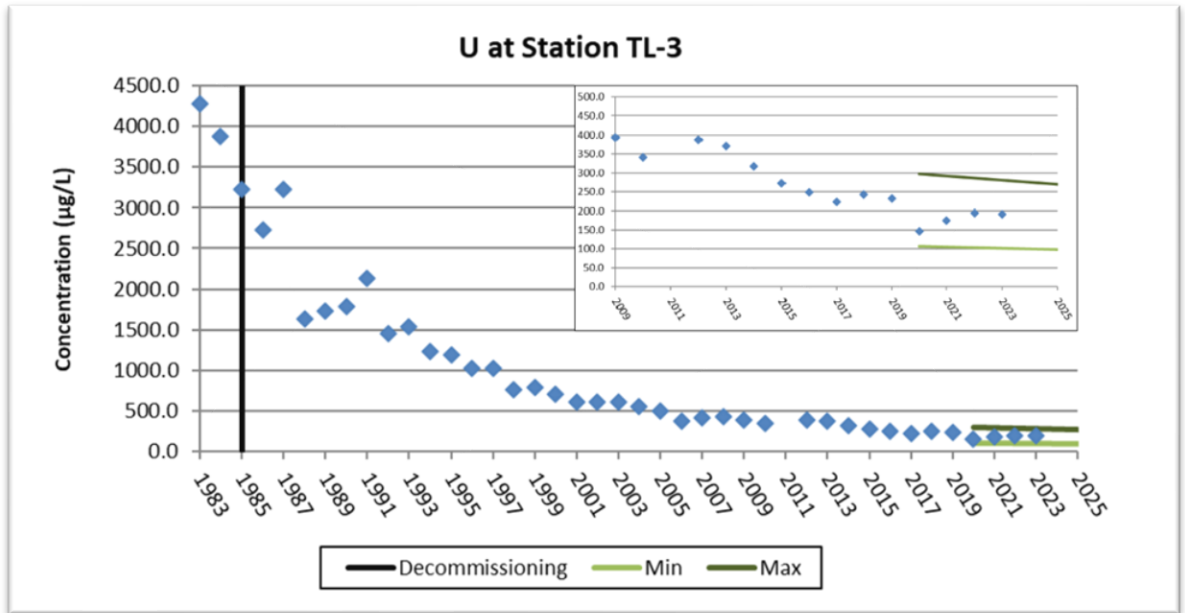
The outlet of Fookes Reservoir (Station TL-3) has long-term water quality predictions for radium-226, selenium and uranium. Figures 4.5 to 4.7 provide the long-term radium, uranium and selenium predictions and water quality monitoring results. As this station is located with the TMA, Cameco has not compared the results to SEQG. The figures show the upper (95<sup>th</sup> percentile, labelled as max) and lower (5<sup>th</sup> percentile, labelled as min) water quality predictions and the water quality monitoring results. There are inserts in figures 4.6 and 4.7 to show the recent concentrations on a more appropriate scale for the current water quality data. As Cameco notes in their closure report submission there was a rapid decrease in uranium and selenium following decommissioning [1]. Separate water quality data graphs are provided in Cameco's closure report.



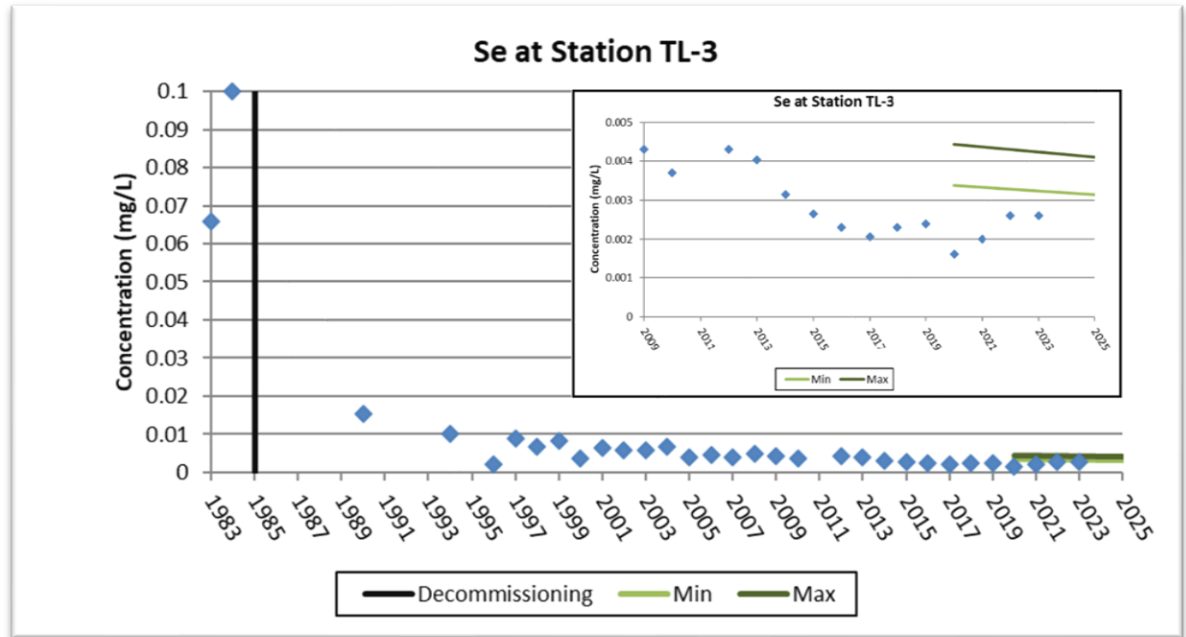
**Figure 4.5: Long-term radium-226 predictions and water quality data for the outlet of Fookes Reservoir (Station TL-3)**



**Figure 4.6: Long-term uranium predictions and water quality data for the outlet of Fookes Reservoir (Station TL-3)**



**Figure 4.7: Long-term selenium predictions and water quality data for the outlet of Fookes Reservoir (Station TL-3)**



Water quality measured at the outlet of Fookes Reservoir is within the modelled predictions for uranium and selenium. Cameco noted that the average annual radium-226 concentration in 2023 was 1.7 Bq/L which was above the modelled predictions of 1.44 Bq/L for 2023 based on interpolation of the predicted results between 2020 and 2050. Over the past 2 years relatively low water flows were observed at Station TL-3, followed by a period of high flows, likely contributing to the measured results exceedance of modelled predictions. The downstream Station TL-4 (Marie Reservoir) continues to be within the modelled bounds. Cameco anticipates that once a more stable flow regime returns that radium-226 concentrations will be within the expected upper bound. CNSC staff have accepted this interpretation, although it is important to note that radium-226 concentrations are predicted to rise for several more decades before they decline.

The entire reservoir area property is proposed for entry into the ICP, except for small portions to the south and east of the reservoir which will be excluded due to the lack of disturbance, as shown on figure 4.1. ICP inspections are expected to focus on the following aspects:

- evidence of recent human visitation
- for the Fookes tailings delta, specific monitoring includes:
  - evidence of tailings boils or tailings exposure due to frost action
  - evidence of erosion of the cover material
  - evidence of failure of erosion control/prevention measures
  - berms limiting access are in place
  - condition of vegetation

- for the outlet control structure:
  - condition of spillways changes and embankments
- water quality monitoring.

Funds will be provided to perform remediation on the Fookes tailings delta if repairs are required (erosion, damage to due frost, etc.).

### 4.3 TMA Area – Marie Reservoir

The Marie Reservoir area consists of 9 properties (EXC ACE 18, EXC ACE 17, ACE 17, ACE 15, EXC ACE 14, GORE, EXC GC 2, GC 4, EXC GC4) which covers an area of approximately 134 hectares (figure 4.1). The area includes the former Marie basin, tailings delta, outlet and the Meadow Fen basin.

Cameco notes that during operations, more than 170,000 tonnes of tailings were placed within Marie Reservoir between 1954 to 1957 and a tailings delta developed in the northwest end of Marie Reservoir [1]. Tailings placement within the Marie Reservoir occurred on both the west end and at the east end. Tailings were delivered to the basin using wood stave pipelines that discharged tailings into channels cut into the natural slopes. Given the steepness of these gullies, the vast majority of the tailings flowed into the reservoir as planned, thereby forming each of the 2 deltas. These channels are heavily vegetated today and only very minor traces of the tailings are evident in the vicinity of these channels. During decommissioning, tailings near the surface of Marie Reservoir were relocated to deeper sections of the reservoir and the tailings deltas were covered with waste rock.

The EXC GC 2 and GORE properties also contain a portion of the tailings pipeline corridor. As a result of the pipeline, there are historic tailings spills[1]. Because of the inaccessibility of some historic tailings spills these areas were assessed on an individual basis during decommissioning to determine whether they should be left as is, covered or removed. If a decision was made to leave a particular area “as is”, it was because any attempts to remove or cover such areas would have resulted in greater damage to the environment than if the area was left undisturbed, or topography limited access. Decisions on individual spill areas were made with the participation of provincial and federal regulatory agency personnel. The decommissioning plan indicated that gamma exposure rates were considered during the decision making [1]. Where accessible, tailings spills were either removed or covered with approximately 0.6 metres of waste rock.

Similar to the Fookes outlet structure, the Marie Reservoir outlet (Station TL-4) consists of a rip-rap lined open channel discharging into a rip-rap lined stilling basin. The rip-rap lining in the spillway channel and the stilling basins was intruded with grout for added erosion protection; however, the rip-rap in the spillway was designed to be stable in the absence of grout intrusion. The spillway is capable of passing a 500-year flood event [1]. The outlet is shown on figure 4.8,

**Figure 4.8: CNSC Inspection of Marie Reservoir Outlet - Looking East (September 2022)**



In 1976 a water treatment plant was constructed at the outlet of Marie Reservoir. As a result, the water from Marie Reservoir was discharged at a controlled rate into the Meadow basin. The Meadow basin was used for the settling of barium-radium precipitate resulting from the treatment of water and for the additional settling of precipitate overflowing from the Minewater basin. Decommissioning of this basin consisted of lowering the water level in the basin to expose the settled precipitate. Precipitate was excavated and disposed of in the underground mine workings. There was a concrete and stop log weir structure at the outlet of the basin (Station TL-7) which was decommissioned in 2021, upon acceptance by staff from the CNSC and SMOE. The performance indicators and water quality results for Station TL-7 are discussed in the Minewater Reservoir section.

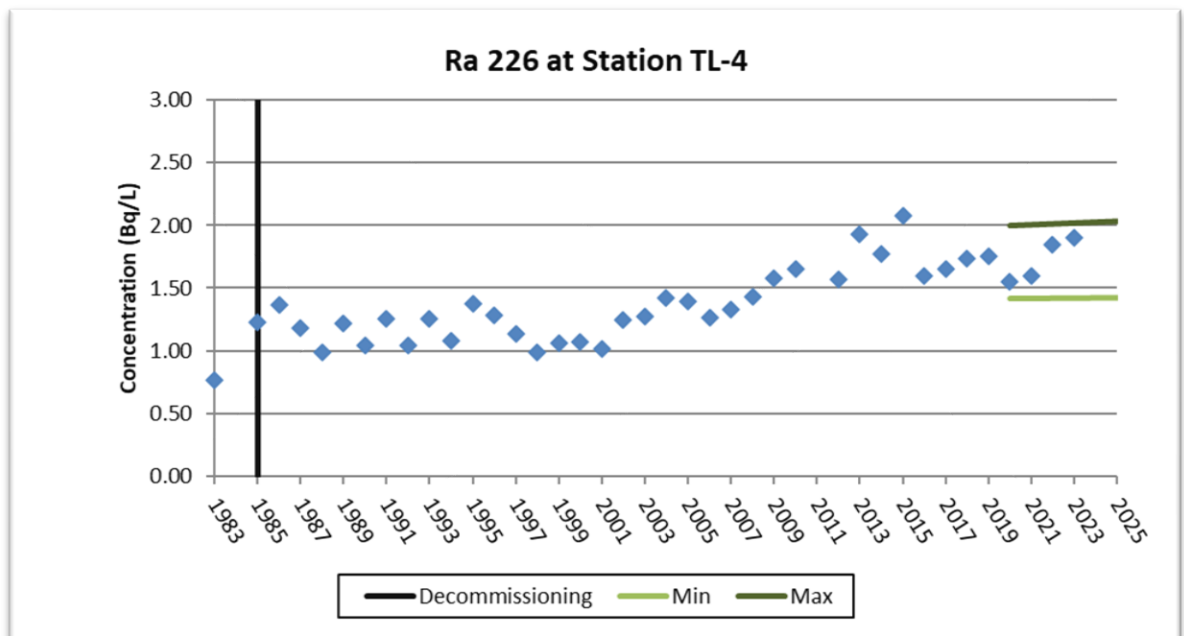
There are no boreholes, crown pillars or openings to underground workings identified on these properties. Waste rock was used in the area to cover the exposed tailings delta and for road construction. Cameco noted that based on general waste rock samples collected on the Beaverlodge properties, uranium content is typically below the threshold considered to be special/mineralized waste rock at the operating uranium mines in northern Saskatchewan and that waste rock sampling has also shown the waste rock is non-acid generating [1]. There is no visual observation of any impacts that could be attributed to the generation of acid rock drainage. The gamma radiation levels for the reservoir

area properties ranged from  $< 0.1 \mu\text{Sv/h}$  to  $1.0 \mu\text{Sv/h}$  above background averaged over 1 ha, which meets the *Northern Mine Decommissioning and Reclamation Guidelines* [5].

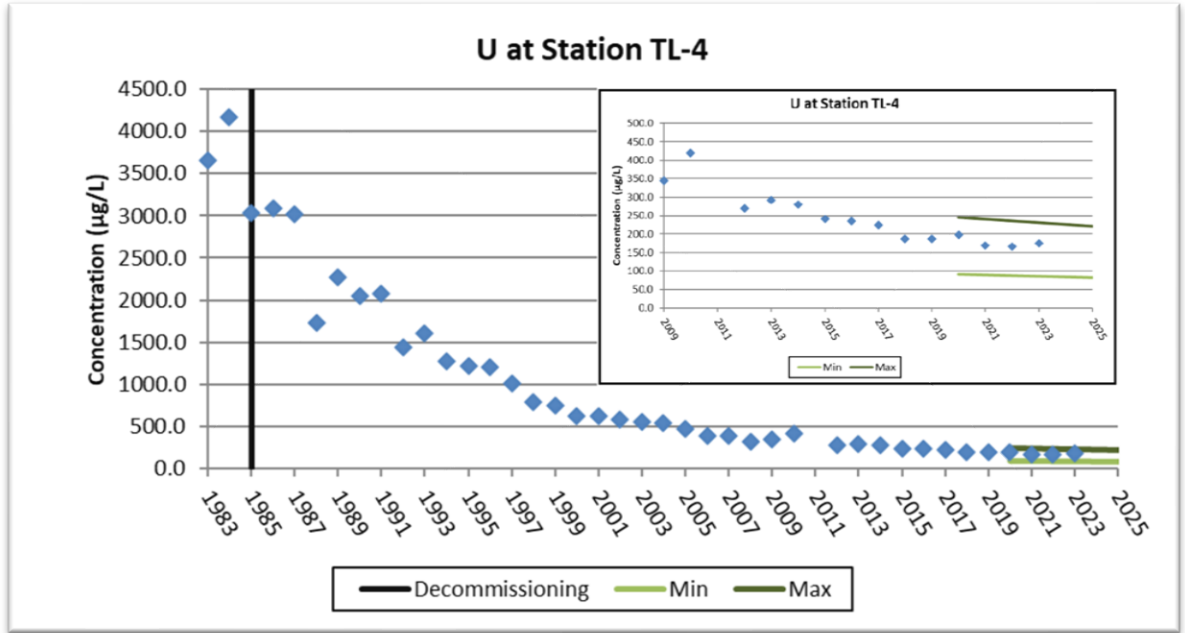
The outlet of Marie Reservoir (Station TL-4) has long-term water quality predictions for radium-226, selenium and uranium. Figures 4.9 to 4.11 provide the long-term radium, uranium and selenium predictions and water quality monitoring results. As this station is located with the TMA, Cameco has not compared the results to SEQG. The figures show the upper (95<sup>th</sup> percentile) and lower (5<sup>th</sup> percentile) water quality predictions and the water quality monitoring results.

Similar, to the graphs in the Fookes Reservoir section, an insert has been added to the uranium and selenium graphs to show recent results at a more appropriate scale.

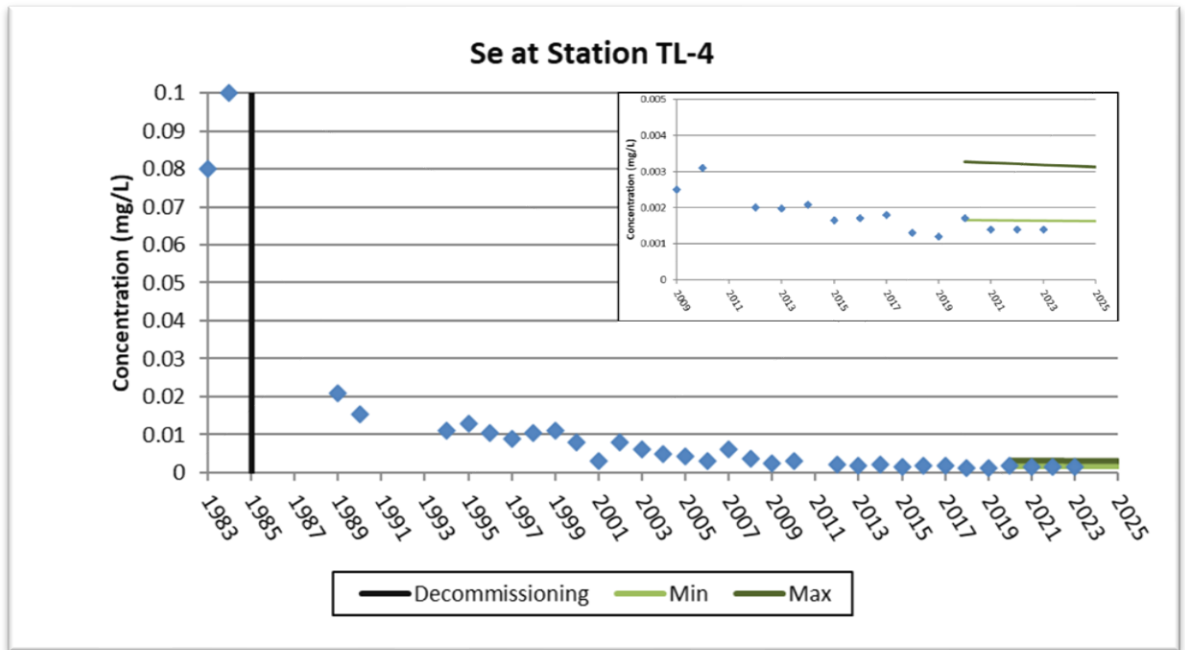
**Figure 4.9: Long-term radium-226 predictions and water quality data for the outlet of Marie Reservoir (Station TL-4)**



**Figure 4.10: Long-term uranium predictions and water quality data for the outlet of Marie Reservoir (Station TL-4)**



**Figure 4.11: Long-term selenium predictions and water quality data for the outlet of Marie Reservoir (Station TL-4)**



Water quality measured at the outlet of Marie Reservoir is within the modelled predictions and therefore, the water quality performance indicator and acceptance criteria has been met for the Marie Reservoir properties.

The entire reservoir area property is proposed for entry into the ICP, except for small portions to the south of the reservoir which will be excluded due to the lack of disturbance, as shown on figure 4.1. ICP inspections are expected to focus on the following aspects:

- evidence of recent human visitation
- for the Marie tailings delta, specific monitoring includes:
  - evidence of tailings exposure due to frost action
  - evidence of erosion of the cover material
- for the Marie outlet control structure:
  - condition of spillways changes and embankments
- water quality monitoring.

Funds have been provided to perform remediation on the Marie tailings delta if repairs are required (erosion, damage to due frost, etc.).

#### 4.4 TMA Area – Minewater Reservoir

The Minewater Reservoir area consists of 3 properties (URA 6, EXC URA 6 and ACE 19) which covers an area of approximately 42 hectares (figure 4.1).

Minewater Reservoir was used for tailings deposition during the initial milling period (1953 – 1954) with approximately 101,000 tonnes of tailings placed in the basin [1]. The reservoir also received underground mine slimes (small particulate matter), sanitary wastes from underground and precipitates from the treatment of mine water. Upon decommissioning tailings and other wastes were relocated to the underground workings. Figure 4.12 shows a portion of the reservoir area.

There are no crown pillars or openings to underground workings identified on the properties. Although there was no recorded flow from the boreholes in the area, all identified boreholes were sealed with grout. Waste rock on the properties was limited to road construction and as noted previously the uranium concentration is low and also the potential to general acid is also considered to be low.

Gamma radiation levels for the area surrounding the Minewater Reservoir basin typically measured between 1.0 and 3.0  $\mu\text{Sv/h}$ , with a small area on the east flank of Minewater Reservoir measuring  $>3.0 \mu\text{Sv/h}$  above background. Cameco reports that the area with the highest gamma radiation readings is difficult to access and is heavily vegetated [1]. Since these areas were above those stated in the *Northern Mine Decommissioning and Reclamation Guidelines* a risk-based approach was applied to evaluate potential radiation exposure risk for this area. Site specific doses were calculated based on average dose rates and reasonable occupancy scenarios based on information from community members and reported as part of the site gamma radiation risk evaluation. The maximum estimated incremental dose for this area was 0.11 mSv per year, well below the dose limit to members of the public of 1 mSv per year [1].

**Figure 4.12: Photo of Minewater Reservoir Taken During CNSC Inspection – Looking South (August 2021)**

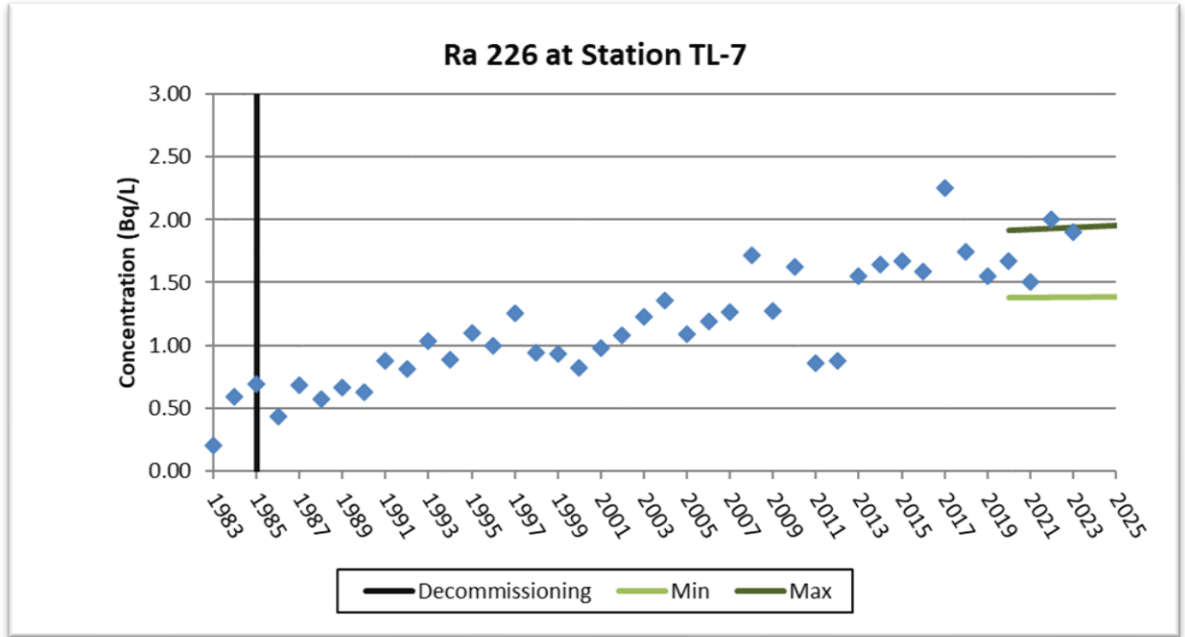


The outlet of Meadow Fen (Station TL-7) has long-term water quality predictions for radium-226, selenium and uranium. Figures 4.13 to 4.15 provide the long-term radium, uranium and selenium predictions and water quality monitoring results. As this station is located with the TMA, Cameco has not compared the results to [SEQG](#). The figures show the upper (95<sup>th</sup> percentile) and lower (5<sup>th</sup> percentile) water quality predictions and the water quality monitoring results.

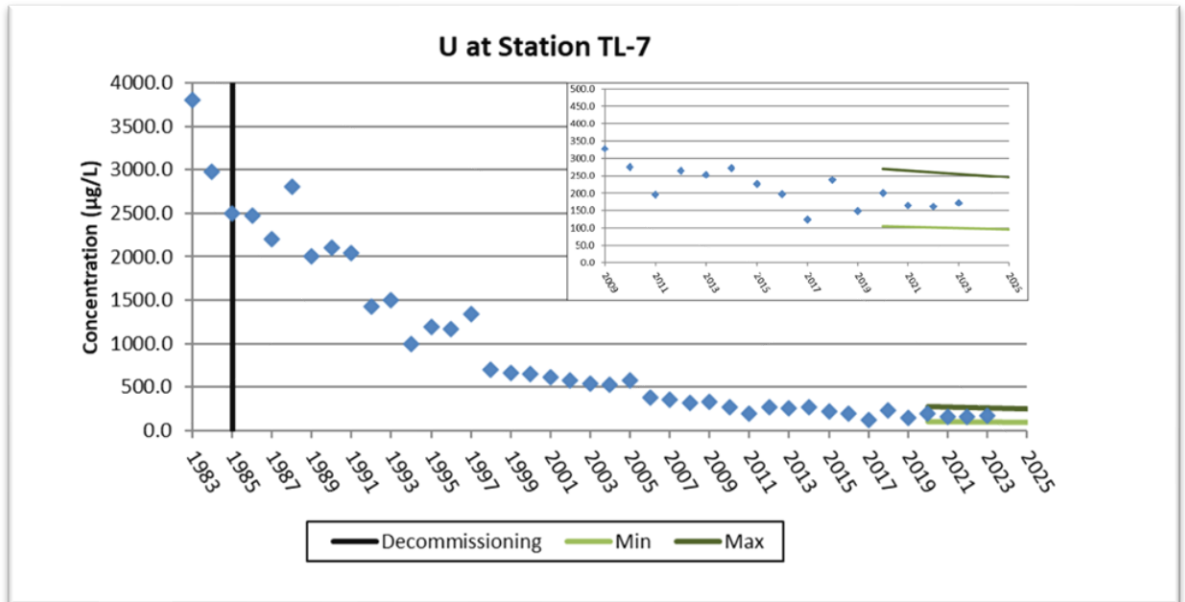
Similar, to the graphs in the rest of the TMA section, an insert has been added to the uranium and selenium graphs to show recent results in a more appropriate scale.



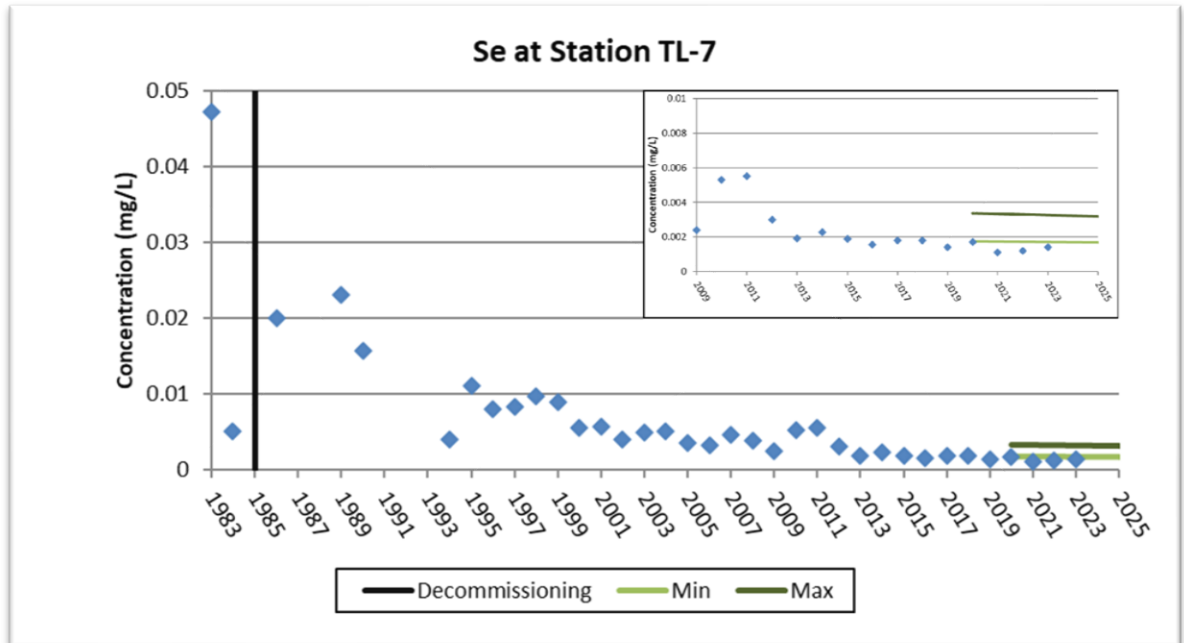
**Figure 4.13: Long-term radium-226 predictions and water quality data for the outlet of Meadow Fen (Station TL-7)**



**Figure 4.14: Long-term uranium predictions and water quality data for the outlet of Meadow Fen (Station TL-7)**



**Figure 4.15: Long-term selenium predictions and water quality data for the outlet of Meadow Fen (Station TL-7)**



Water quality measured at the outlet of Meadow Fen is within the modelled predictions and therefore, the water quality performance indicator and acceptance criteria have been met for the Minewater Reservoir properties.

The entire area is proposed for entry into the ICP, as shown on figure 4.1. ICP inspections are expected to focus on the following aspects:

- evidence of recent human visitation
- for Minewater Reservoir, monitoring includes:
  - condition of minewater outflow channel
  - evidence of erosion
- condition of vegetation
- water quality monitoring.

Funds have been provided for the potential clearing of any obstacles, such as beaver dams from the minewater outflow channel.

## 4.5 Lower Ace Creek / Mill Area

There are 2 properties remaining within the Lower Ace Creek/mill area that are proposed for release as described in the following sections. The view of the nearby Beaverlodge Lake is shown on figure 4.16.

**Figure 4.16: Beaverlodge Lake as seen from “Mill Hill” – Looking Southwest (September 2022)**



### **Property URA7**

The URA 7 property is approximately 20.9 hectares in area and includes the areas of the former mill facility and other ancillary facilities such as the sorting plant raise, the CB-1 access raise and the waste haulage adit. After the demolition/removal of structures from the mill area, the area was covered with approximately 259,100 m<sup>3</sup> of waste rock placed over the mill area with the majority of the waste rock placed on the URA 7 property [1].

URA 7 is adjacent to the property which contained the main Fay mine headframe. It is reported that underground workings and stopes around the Fay shaft area appear to be typically 25m or greater below the ground surface [1]. A geotechnical assessment was completed, and the crown pillar was considered to have a low likelihood of subsidence due to its thickness and depth of the underground workings [1]. No additional investigations were suggested. CNSC staff reviewed and accepted the geotechnical assessment conclusions.

Between 2016 to 2022 all of the mine openings were either re-secured or investigated to confirm the adequacy of mine closure. Although there was no recorded flow from the boreholes in the area all identified boreholes were sealed with grout.

During the 2014 gamma scan radiation levels for most of the property ranged from  $<0.1 \mu\text{Sv/h}$  to  $1.0 \mu\text{Sv/h}$  above background, however there is portion of the property where the survey results range from  $1.0 \mu\text{Sv/h}$  to  $3.0 \mu\text{Sv/h}$  [1]. Since that portion of the property was above those stated in the *Northern Mine Decommissioning and Reclamation Guidelines* a risk-based approach was applied to evaluate potential radiation exposure risk for this area. Site specific doses were calculated based on average dose rates and reasonable occupancy scenarios based on information from community members and reported as part of the site gamma radiation risk evaluation. The maximum estimated incremental dose for this area was  $0.23 \text{ mSv}$  per year, well below the dose limit to members of the public of  $1 \text{ mSv}$  per year [1].

Cameco removed waste rock to cover the Lower Fay Pit and also covered areas of the former mill area that had differential settling. As a result, these disturbed areas were re-scanned, and the results provided to CNSC and SMOE staff. These results were consistent with the 2014 scan results.

The Fay mine is reported to have produced a total of 3,030,000 tonnes of waste rock which covered an area of approximately 33.0 hectares, the majority of which was deposited on areas south and southwest of the mill with a portion situated on the URA 7 property. Waste rock was also used as construction material for building foundations, roads, etc. and during decommissioning as a cover material.

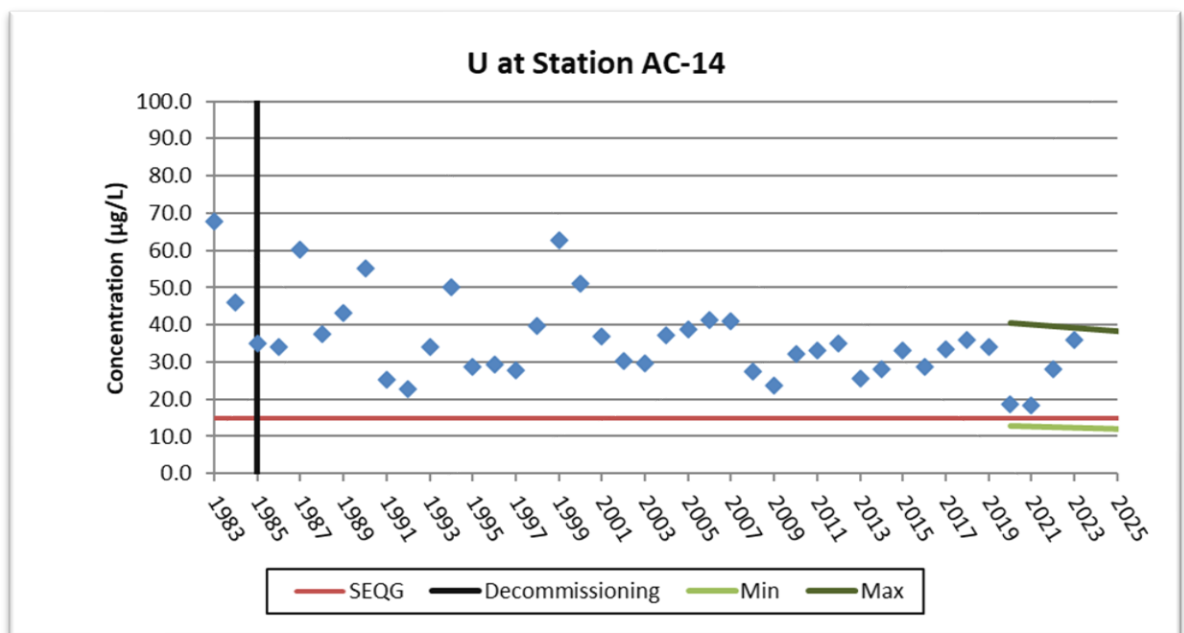
Cameco indicated that the uranium content of the waste rock reported by Eldorado in 1983 for the Fay area was 0.015%, which is below the threshold considered to be special/mineralized waste rock at the operating uranium mines in northern Saskatchewan [1]. In addition, recent waste rock sampling completed by Cameco on the Fay waste rock pile has confirmed that the waste rock has a low potential for acid generation and that a uranium content is consistent with past measurements [1]. Visual observation and monitoring on the Beaverlodge properties for over 60 years has not identified any acid rock drainage leachate from waste rock piles, nor have there been any impacts that could be attributed to such a condition.

The stability of waste rock piles at the Beaverlodge site was assessed in 2010 and is expected to remain stable [1]. CNSC staff reviewed and accepted the conclusions of the stability assessment.

Ace Lake discharges into Lower Ace Creek, which passes through the URA 7 property, and flows into Ace Bay of Beaverlodge Lake. Two seeps have been identified on the URA 7 property, originating at the base of the waste rock pile downgradient of the mill site. Water quality samples and flow measurements were collected opportunistically since 2004 to identify long-term water quality trends; however, flow from the seep is intermittent and is typically limited to freshet and major precipitation events. In 2019, Cameco received permission to remove monitoring of the water quality from the seeps from the environmental monitoring program. Monitoring the condition of these seeps is included in the proposed inspection monitoring activities for this property.

Water quality predictions apply to this property and there are long-term water quality predictions for radium-226, selenium and uranium for the outlet of Lower Ace Creek (Station AC-14), (figure 4.2). Figure 4.17 provides the long-term uranium predictions and water quality monitoring results. As selenium and radium-226 concentrations are currently below the *Saskatchewan Environmental Quality Guidelines* (SEQG) for freshwater aquatic life [6] and are predicted to remain so in the long term, a graph of the selenium and radium-226 predictions has not been included in this CMD. Figure 4.17 shows the upper (95<sup>th</sup> percentile) and lower (5<sup>th</sup> percentile) water quality prediction, water quality monitoring results and SEQG for uranium.

**Figure 4.17: Long-term uranium predictions and water quality data for the outlet Lower Ace Creek (Station AC-14)**



The entire property is proposed for entry into the ICP, as shown on figure 4.1. ICP inspections are expected to focus on the following aspects:

- evidence of recent human visitation
- condition of waste rock
- condition of Seeps 2 and 3
- condition of sealed openings to underground workings
- water quality monitoring at Station AC-14.

There are no structures requiring maintenance on the property.

## Property URA 1

The URA 1 property is approximately 17.5 hectares in area and includes the area of the former mill annex building, oxygen plant, Lower Fay Pit and waste rock disposal area. After the demolition/removal of structures approximately 259,100 m<sup>3</sup> of waste rock was placed over the mill area and a minority placed on the URA 1 property [1].

There are no mine openings to the surface, however a section of the Fay underground mine extends under the property. It is reported that underground workings and stopes around the Fay shaft area appear to be typically 25m or greater below the ground surface [1] A geotechnical assessment was completed, and the crown pillar was considered to have a low likelihood of subsidence due to its thickness and depth of the underground workings. No additional investigations were suggested. CNSC staff reviewed and accepted the geotechnical assessment conclusions. All boreholes accessible on the surface were sealed with grout.

A portion of the 3,030,000 tonnes of waste rock produced by the Fay mine is situated on the URA 1 property. Waste rock was also used as construction material for building foundations, roads, etc. and during decommissioning as a cover material.

Cameco indicated that the uranium content of the waste rock reported by Eldorado in 1983 for the Fay area was 0.015%, which is below the threshold considered to be special/mineralized waste rock at the operating uranium mines in northern Saskatchewan (0.03%) [1]. In addition, recent waste rock sampling completed by Cameco on the Fay Waste Rock pile has confirmed that the site waste rock has a low potential for acid generation and that the uranium content of the waste rock sampled is less also lower than 0.03% [1]. Visual observation and monitoring on the Beaverlodge properties for over 60 years has not identified any acid rock drainage leachate from waste rock piles, nor have there been any impacts that could be attributed to such a condition.

The stability of waste rock piles at the Beaverlodge site was assessed in 2010 and is expected to remain stable [1]. CNSC staff reviewed and accepted the conclusions of the stability assessment.

During the 2014 gamma scan, radiation levels for most of the property ranged from <0.1 µSv/h to 1.0 µSv/h above background, which meets the guidance within the *Northern Mine Decommissioning and Reclamation Guidelines*.

The property also included the former Fay Open Pit which has been used as a central depository for debris/waste collected during cleaned activities at other Beaverlodge properties. The compaction and covering of the waste with waste rock within the pit was completed in 2023 and therefore the area was re-scanned in July 2024. The results were consistent with the 2014 gamma scan results. Due to the backfilling of the pit with debris the pit walls are approximately 5 m high and were considered to pose no greater risk than the natural landforms found in the area [1].

Similar to property URA 7, there is a seep on the property which flows into lower Ace Creek. Monitoring the condition of this seep is included in the proposed inspection monitoring activities for this property.

Water quality predictions apply to this property and there are long-term water quality predictions for radium-226, selenium and uranium for the outlet of Lower Ace Creek (Station AC-14), (figure 4.2). Figure 4.17 provides the long-term uranium predictions and water quality monitoring results for this station. Further information can be found in the Property URA 7 section.

The entire property is proposed for entry into the ICP, as shown on figure 4.1. ICP inspections are expected to focus on the following aspects:

- evidence of recent human visitation
- condition of waste rock
- condition of Lower Fay Pit cover and noting if seepage occurs
- condition of Seep 1
- evidence of flow from formerly flowing boreholes
- water quality monitoring.

There are no structures requiring maintenance on the property.

## 4.6 Long-Term Monitoring Program

As Cameco has applied for the release of the remaining properties under the CNSC licence, and licence revocation, they provided a long-term monitoring program in November 2023 [2]. This program was reviewed by CNSC staff and received technical acceptance in January 2024 under the understanding that Cameco may propose additional revisions to the program based on feedback from outreach sessions and engagement with Indigenous Nations and communities. SMOE and SMER also conducted reviews of this document and accepted it. Any revisions made after this review are expected to result in increases/additions to the monitoring such as the number of stations or sampling frequency. Further discussion on outreach and engagement activities are provided in section 6. Table 4.2 outlines the monitoring program that has been established by Cameco, following public engagement activities. The station locations are shown on figure 2.2.

**Table 4.2: Long-term monitoring program**

Location	Frequency	Comments
<b>Surface Water</b>		
Ace Creek Watershed (AN-5, DB-6, AC-6A, AC-14)	Every 3 years initially	Opportunity to decrease frequency to once every 5 years, after 15 years of data
Fulton Creek Watershed (TL-3, TL-4, TL-7, TL-9)	Every 3 years initially	Propose that monitoring of TL-3, TL-4 and TL-7 be discontinued after 15 years of monitoring if recovery is occurring as predicted.
Beaverlodge Lake and downstream environment (BL-5, ML-1, CS-1, CS-2)	Every 3 years initially	Opportunity to decrease frequency to once every 5 years, after 10 years of data
<b>Fish Chemistry</b>		
Beaverlodge, Martin and Cinch lakes	Every 10 years	Discontinue after healthy fish consumption guideline removed on the applicable waterbody

The purpose of the program is not only to confirm that water quality continues to follow the long-term predictions for each station, but also to monitor fish chemistry in order to support the eventual removal of the Healthy Fish Consumption Guideline which currently limits fish consumption in Beaverlodge, Martin and Cinch lakes [3]. To aid in the development of the monitoring program and in follow up to engagement activities held in the summer of 2023, Cameco conducted a fish chemistry survey in the fall of 2023. The survey was completed based on guidance provided by the Saskatchewan Health Authority and the results were provided to the Saskatchewan Health Authority. The Saskatchewan Health Authority presented the results to the representatives of Indigenous Nations and Uranium City residents in May 2024. The results confirmed that the guideline should remain in place.

Currently the province limits consumption in these waterbodies to 5 servings a month on a regular basis if you are consuming either jackfish (northern pike) or lake trout, or 2 servings a month if you are consuming either lake whitefish or white sucker. Signs showing the advisory are in place and an example posting is shown in figure 4.18.

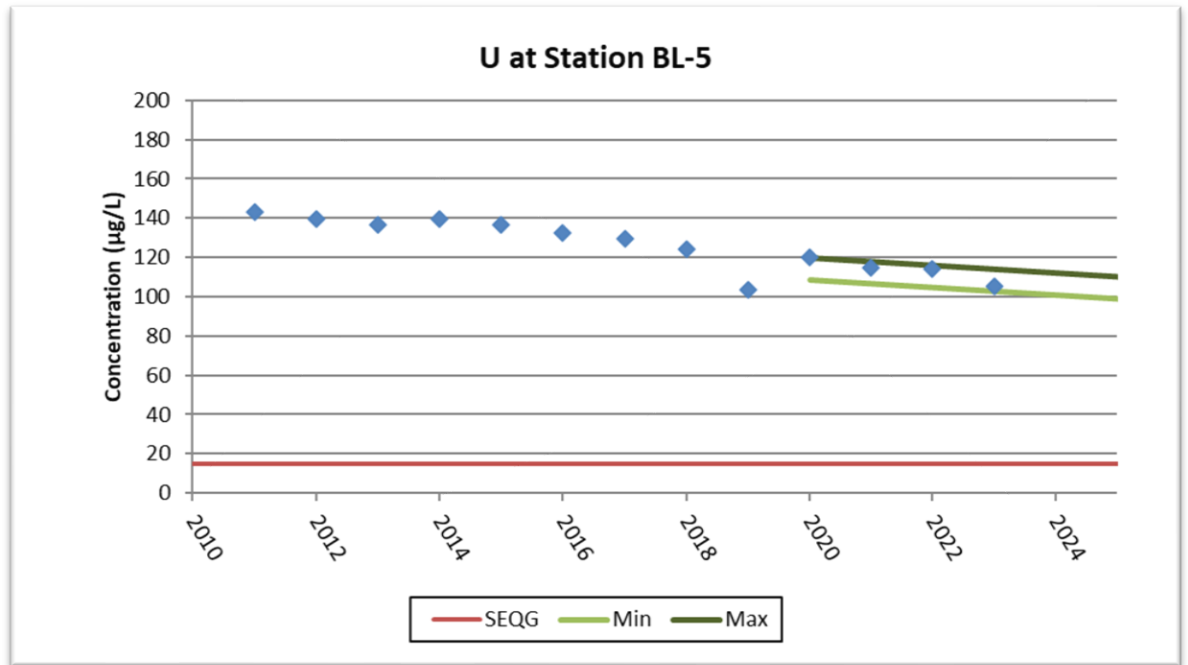


**Figure 4.18: Healthy Fish Consumption Guideline Sign on Beaverlodge Lake (SMOE 2022)**



The provincial guideline also prohibits fish consumption from the TMA waterbodies and this restriction is expected to remain in effect in the long term and therefore no fish sampling is proposed for these waterbodies.

There are long-term water quality predictions for radium-226, selenium and uranium for Beaverlodge Lake (Station BL-5), (figure 4.2). Figure 4.19 provides the long-term uranium predictions and water quality monitoring results. As selenium and radium-226 concentrations at this station are currently below the *Saskatchewan Environmental Quality Guidelines* (SEQG) for freshwater aquatic life [6] and are predicted to remain so in the long term, a graph of the selenium and radium-226 predictions has not been included in this CMD. Figure 4.19 shows the upper (95<sup>th</sup> percentile) and lower (5<sup>th</sup> percentile) water quality prediction, water quality monitoring results and SEQG for uranium. Water quality sampling will be used to monitor the natural recovery of the water body over time.

**Figure 4.19: Long-term uranium predictions for Beaverlodge Lake (Station BL-5)**

In addition to the long-term monitoring program, Cameco prepared the [Beaverlodge Institutional Control Inspection Field Guide](#) at the request of the province [7]. The field guide provides a comprehensive description of the relevant areas and a summary of the key aspects of the decommissioned Beaverlodge properties that will require future inspection as part of the Institutional Control (IC) monitoring program. Although this was a provincial requirement, CNSC staff reviewed the field guide and have accepted the document.

As noted in section 6, Cameco is providing funds for SMER to conduct engagement should these remaining properties be released from licensing and transferred to the ICP. CNSC staff recommend that SMER develop an engagement plan to ensure that interested Indigenous Nations and Uranium City residents are kept informed on inspection and monitoring activities and results and have the opportunity to provide input/comment. In addition, CNSC staff have been informed by Ya'thi Néné Lands and Resource Office (YNLR) personnel that their active participation in the long-term monitoring program would be the most effective way for their people to have trust in the effectiveness of the monitoring. CNSC staff have had very positive experiences when including YNLR Community Land Technicians in IEMP sampling campaigns and encourage SMER to consider how Indigenous Nations and Uranium City residents can be involved in the monitoring.

## 5. General Assessment of SCAs

CNSC staff review and assess an applicant's proposed measures and controls, and if applicable, a licensee's past performance in each SCA. A discussion of all the SCA's listed within the CNSC issued licence and the ratings for these SCAs through the previous licence term (2013-2023) was included in the licence renewal CMD which was issued for public review in November 2022. As noted previously, the Beaverlodge Project is a decommissioned site and thus not all SCA's are applicable. Only those SCAs included in the Waste Facility Operating Licence were discussed.

The SCA ratings for each SCA were satisfactory. Rating level categories for the SCAs are provided in appendix A.

The licensee's performance during the current licence term (June 1, 2023, to May 31, 2025) remains satisfactory to date and as this request is not a licence renewal, a breakdown by SCA, with the exception of environmental protection, has not been included in this CMD.

### 5.1 Environmental Protection

The environmental protection SCA covers programs that identify, control and monitor all releases of radioactive and hazardous substances and effects on the environment from facilities or as the result of licensed activities. Cameco maintains an environmental protection program; however, this program was not evaluated as part of the CNSC staff assessment of this licence revocation request. This is because this request is specifically related to whether the established performance indicators and regulator acceptance criteria established have been met. The performance indicators associated with this SCA are as follows: water quality within modelled predictions; boreholes plugged; and site free from debris. These performance indicators are discussed in section 2.

There were no events related to this SCA during the current licence term and licensee performance was satisfactory.

Cameco submits annual reports as required by their licence, which compare water quality with modelled predictions. Under REGDOC 2.9.1, *Environmental Principles, Assessment and Protection Measures* [8] and CSA N288.6-12, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills* [9], Cameco is also required to have an acceptable Environmental Risk Assessment (ERA) in place, which is reviewed or updated on a 5-year basis, at a minimum as long as the CNSC licence is in force. The most recent ERA submission was submitted in September 2020 [10]. An ERA of nuclear facilities is a systematic process used by licensees to identify, quantify, and characterize the risk posed by contaminants and physical stressors in the environment on human and other biological receptors, including the magnitude and extent of the potential effects associated with a facility or site. ERAs include an ecological risk assessment and a human health risk assessment (HHRA) for radiological and hazardous contaminants and physical stressors. The HHRA evaluated a set of receptors (adult, child, and toddler) at each of Verna Lake, Ace Lake,

Beaverlodge Lake, Martin Lake north basin, Martin Lake south basin, and Crackingstone River. The assessment found that exposure to radiological constituents results in a small incremental dose, well below the public dose limit and consistent with the ALARA principle. Exposure to radioactivity is expected to pose a negligible risk to human health at any of the evaluated locations. Similarly for the non-radiological contaminants of potential concern (i.e., uranium and selenium), all intake values were below the applicable toxicity threshold for all evaluated human receptors. The HHRA concluded that living a traditional lifestyle and consuming country foods from the area, while respecting the water and fish advisories, can continue to be done safely.

As part of the ecological risk assessment, the ERA also included an assessment of potential ecological effects on non-human biota which considered the predicted water and sediment quality throughout the immediate and downstream areas. These results indicate that aquatic and terrestrial receptors in the Beaverlodge area are not expected to be influenced by exposure to radionuclides at current or predicted future concentrations, except for the potential for some effects to biota that use the Fulton Creek system. However, these are limited and there are no effects expected in the downstream environment. For the assessment of non-radiological contaminants of potential concern (i.e. uranium and selenium), there remains a low level of risk in some areas due to exceedances of benchmarks for aquatic and terrestrial biota, however based on model predictions, concentrations of non-radionuclides in water and sediment are expected to continue to decrease over time with few exceedances of benchmarks for biota by 2150. A recent update to further validate the modelling using additional fish tissue data collected in 2023 indicates that selenium concentrations are predicted to decrease below benchmarks in all areas by 2100. Despite selenium fish tissue concentration benchmark exceedances, measured selenium concentrations in water quality remain below SEQG and/or modelled water quality predictions at all stations, and consumption of country foods remains safe when respecting the water and fish consumption advisory.

CNSC staff have concluded that the ERA was conducted in accordance with CSA standard N288.6. A [summary](#) of the 2020 ERA is provided on Cameco's [Beaverlodge website](#).

CNSC staff conducted sampling in the vicinity of the site in 2023 as part of the Independent Environmental Monitoring Program (IEMP). Other independent monitoring was also conducted, in addition to the IEMP and these are also briefly described in the next sections.

### 5.1.1 CNSC's Independent Environmental Monitoring Program

To complement ongoing compliance activities, the CNSC implements an IEMP to independently verify that the public and the environment around licensed nuclear facilities are protected. The IEMP involves taking samples from public areas around the facilities and measuring and analyzing the amount of nuclear and hazardous substances in those samples.

In 2023, CNSC staff and a qualified contractor conducted independent environmental monitoring around the Beaverlodge closed mine site. CNSC staff worked with the YNLR in designing the sampling plan and collecting the samples. The sampling plan was unusual in that it included the taking of samples in waterbodies known to be impacted by past operations at the Beaverlodge site. The results and a detailed analysis of the results are available on the CNSC [IEMP website](#). The IEMP's results are consistent with sampling results submitted by Cameco. With the exception of select water and fish samples, country foods (berries, Labrador tea, moose, and spruce grouse) are within the natural background range for the region. The water and fish samples are consistent with past sample results, notably there is elevated uranium in Martin Lake and also elevated selenium in fish within the lake. The results support CNSC's staff assessment that Cameco's environmental protection program meets requirements, and the characteristics of the environment in the Beaverlodge area are well-known and understood. IEMP results agree with the conclusions of the provincial Healthy Fish Consumption Guideline, which is that fish may be consumed from Martin Lake in moderation and water should not be consumed.

The IEMP results add to the body of evidence that the environment in the vicinity of the Beaverlodge mine site is protected and that there are no anticipated health impacts from the site, provided the provincial guidelines are followed regarding fish and water consumption.

### 5.1.2 Other Independent Monitoring Programs

Cameco and Orano signed the Ya'thi Néné Collaboration Agreement with the Athabasca communities in 2016. The agreement established the Athabasca Joint Engagement and Environment Sub-committee (AJES). AJES decided in 2018 to create the Community Based Environmental Monitoring Program (CBEMP). Prior to this there was an Athabasca Working Group environmental monitoring program that ran from 2000 to 2017.

The program established a traditional food study specific to each community represented by the AJES. The program trains community members to interview other community members and receive feedback on traditional foods being consumed, what locations are important, and what traditional foods should be sampled as part of the program. Samples are then collected, analyzed, and results reported back to the communities and leadership.

The 2021 CBEMP took place in Uranium City and Camsell Portage with a traditional food study. The program was completed by YNLR and CanNorth. A [summary](#) of the CBEMP findings [11] are on Cameco's Beaverlodge web page. According to the summary, chemicals in traditional food were generally low and within the normal range for the region. The risk assessment demonstrated that there are negligible risks from eating traditional foods.

Finalized in 2023, the CBEMP report also found that traditional foods and water sampled from locations selected by local residents were safe for consumption. The report also included several recommendations, namely avoiding the use of lead shot, that community members follow the Healthy Fish Consumption Guideline for Beaverlodge, Martin and Cinch Lakes, and that community members should not consume fish or drink water from Nero, Marie, Meadow, Minewater, and Greer lakes and from lower Ace Creek between Ace and Beaverlodge lakes.

In addition to the CBEMP, there is the [Eastern Athabasca Regional Monitoring Program](#) (EARMP). EARMP is designed to complement licensee and other monitoring programs and allow for a more comprehensive evaluation of potential cumulative effects from industry in northern Saskatchewan. The EARMP framework includes 2 sub-programs: a community program and a technical program. These reports are available to the public on the EARMP website. To date, the EARMP has concluded that traditional foods continue to be safe and are a healthy dietary choice for residents of the Athabasca Basin.

## 6. Indigenous and Public Consultation and Engagement

### 6.1 CNSC Indigenous Consultation and Engagement

The common-law duty to consult with Indigenous Nations and communities applies when the Crown contemplates actions that may adversely affect potential or established Indigenous and/or treaty rights. The CNSC ensures that all of its licence decisions under the [NSCA](#) uphold the honour of the Crown and consider Indigenous peoples' potential or established Indigenous and/or treaty rights pursuant to section 35 of the [Constitution Act, 1982](#).

CNSC staff are committed to building long-term relationships with Indigenous Nations and communities who have an interest in CNSC-regulated facilities within their traditional and/or treaty territories. The CNSC's Indigenous engagement practices include sharing information, discussing topics of interest, seeking feedback and input on CNSC processes, and providing opportunities to participate in environmental monitoring and sharing of Indigenous knowledge. The CNSC also provides funding and capacity support (through the CNSC's Participant Funding Program and CNSC's Indigenous and Stakeholder Capacity Fund) for Indigenous peoples to meaningfully participate in Commission proceedings and ongoing regulatory activities to ensure their voices are being heard and included in the regulatory process.

### 6.1.1 Discussion

CNSC staff have identified the following Indigenous Nations, communities and organizations which may have rights and an interest in relation to the proposed licence revocation:

- Ya'thi Néné Land and Resource Office (YNLR - representing Black Lake, Hatchet Lake, and Fond du Lac Denesų́liné First Nations as well as the municipalities of Stony Rapids, Uranium City, Wollaston Lake, and Camsell Portage)
- Athabasca Chipewyan First Nation (ACFN)
- Métis Nation Saskatchewan (MN-S - Northern Region 1: Métis Local #50 – Uranium City & Métis Local #80 – Stony Rapids)

In addition, the [Northern Saskatchewan Environmental Quality Committee](#) (NSEQC) was identified as potentially having an interest in this licence revocation. The NSEQC has representatives from the majority of the northern municipal and First Nations communities located in the Northern Saskatchewan Administration District.

These Indigenous Nations and communities, groups and organizations were identified because they all have previously expressed interest in CNSC-licensed activities occurring in their treaty lands and/or asserted traditional territories in relation to uranium mines and mills, including the Beaverlodge Project, in northern Saskatchewan.

#### **Previous and Ongoing Engagement in Relation to the Beaverlodge Properties**

CNSC staff have been engaging with all of the identified Indigenous Nations, communities and organizations concerning the Beaverlodge properties and the Government of Saskatchewan's ICP for a number of years, including in 2019 when the first set of properties were proposed for release from CNSC licensing after the establishment of the performance objectives and criteria accepted by the Commission. CNSC staff have continued to provide opportunities for interested Indigenous Nations and communities to meet and discuss their concerns regarding the Beaverlodge properties including the 2020 and 2023 uranium mines and mills regulatory oversight report that discusses all historic and decommissioned uranium mines and mills across Canada. This engagement included events both in lead-up and follow-up to the Commission's decision to release Beaverlodge properties from licensing (2019, 2022) and for the 2-year licence renewal (2023). In addition, the CNSC signed a Terms of Reference for long-term engagement with YNLR (2022) and ACFN (2024).

The CNSC participates in outreach and engagement sessions in the Northern Settlement of Uranium City each year. Information sessions organized by Cameco have been conducted annually in Uranium City in recent years and generally representatives from Indigenous Nations, including YNLR, ACFN and MN-S, and communities are invited to these information sessions. Because of travel restrictions resulting from the COVID-19 pandemic, site tours organized by Cameco for 2020 and 2021 were conducted virtually. With the easing of provincial COVID-19 related restrictions, in-person site tours and meetings resumed in 2022. Due to capacity limits associated with large groups in Uranium City, Cameco organized and conducted 2 separate site tours. The first tour occurred on June 8, 2022, and included invitees from the Métis Nation-Saskatchewan (MN-S), NSEQC and ACFN as well as residents from Uranium City. The tour focused on the 27 remaining Beaverlodge properties as well as discussions on the proposed licence renewal and final request for the release of the remaining properties from CNSC licensing. Cameco also handed out a [Beaverlodge fact sheet](#) which provides information on the Beaverlodge Project, including the performance indicators established and information on the remaining 27 licensed properties. Representatives from the MN-S, NSEQC and community members from the Fond Du Lac Denesúliné First Nation were in attendance. CNSC staff were in attendance at all sessions and responded to the questions and concerns raised by participants related to the CNSC's mandate and regulatory role.

On September 13, 2022, a second site tour was provided to representatives from the AJES which is a joint committee of community and industry representatives that meets regularly to discuss operational and environment-related matters of importance to the Athabasca communities and provides a channel for the communities to share traditional knowledge with the companies. Representatives from the YNLR were also in attendance, as well as CNSC staff and representatives from SMOE and SMER.

### **Consultation and Engagement in Relation to the Current Licence Application for the Beaverlodge Properties**

CNSC staff have established a Terms of Reference (ToR) for long-term engagement with both YNLR and ACFN. The intent of each ToR is to work together to identify areas of interest and address issues and concerns related to the CNSC-regulated nuclear facilities and activities in the Indigenous Nation's traditional territory through on-going respectful and open dialogue. This includes a workplan that is developed between CNSC and the Indigenous Nation to identify key areas of interest. The workplan is used to guide regular scheduled meetings between the CNSC and the Indigenous Nation. The Beaverlodge Project is one of the topics for ongoing discussions included in both YNLR's and ACFN's ToR workplans. CNSC staff regularly meet with MN-S and where relevant discuss Beaverlodge. CNSC staff are open to developing long-term relationships with other interested Indigenous Nations moving forward.



In relation to Cameco's current proposed request, CNSC staff informed Indigenous Nations and communities in advance of the current application being received. These communications included regular emails and meetings in 2023 and 2024. CNSC staff sent out letters of notification on February 27, 2024, to all identified Nations, communities and organizations providing information regarding the proposed release of properties and licence revocation application from Cameco, the availability of participant funding and details on how to participate in the Commission's public hearing.

Follow-up communications were conducted to ensure receipt of the letters and to answer any questions. CNSC staff conducted follow-up correspondence by email and in person with the identified Indigenous Nations, communities and organizations offering to organize meetings and to be available to answer any questions they may have with respect to the Beaverlodge site. This is in addition to the ongoing dialogue between CNSC staff and each of the identified Indigenous Nations, communities and organizations.

In addition, CNSC staff participated in Cameco's Beaverlodge site visits, workshops and community meetings in relation to Cameco's current licence application. The community visits and meetings often involved CNSC staff presenting information on our evaluation of Cameco's submissions, the hearing process, and how to participate in the Commission hearing process. CNSC staff also listened to any concerns and comments from the Indigenous Nations, community members and organizations present and responded to questions posed to staff.

In June 2023, Cameco organized a Decommissioned Beaverlodge Properties Workshop, where feedback was sought on long-term monitoring for the site and downstream environment. The intent of the workshop was to listen to any feedback provided by Indigenous Nations, communities and organizations and use this to develop the long-term monitoring program. Representatives from Indigenous Nations/organizations included: AJES; YNLR; and Fond du Lac Denesuliné First Nation. A representative from the NSEQC was also in attendance. CNSC staff participated in the workshop, engaged with attendees and noted comments/questions posed by the attendees. Cameco also met with ACFN and MN-S representatives after the workshop to receive their feedback. Cameco made revisions to the monitoring program based on input received at the workshop and from meetings held after the workshop. The revisions included increased water sampling in the first 15 years of monitoring and more frequent fish collection and analysis.

In 2023, two separate community outreach sessions were held on September 11 and 12. Attendance included Uranium City residents and NSEQC representatives as well as representatives from the following Indigenous Nations/organizations: MN-S - Local # 50 President; Athabasca Joint Environmental and Engagement Subcommittee; YNLR; Fond du Lac Denesuliné First Nation; and Athabasca Chipewyan First Nation/Dene Lands and Resource Management. CNSC staff and representatives from SMOE and SMER were in attendance.

Outreach sessions were also conducted on May 27 and 28, 2024 in Uranium City and the same Indigenous Nations and groups that attended the meetings in 2023 were in attendance. These outreach sessions focussed on the release of the remaining properties and long-term monitoring of the site should it be transferred to the Saskatchewan's ICP for long-term management and oversight. The sessions included a brief site tour, focussed on the Fookes Tailings Management Area. CNSC staff presented information on the proposed request, and the opportunities available to participate in the hearing, including the Participant Funding Program, and answered questions.

### **Issues, Concerns and Comments Raised**

CNSC staff heard from YNLR and some Uranium City residents that due to the Healthy Fish Consumption Guideline, which restricts both fish consumption and prohibits water consumption on select waterbodies including Beaverlodge Lake and Martin Lake, the Beaverlodge site/area should not be considered safe. It was also indicated that properties shouldn't be released from CNSC licensing and transferred to the ICP without additional consultation and remediation being done to ensure the waterbodies in the region are not under an advisory. In response to these concerns, CNSC staff agree that there are historic impacts associated with the operation of the Beaverlodge Project, particularly before the introduction of water treatment and modern environmental regulations at the operation. It is also recognized that the natural recovery of waterbodies will take on the order of 100 years, however it is anticipated that this recovery will occur over time and are confident that the Beaverlodge properties have been effectively remediated and that they will remain stable over the long term under Saskatchewan's ICP. CNSC staff acknowledge YNLR's concerns regarding the use of the word 'safe' in particular, and in this CMD have worked to ensure that the word 'safe' is used in focused ways that do not give an unbalanced impression of the site. 'Safe' is one of the performance objectives for the site, but this performance objective is only in relation to the land and is not intended to cover any waterbodies.

In addition, CNSC staff have heard a number of concerns with regards to the current and long-term safety of the Beaverlodge properties and how it may impact traditional activities. CNSC staff are committed to continuing to engage with Indigenous Nations and communities with regards to the Uranium City area and work to address their concerns, as there will continue to be other CNSC regulated sites in the Uranium City area for the foreseeable future. A number of Indigenous Nations and communities expressed that they would like to participate in the design and operation of the long-term monitoring of the site and that the monitoring should include and be reflective of local Indigenous knowledge and traditional land use activities.

Another concern raised was whether the ICP will be adequate in terms of sufficient regulatory oversight, engagement, and/or transparency to ensure community members and Indigenous Nations are kept informed of results from the inspections and can participate when desired.

CNSC staff indicated that from CNSC staff's analysis and perspective that the performance indicators and regulatory acceptance criteria accepted by the Commission have been met and that the properties pose no unreasonable risk to persons or the environment and the properties will continue to be monitored over the long-term under the Saskatchewan's ICP.

CNSC staff have and will continue to encourage the Government of Saskatchewan to continue to work with the identified Indigenous Nations and communities to include them in long-term monitoring activities as part of the ICP and continue with engagement activities to ensure that communities can build trust in the safety of the site for traditional activities and practices over the long-term. CNSC staff have communicated the importance of regular engagement with Indigenous Nations and the public on inspections and activities conducted on sites in the ICP with SMER staff. CNSC staff also made this recommendation as part of SMER's 5-year review of the ICP legislation, where SMER sought feedback from Indigenous Nations and communities on the program. Cameco has proposed funding for on-going engagement and communication with Indigenous Nations and Uranium City residents by the Province, should the transfer to the ICP occur. CNSC staff will also continue to be involved in regulatory oversight of other sites in the Uranium City area for the immediate term, including the Gunnar remediation project, and will be available to answer questions and concerns regarding health and safety as appropriate.

CNSC staff have actively listened to, tracked and responded to all concerns raised to date with regards to Cameco's licence revocation request for the Beaverlodge properties and have not identified any significant outstanding concerns, including those related to potential new impacts to the exercise of Indigenous or treaty rights as it relates to releasing the regulatory oversight of the Beaverlodge properties to the ICP. CNSC staff have also encouraged and ensured that Cameco has engaged Indigenous Nations and communities and Uranium City residents with regards to the development of the long-term monitoring program, and staff confirmed that feedback and perspectives from the Nations and residents have been reflected in the program.

In addition, all the identified Indigenous Nations and communities have been encouraged by CNSC staff to participate in the regulatory review process and in the public hearing to advise the Commission directly of any concerns they may have in relation to this application.

In April of 2024, a Uranium City resident and land user expressed concerns to the CNSC regarding dark discolouration of some areas, including some welds, on one of the shaft caps at the Beaverlodge site. YNLR representatives provided photographs of the shaft cap to assist in an assessment. The shaft cap in question is in an area which is already in the ICP, and as such there is no longer a CNSC licence in place. Nonetheless, given that long term performance of the shaft caps is a key justification for releasing sites from CNSC licensing, CNSC staff followed up on these concerns both internally and with Cameco. Cameco performed an on-site preliminary evaluation of the cap and determined that the discolouration was surface dirt and was not indicative of premature aging of the

cap. A more in-depth evaluation was performed by the engineer who designed the caps and oversaw the installation to confirm that this was the case. Cameco met with the YNLR representative to ensure that their concerns were addressed. This is an example of how CNSC staff can continue to be available to answer questions and concerns by Uranium City residents as part of our continued oversight of other licensed sites in the area.

CNSC staff are committed to ongoing engagement and collaboration with Indigenous Nations and communities to gather information about land use activities, Indigenous knowledge and perspectives and address the concerns raised. This ongoing engagement and collaboration are not tied to a specific licensee or proposed project and is expected to continue into the foreseeable future, through initiatives such as long-term engagement TORs. An example of this ongoing effort includes seeking participation of Indigenous Nations in planning, undertaking and reporting on the CNSC's IEMP sampling conducted in 2023, as described in section 5.1.1. CNSC staff have and will continue to provide opportunities for meaningful long-term relationships with an aim of building trust with interested Indigenous Nations and communities to address existing fears with regards to any CNSC regulated sites and activities within their territories.

### **Licensee Engagement Activities**

CNSC's REGDOC-3.2.2, *Indigenous Engagement* [12] sets out requirements and guidance for licensees whose proposed projects may raise the Crown's duty to consult. While the CNSC cannot delegate its obligation, it can delegate procedural aspects of the consultation process to licensees, where appropriate. The information collected and measures proposed by licensees to avoid, mitigate or offset adverse impacts may be used by the CNSC in meeting its consultation obligations.

Cameco prepared an Indigenous Engagement Report as per REGDOC-3.2.2, which includes a list of Indigenous Nations and communities identified for engagement, a summary of Indigenous engagement activities conducted to date, and a description of planned Indigenous engagement activities in relation to their current licence revocation request. Progress against this plan has been and continues to be monitored by CNSC staff through scheduled meetings and information updates from Cameco and discussions and updates with identified Indigenous Nations and communities. As Cameco is including a copy of the report as part of their CMD submission, a copy has not been included in this CMD to reduce duplication.

Cameco also provided access to the documents prepared in support of the current licence revocation request, most notably their closure report submission [1] and the long-term monitoring program [2] and conducted site visits and community meetings and a workshop specific to the long term monitoring program to explain what is proposed and seek input.

CNSC staff expect Cameco to continue to keep interested Indigenous Nations and communities informed of activities associated with the Beaverlodge Project until a Commission decision is rendered.

### 6.1.2 Conclusion

The CNSC has notified, consulted and engaged all identified Indigenous Nations and communities in relation to Cameco's licence revocation request, responded to all issues and concerns raised to date and worked collaboratively to find solutions to address the concerns raised. In addition, CNSC staff have encouraged the identified Indigenous Nations and communities to participate in the regulatory review process including the Commission's public hearing, so that they can advise the Commission directly of any concerns they may have in relation to this request raised.

In addition, CNSC staff have ensured that Cameco has conducted meaningful engagement with the identified Indigenous Nations and communities and followed REGDOC 3.2.2, *Indigenous Engagement* and staff are satisfied with Cameco's engagement and compliance with REGDOC-3.2.2. Based on the information received and reviewed to date, CNSC staff concluded that this licence revocation will not cause any new adverse impacts to any potential or established Indigenous and/or treaty rights.

CNSC staff encourage the Government of Saskatchewan to continue to engage with the identified Indigenous Nations and communities with regards to their ICP program. This could include collaborating on future monitoring activities and incorporating Indigenous knowledge and local land use considerations where possible, as part of its ICP oversight of the site.

## 6.2 CNSC Public Engagement

The [NSCA](#) mandates the CNSC to disseminate objective scientific, technical and regulatory information to the public concerning its activities and the activities it regulates. CNSC staff fulfill this mandate in a variety of ways, including hosting in-person and virtual information sessions and through annual regulatory reports. In the case of Beaverlodge, engagement is also often conducted in collaboration with the province, specifically SMOE, SMER and the Saskatchewan Health Authority as they each have key oversight roles and provide interested parties with information relevant to their roles.

### 6.2.1 Discussion

As per its standard notification process for Commission proceedings, CNSC staff informed the public via the CNSC's website, email subscription list and social media channels of the public Commission hearing and availability of participant funding.

CNSC participation in outreach sessions and information sharing engagements in the Northern Settlement of Uranium City are described in Section 6.1.

These outreach activities are in addition to CNSC staff's regular outreach activities, including presentations at NSEQC meetings. CNSC staff presented information on the proposed licence revocation at the November 14 and 15, 2023, February 27 and 28, 2024 and June 4 and 5, 2024 NSEQC meetings. CNSC staff also hold an annual outreach session in the fall of each year, which includes information on the Beaverlodge site and most recently Cameco's request for the release of the remaining properties. Approximately 30 people are normally in attendance at the outreach session.

Activities associated with the Beaverlodge Project and performance are also included in CNSC staff's [Regulatory Oversight Report](#) (ROR)s on a 3 year rotation. The 2023 ROR will be presented at a Commission meeting in January 2025 and this document will include information from 2020 to 2023. An outreach session to provide information to Indigenous Nations and community representatives on the content of the 2023 ROR is scheduled for September 2024. Should the Commission revoke the current CNSC issued licence, the 2023 ROR will be the final one for the Beaverlodge Project.

### 6.2.2 Conclusion

CNSC staff continue to inform the public of regulatory activities through regular updates to the [website](#), publicly webcast Commission proceedings, social media, virtual meetings and in person discussions with key audiences in northern Saskatchewan.

CNSC staff encourage the public to participate in the Commission hearing. The CNSC offered assistance to interested members of the public, Indigenous Nations and communities, and other stakeholders, through the CNSC's [Participant Funding Program](#) (PFP), to prepare for and participate in the Commission's public hearing.

Engagement associated with the Beaverlodge Project has been often and regular, particularly due to the recent licensing actions associated with the file (release of 20 properties in 2019, release of 18 properties in 2022 and licence renewal in 2023) and current the request for licence revocation.

## 6.3 Licensee Public Information and Engagement

A Public Information and Disclosure Program (PIDP) is a regulatory requirement for licence applicants and licensees of Class I nuclear facilities, uranium mines and mills and certain Class II nuclear facilities. These requirements are described in [REGDOC-3.2.1, Public Information and Disclosure](#) [13].

The primary goal of the PIDP is to ensure that information related to the health, safety and security of persons and the environment, and other issues associated with the lifecycle of nuclear facilities are effectively communicated to the public. The program must include a commitment to, and protocol for ongoing, timely communication of information related to the licensed facility during the course of the licence period.

CNSC's expectations of a licensee's public information program and disclosure protocol are commensurate with the level of risk of the facility, as well as the level of public interest in the licensed activities. The program and protocol may be further influenced by the complexity of the nuclear facility's lifecycle and activities, and the risks to public health and safety and the environment perceived to be associated with the facility and activities.

All uranium mines and mills, including Beaverlodge, are required to maintain and implement PIDPs, in accordance with REGDOC-3.2.1. These programs are supported by disclosure protocols that outline the type of facility information to be shared with the public as well as details on how that information is to be shared. This ensures that timely information about the health, safety and security of persons and the environment, and other issues associated with the lifecycle of the mines and mills, is effectively communicated to the public.

### 6.3.1 Discussion

CNSC staff monitor Cameco's implementation of its Public Information Program (PIP) for its Beaverlodge site to verify that it communicates regularly with its audiences in a way that is meaningful to them. CNSC staff also review yearly program updates to verify Cameco is taking audience feedback into consideration and taking steps to implement program adjustments to meet the evolving needs of its audiences.

In 2021, Cameco submitted a revised PIP for its Beaverlodge site. CNSC staff reviewed the revised PIP and deemed it in compliance, meeting requirements under REGDOC-3.2.1. In their review, CNSC staff took into consideration the unique audience Cameco interacts with in the remote communities surrounding its Beaverlodge site.

As described in Cameco's PIP for its Beaverlodge site, Cameco's communication activities included:

- posting its public disclosure protocol on its website
- updating their website and social media with the latest information on its Beaverlodge site
- publishing information in mailout fact sheets, posters and newsletters (print and online) going to the local community
- advertising on local radio, newspapers and online publications that cater to its target audiences
- hosting ongoing engagement activities, including community meetings, site tours and technical workshops
- conducting public opinion polling to gain better understanding of the local community and identify emerging issues of interest
- providing various feedback mechanisms for the local community to comment or ask questions, as well as for Cameco to respond to issues raised
- engagement with media, as requested
- regular evaluation of its PIP based on feedback received.

CNSC staff also regularly assessed Cameco's engagement activities as part of the annual compliance inspections during the licence term. Inspections included criteria related to the communication of results from the monitoring program and site activities; information related to the proposed release and transfer of properties to the ICP; and ensuring concerns and questions were responded to appropriately and timely.

### **6.3.2 Conclusion**

CNSC staff concluded that Cameco's PIP meets regulatory requirements. CNSC staff found that in its PIP, Cameco has demonstrated strong communication activities of appropriate and timely health and safety information to the public and community members.

CNSC staff continue to monitor Cameco's implementation of the PIP to ensure that it meets obligations regarding disseminating and notifying their target audiences of changes, and impacts on health, safety and the environment specific to their licensed activities. CNSC staff also encourage Cameco to refine and update its program on a regular basis to meet the changing information needs of its target audiences.

## **6.4 Participant Funding Program**

The CNSC established the Participant Funding Program (PFP) in 2011 to:

1. enhance individual, not-for-profit organization and Indigenous Nations and communities participation in the CNSC's environmental assessment (EA) and licensing processes for major nuclear facilities (e.g., uranium mines and mills, nuclear power plants, nuclear substance processing, or nuclear waste facilities)
2. assist individuals, not-for-profit organizations and Indigenous Nations and communities to bring value-added information to the Commission through informed and topic-specific interventions related to EAs and licensing (i.e., new, distinctive and relevant information that contributes to a better understanding of the anticipated effects of a project)

Up to \$100,000 was made available to assist members of the public, Indigenous Nations and communities, and stakeholders in providing value-added information to the Commission through informed and topic-specific interventions.

### **6.4.1 Discussion**

Participant funding was offered to review CNSC staff's CMD and associated documentation and to prepare for and provide interventions for the public hearing.



The deadline for applications was June 21, 2024. A Funding Review Committee, independent from CNSC staff, reviewed the applications received, and made recommendations on the allocation of funding to eligible applicants. Based on recommendations from the Funding Review Committee, the CNSC awarded participant funding to the following recipients, as shown on table 4.1. Contribution agreements were sent to these recipients on August 6, 2024.

**Table 4.1: Beaverlodge Project - PFP funding awarded**

Applicant	Maximum funding award
Nuclear Transparency Project	\$10,000
Athabasca Chipewyan First Nation	\$60,000
Métis Nation-Saskatchewan	\$30,259
Ya'thi Néné Lands and Resource Office	\$88,000
<b>TOTAL</b>	<b>\$C188,259</b>

#### 6.4.2 Conclusion

Based on the above information, CNSC staff followed its Commission proceedings process and Indigenous Nations and communities and the public have been encouraged to participate in the Commission's public hearing. The CNSC offered assistance to interested members of the public, Indigenous Nations and communities, and other stakeholders, through the PFP, to prepare for and participate in the Commission's public hearing.

## 7. Other Matters of Regulatory Interest

### 7.1 Cost Recovery

Cameco is obligated under its licence to pay fees in accordance with the [CNSC Cost Recovery Fees Regulations](#) (CRFR) Part 2, which is based on Regulatory Activity Plan fees.

#### 7.1.1 Discussion

Cameco is in good standing with respect to CRFR requirements for the Beaverlodge Project.

For the Beaverlodge Project, Cameco is subject to subsection 5(2) of the CRFR, which relates to quarterly invoices sent to licensees. Cameco pays these invoices and is in good standing.

#### 7.1.2 Conclusion

After assessing CNSC records, CNSC staff concluded that Cameco is in good standing with respect to the Beaverlodge Project, meeting CRFR requirements.

## 7.2 Financial Guarantees

Under subsection 24(5) of the *NSCA*, the licensee may be required to provide a financial guarantee in a form that is acceptable to the Commission. *General Nuclear Safety and Control Regulations*, paragraph 3(1)(l) stipulates that, “an application for a licence shall contain a description of any proposed financial guarantee related to the activity for which a licence application is submitted.” The financial guarantee for decommissioning is established to fund the activities described in the Preliminary Decommissioning Plan (PDP). These requirements are found in *REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities* [14].

### 7.2.1 Discussion

In 1988, Eldorado Nuclear Limited and the Saskatchewan Mining and Development Corporation, a provincial Crown corporation, merged to form Cameco Corporation (Cameco). As a result of this merger, Cameco was assigned the responsibility of maintaining and monitoring of the Beaverlodge site. Canada Eldor Inc., a subsidiary of the federal Crown corporation, Canada Development Investment Corporation, was to provide the funding for all site activities. Cameco holds the licence issued by the CNSC and is being financed by Canada Eldor Inc. to manage the site.

Both Canada Eldor Inc. and Canada Development Investment Corporation report to the Federal Minister of Finance. The Department of Finance has confirmed to the CNSC that Canada Eldor Inc. is an agent of the Crown in right of Canada for all purposes. It follows that any undischarged obligations and liabilities of Canada Eldor Inc. are the obligations and liabilities of the Crown in right of Canada. That will include 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 that site.

### 7.2.2 Conclusion

The Commission has accepted that the commitment from the Department of Finance fulfills the requirement of condition 10.1 (maintenance of a financial guarantee) within the existing Waste Facility Operating Licence, WFOL-W5-2120.0/2025.

Should the Beaverlodge Project licence be revoked the financial guarantee requirement under the NSCA will cease.

## 8. Overall Conclusions and Recommendations

Cameco applied to have the remaining 27 properties released from licensing and therefore a revocation of Waste Facility Operating Licence WFOL-W5-2120.0/2025, in the context of a proposed transfer of oversight to Saskatchewan's Institutional Control Program. Cameco has stated that all properties meet the performance objectives for the decommissioned Beaverlodge site: safe, secure, and stable/improving. The performance indicators and regulatory acceptance criteria which were defined to ensure these performance objectives are met have also been achieved. This information is explained in greater detail in section 2. CNSC staff have concluded that the applicable indicators and criteria have been achieved for these 27 properties.

CNSC staff have completed their technical review and concur that the request to release the properties from CNSC licensing meets all regulatory requirements. According to section 3(f) of *The Reclaimed Industrial Sites Regulations*, an exemption from the obligation to hold a licence under the NSCA is required for the province before properties can be transferred into the ICP.

An environmental protection review was conducted for this application as described in section 3 of this CMD. CNSC staff recommend that the Commission conclude that, in accordance with section 11, of the GNSCR, there will continue to be, adequate provision for the protection of the environment if the Commission decides to release these properties from licensing under the NSCA and revoke the CNSC issued licence, in order to enable the transfer of the remaining properties to the Government of Saskatchewan's ICP.

CNSC staff recommend the Commission consider taking the following actions:

- Revoke Waste Facility Operating Licence WFOL-W5-2120.0/2025
- exempt the Government of Saskatchewan from licensing under the *Nuclear Safety and Control Act* for the 27 properties proposed for transfer into Saskatchewan's Institutional Control Program.

## References

1. *Final Closure Report, Beaverlodge Properties URA 7, URA 1, Bolger 1, Tailings Management Area Properties*. Kingsmere Resource Services Inc., March 2024 (e-Doc 7174649).
2. *Decommissioned Beaverlodge Mine Site Long-Term Monitoring Program*. Canada North Environmental Services. November 2023 (e-Doc 7174653).
3. *Healthy Fish Consumption Guideline*. Population Health Unit, Northern Saskatchewan & Saskatchewan Ministry of Environment. September 2016 (e-Doc 6603772).
4. Letter to M. Bacon-Dussault (CNSC) from L. Mooney (Cameco) re: *Application for Revocation of the Decommissioned Beaverlodge Properties Licence, WFOL-W5-2120.0/2025*, February 5, 2024.
5. *Northern Mine Decommissioning and Reclamation Guidelines*, EPB 381, Ministry of Environment, Government of Saskatchewan, November 2008.
6. *Saskatchewan Environmental Quality Guidelines* (<https://environment-quality-guides.saskatchewan.ca/>).
7. *Beaverlodge Institutional Control Inspection Field Guide*. Cameco Corporation, November 2023 (e-Doc 7174645).
8. *REGDOC-2.9.1, Environmental Principles, Assessments and Protection Measures, Version 1.2*. CNSC. September 2020.
9. *N288.6-12, Environmental risk assessments at Class I nuclear facilities and uranium mines and mills*. CSA Group. June 2012.
10. *Decommissioned Beaverlodge Mine Site: Model Update and Environmental Risk Assessment*, Canada North Environmental Services, July 2020. Submitted September 8, 2020 (e-Doc 6379444).
11. *2021 CBEMP Brochure*. Undated.
12. *REGDOC-3.2.2, Indigenous Engagement, Version 1.2*. CNSC. February 2022.
13. *REGDOC-3.2.1, Public Information and Disclosure*. CNSC. May 2018.
14. *REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*. CNSC. January 2021.

## Glossary

For definitions of terms used in this document, see [REGDOC-3.6, \*Glossary of CNSC Terminology\*](#), which includes terms and definitions used in the [Nuclear Safety and Control Act](#) and the [Regulations](#) made under it, and in [CNSC regulatory documents](#) and other publications.

Additional terms and acronyms used in this CMD are listed within this glossary.

## TERMS

<b>Adit</b>	An entrance to an underground mine which is horizontal or nearly horizontal
<b>Crown Pillar</b>	The rock mass between the uppermost mine working and the ground surface
<b>Raise</b>	A vertical or near vertical excavation to an underground mine used for ventilation and/or emergency escape
<b>Shaft</b>	A narrow vertical hole used to access an underground mine
<b>Stope</b>	An open space left behind after extracting the desired ore or other material from an underground mine
<b>Subsidence</b>	The caving or sinking of the land surface

## ACRONYMS

<b>ACFN</b>	Athabasca Chipewyan First Nation
<b>AJES</b>	Athabasca Joint Engagement and Environment Sub-committee
<b>Cameco</b>	Cameco Corporation
<b>CBEMP</b>	Community Based Environmental Monitoring Program
<b>CMD</b>	Commission Member Document
<b>CNSC</b>	Canadian Nuclear Safety Commission
<b>CRFR</b>	<i>Cost Recovery Fees Regulations</i>
<b>EARMP</b>	Eastern Athabasca Regional Monitoring Program
<b>EPR</b>	Environmental Protection Review
<b>ERA</b>	Environmental Risk Assessment
<b>GNSCR</b>	<i>General Nuclear Safety and Control Regulations</i>
<b>HHRA</b>	Human Health Risk Assessment
<b>ICMMF</b>	Institutional Control Monitoring and Maintenance Fund
<b>ICP</b>	Institutional Control Program
<b>ICUEF</b>	Institutional Control Unforeseen Events Fund
<b>IEMP</b>	Independent Environmental Monitoring Program
<b>MN-S</b>	Métis Nation Saskatchewan
<b>NSCA</b>	<i>Nuclear Safety and Control Act</i>
<b>NSEQC</b>	Northern Saskatchewan Environmental Quality Committee
<b>PFP</b>	Participant Funding Program
<b>PIDP</b>	Public Information and Disclosure Program
<b>PIP</b>	Public Information Program
<b>ROR</b>	Regulatory Oversight Report
<b>SCA</b>	Safety and Control Area
<b>SEQG</b>	<i>Saskatchewan Environmental Quality Guidelines</i>
<b>SMER</b>	Saskatchewan Ministry of Energy and Resources
<b>SMOE</b>	Saskatchewan Ministry of Environment
<b>ToR</b>	Terms of Reference
<b>YNLR</b>	Ya'thi Néné Lands and Resources Office

## A. Safety Performance Rating Levels

### Satisfactory (SA)

**Licensee meets all of the following criteria:**

- Performance meets CNSC staff expectations
- Licensee non-compliances or performance issues, if any, are not risk-significant
- Any non-compliances or performance issues have been, or are being, adequately corrected

### Below Expectations (BE)

**One or more of the following criteria apply:**

- Performance does not meet CNSC staff expectations
- Licensee has risk-significant non-compliance(s) or performance issue(s)
- Non-compliances or performance issues are not being adequately corrected

### Unacceptable (UA)

**One or both of the following criteria apply:**

- Risk associated with a non-compliance or performance issue is unreasonable
- At least one significant non-compliance or performance issue exists with no associated corrective action

**Note:** Starting in 2019, facility performance assessment ratings were simplified and the “Fully Satisfactory (FS)” was replaced by the “Satisfactory (SA)” rating. It is important to recognize that a facility that received an SCA performance rating of FS in previous Regulatory Oversight Report and now has a rating of SA, does not necessarily indicate a reduction in performance.

## PART 2

**Part 2** of this CMD provides all relevant information pertaining directly to the licence, including:

1. The current licence.
2. The current Licence Conditions Handbook



## Current Licence

The current licence is provided on the following pages of the document.



**WASTE FACILITY OPERATING LICENCE  
CAMECO CORPORATION  
BEAVERLODGE**

---

**I) LICENCE NUMBER:** WFOL-W5-2120.0/2025

**II) LICENSEE:** Pursuant to section 24 of the *Nuclear Safety and Control Act*, this licence is issued to:

**Cameco Corporation  
2121 – 11th Street West  
Saskatoon, Saskatchewan S7M 1J3  
Corporate Number 332981-0**

**III) LICENCE PERIOD:** This licence is valid from June 1, 2023 to May 31, 2025, unless suspended, amended, revoked or replaced.

**IV) LICENSED ACTIVITIES:**

This licence authorizes the licensee to possess, manage and store, the nuclear substances associated with the decommissioned Beaverlodge mine and mill site located in the province of Saskatchewan, as shown in the figure contained in Appendix A to this licence.

**V) EXPLANATORY NOTES:**

- a) Nothing in this licence shall be construed to authorize non-compliance with any other applicable legal obligation or restriction.
- b) Unless otherwise provided for in this licence, words and expressions used in this licence have the same meaning as in the *Nuclear Safety and Control Act* and its associated Regulations.
- c) The WFOL-W5-2120.0/2025 Licence Conditions Handbook (LCH) identifies the criteria that will be used by Canadian Nuclear Safety Commission staff to assess the licensee's compliance with the conditions listed in this licence. The LCH also provides information regarding delegation of authority and applicable version control of documents comprising compliance verification criteria.

## **VI) CONDITIONS:**

### **G. GENERAL**

#### **G.1 Licensing Basis for Licensed Activities**

The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as:

- (i) the regulatory requirements set out in the applicable laws and regulations
- (ii) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence
- (iii) the safety and control measures described in the licence application and the documents needed to support that licence application

unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter “the Commission”).

#### **G.2 Notification of Changes**

The licensee shall give written notification of changes to the facility or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis.

#### **G.3 Financial Guarantee**

The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission.

#### **G.4 Public Information and Disclosure**

The licensee shall implement and maintain a public information and disclosure program.

**1. *MANAGEMENT SYSTEM***

**1.1 Management System**

The licensee shall implement and maintain a management system.

**2. *OPERATING PERFORMANCE***

**2.1 Operations Program**

The licensee shall implement and maintain an operating program.

**2.2 Reporting Requirements**

The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.

**3. *SAFETY ANALYSIS***

**3.1 Safety Analysis Program**

The licensee shall implement and maintain a safety analysis program.

**4. *PHYSICAL DESIGN***

**4.1 Design Program**

The licensee shall implement and maintain a design program.

**5. *RADIATION PROTECTION***

**5.1 Radiation Protection Program**

The licensee shall implement and maintain a radiation protection program.

**6. *CONVENTIONAL HEALTH AND SAFETY***

**6.1 Conventional Health and Safety Program**

The licensee shall implement and maintain a conventional health and safety program.

**7. ENVIRONMENTAL PROTECTION**

**7.1 Environmental Protection Program**

The licensee shall implement and maintain an environmental protection program.

**8. EMERGENCY MANAGEMENT**

**8.1 Emergency Preparedness Program**

The licensee shall implement and maintain an emergency preparedness program.

**9. SAFEGUARDS AND NON-PROLIFERATION**

**9.1 Safeguards Program**

The licensee shall implement and maintain a safeguards program.

**Velshi,  
Rumina**

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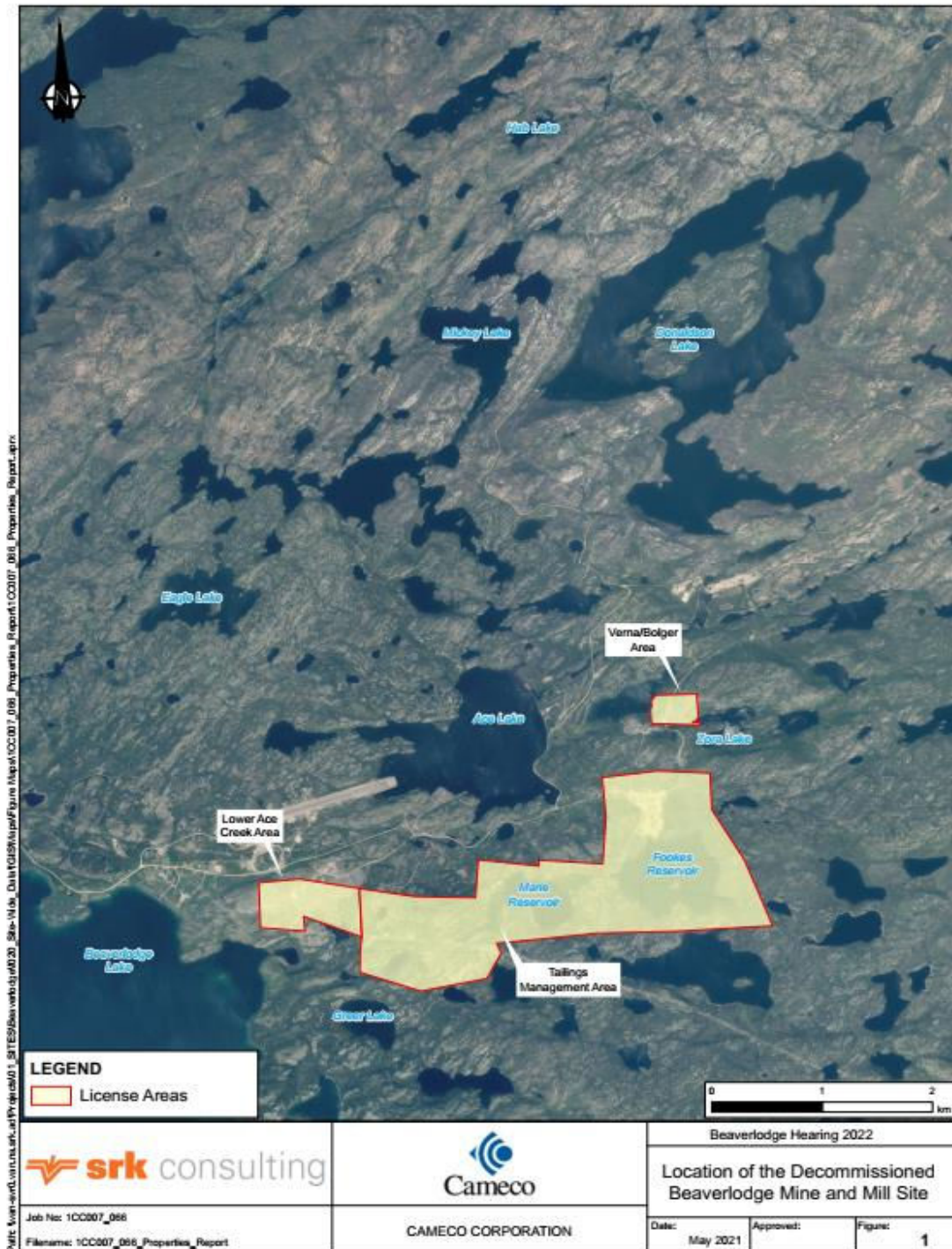
Rumina Velshi, President  
On behalf of the Canadian Nuclear Safety Commission

May 12, 2023

Date

## APPENDIX A

### LOCATION OF THE DECOMMISSIONED BEAVERLODGE MINE AND MILL SITE (e-Doc 6540851)



## **Current Licence Conditions Handbook**

The current Licence Conditions Handbook is provided on the following pages of the document.



e-Doc 6782115 (Word)

e-Doc 6782124 (PDF)

# **LICENCE CONDITIONS HANDBOOK**

## **LCH-WFOL-W5-2120.0/2025**

### **BEAVERLODGE PROJECT WASTE FACILITY OPERATING LICENCE**

#### **WFOL-W5-2120.0/2025**

**Revision 0**





**Licence Conditions Handbook**  
**LCH-WFOL-W5-2120.0/2025**

**Effective: May 18, 2023**

**Beaverlodge Project**  
**Waste Facility Operating Licence**  
**WFOL-W5-2120.0/2025**

SIGNED at OTTAWA this 18<sup>th</sup> day of May, 2023

**Burton,  
Patrick**

Digitally signed by Burton, Patrick  
DN: C=CA, O=GC, OU=CNSC-CCSN,  
CN="Burton, Patrick"  
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**Patrick Burton, Director**  
**Uranium Mines and Mills Division**  
**Directorate of Nuclear Cycle and Facilities Regulation**  
**CANADIAN NUCLEAR SAFETY COMMISSION**

**Revision History:**

<b>Effective Date</b>	<b>Revision</b>	<b>Section(s) changed</b>	<b>Description of the Changes</b>	<b>DCR e-DOC</b>
May 18, 2023	0	N/A	Original Document	6782115 (Word) 6782124 (PDF)

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## PART I - INTRODUCTION

The purpose of the licence conditions handbook (LCH) is to identify and clarify the relevant parts of the licensing basis for each licence condition (LC). This will help ensure that the licensee will maintain facility operations in accordance with the licence and the intent of the licensing basis. The intent of the licensing basis is to maintain the protection of the health, safety and security of the public and workers, and the protection of the environment. The LCH also provides information regarding delegation of authority, document version control and conflict resolution. The LCH should be read in conjunction with the licence.

The LCH has three parts under each LC: the Preamble, Compliance Verification Criteria (CVC), and Guidance. The Preamble explains the regulatory context, background, and/or history related to the LC. CVC are criteria used by Canadian Nuclear Safety Commission (CNSC) staff to oversee compliance with the LC. Guidance is non-mandatory information, including direction, on how to comply with the LC.

The statement “a person authorized by the Commission” in the LCs or the LCH indicates that the Commission may delegate certain authority to CNSC staff. Unless otherwise specified, the delegation of authority by the Commission to act as a person authorized by the Commission (Delegated Officer) is only applied to incumbents in the following positions:

- Director, Uranium Mines and Mills Division
- Director General, Directorate of Nuclear Cycle and Facilities Regulation
- Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch

### INTRODUCTION

## PART II – FRAMEWORK FOR EACH CONDITION

### G. GENERAL

#### G.1 Licensing Basis for Licensed Activities

The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as:

- (i) the regulatory requirements set out in the applicable laws and regulations
- (ii) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence
- (iii) the safety and control measures described in the licence application and the documents needed to support that licence application

unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter “the Commission”).

#### Preamble

Licence condition G.1 requires activities (defined in Section IV of the Licence) be conducted in accordance with the licensing basis. Further information on the licensing basis is available in CNSC regulatory document, REGDOC-3.5.3 *Regulatory Fundamentals*.

The licensing basis, established by the Commission at the time the licence is issued, sets the boundary conditions for a regulated activity, and establishes the basis for the CNSC’s compliance program for that regulated activity.

Part (i) of licence condition G.1 includes, but is not limited to, the following:

- *Nuclear Safety and Control Act*
- *General Nuclear Safety and Control Regulations*
- *Uranium Mines and Mills Regulations*
- *Radiation Protection Regulations*
- *Nuclear Substances and Radiation Devices Regulations*
- Canada/International Atomic Energy Agency (IAEA) Safeguards Agreement

### GENERAL

The safety and control measures mentioned under Parts (ii) and (iii) of licence condition G.1 have the potential to affect the health and safety of people, the environment, security or international obligations to which Canada agrees. These measures may be found in high-level programmatic documents but might also be found in lower-level supporting documentation. Safety and control measures can also be found in licensing basis publications such as CNSC regulatory documents, CSA Group standards or licensee documentation submitted in support of a licence.

The CNSC licence authorizes Cameco Corporation (Cameco) to conduct the following undertakings at the decommissioned Beaverlodge mine and mill site, for which the CNSC provides regulatory oversight:

- maintenance activities associated with the decommissioned facilities
- environmental monitoring
- implementation of the remedial options identified in Cameco’s Beaverlodge Mine Site Path Forward Report (e-Doc 4052116).

## Compliance Verification Criteria

### *Licensing Basis Documents*

Licensing basis documents are listed in appendix B and C in addition to tables under the most relevant LC. All “shall” or normative statements in licensing basis publications are considered CVC unless stated otherwise. If any “should” or informative statements in licensing basis publications are also considered CVC, this is provided under the most relevant LC.

In the event of any inconsistency between two elements of the licensing basis, the licensee shall consult CNSC staff to determine the approach to resolve the issue.

For operational activities that are not in accordance with the licensing basis, the licensee shall take action as soon as practicable to return to a state that is compliant with the licensing basis, taking into account the risk significance of the situation. Reporting requirements are outlined in CNSC’s REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills* and discussed under LC 2.2 of this LCH.

Changes to documentation or activities that result in operational activities not being in accordance with the licensing basis must be approved by the Commission prior to implementation.

## Guidance

When the licensee becomes aware that a proposed change or activity might not be in accordance with the licensing basis, it should first seek direction from CNSC staff regarding the potential acceptability of this change or activity. The licensee should take into account that certain types of proposed changes might require significant lead times before CNSC staff can make recommendations and/or the Commission can properly consider them. Guidance for notifications to the CNSC related to licensee changes are discussed under LC G.2.

## G.2 Notification of Changes

The licensee shall give written notification of changes to the facility or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis.

### Preamble

During the course of licensed activities, it is expected that the licensee may make changes to implement improvements or to address changes in operational needs. While making these changes, it is imperative the licensee remains within the bounds of the licensing basis.

Appendix B provides a list of licensee documents that require notification of change. CNSC staff track the current version of these licensee documents separate from the LCH, (e-Doc 6074070).

### Compliance Verification Criteria

#### *Licensee Documents that Require Notification of Change*

Changes to the design, operating conditions, policies, programs and methods that have the potential to be outside of the licensing basis require prior written notification to the CNSC. CNSC staff will confirm the change remains within the licensing basis and notify the licensee prior to implementation of the change by the licensee. The licensee shall allow sufficient time for the CNSC to review the change proportionate to its complexity and the importance of the safety and control measures being affected. Regular communication between the CNSC and the licensee should ensure review timelines are established prior to submission of written notification. It remains the responsibility of the licensee to ensure that the decommissioned Beaverlodge Project continues to operate within the bounds of the licensing basis.

Prior written notification shall include:

- a summary description of the change
- the rationale for the change
- expected duration (if not a permanent change)
- a summary explanation from the licensee supporting the conclusion that the change remains in accordance with the licensing basis

Ongoing regular communication shall be maintained between the CNSC and licensee.

### Guidance

A list of criteria to determine if a change would be in accordance with the licensing basis is provided in appendix A of CNSC process document *Overview of: Assessing licensee changes to documents or operations* (e-Doc 4055483).

**GENERAL**

## G.3 Financial Guarantee

The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission.

### Preamble

The licensee is responsible for providing an appropriate financial guarantee that is acceptable to the Commission.

All costs associated with the management of the decommissioned Beaverlodge mine and mill site are paid by Canada Eldor Inc., a wholly-owned subsidiary of Canada Development Investment Corporation. Both Canada Eldor Inc. and Canada Development Investment Corporation report to the Federal Minister of Finance. The Department of Finance has confirmed via letter to the CNSC that:

“Canada Eldor Inc. is an agent of the Crown in right of Canada for all purposes. It follows that any undischarged obligations and liabilities of Canada Eldor Inc. are the obligations and liabilities of the Crown in right of Canada. That will include 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 that site”.

### Compliance Verification Criteria

The financial guarantee for the decommissioned Beaverlodge mine and mill site is provided by the Government of Canada through Canada Eldor Inc. and has no specified value. Therefore, changes and updates to the financial guarantee are not required.

### *Licensing Basis Publications*

Source	Document Title	Document Number
CSA Group	Decommissioning of Facilities Containing Nuclear Substances	N294-19
CNSC	Decommissioning	REDOC-2.11.2*
CNSC	<a href="#">Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities</a>	REGDOC-3.3.1

\* Section 9.1 and 10

## GENERAL



*Licence Documents that Require Notification of Change*

<b>Source</b>	<b>Document Title</b>	<b>CNSC e-Access Document Number</b>	<b>Prior Notification Required</b>
Cameco	Facility Licensing Manual	6763787	Yes
Cameco	Financial Assurance for Cameco Corporation, Beaverlodge Decommissioned Mine and Mill Site, Northern Saskatchewan	1260110	Yes

**Guidance**

There is no guidance provided for this licence condition.

## G.4 Public Information and Disclosure

The licensee shall implement and maintain a public information and disclosure program.

### Preamble

The public information and disclosure program ensures that information related to the health and safety of persons and the environment and other issues associated with the lifecycle of the nuclear facility is effectively communicated to the public. In addition, the program shall include a commitment to and protocol for ongoing timely communications regarding emissions, effluent releases, unplanned events and other incidents and activities related to the licensed facility that may be of interest to the public.

### Compliance Verification Criteria

#### *Licensing Basis Publications*

Source	Document Title	Document Number
CNSC	Public Information and Disclosure*	REGDOC-3.2.1

\* Cameco to post summaries of Environmental Risk Assessments on their website, rather than the entire document, in accordance with Cameco's June 4, 2020 letter to the CNSC (L. Mooney to H. Tadros, e-Doc 6318384) and Cameco's June 12, 2020 email (K. Nagy to R. Snider, e-Doc 6316951).

#### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes
Cameco	Public Information Program	6660192	Yes

### Guidance

There is no guidance provided for this licence condition.

**GENERAL**

# 1 MANAGEMENT SYSTEM

## Licence Condition 1.1

The licensee shall implement and maintain a management system.

### Preamble

The “management system” safety and control area covers the framework which establishes the processes and programs required to ensure an organization achieves its safety objectives, continuously monitors its performance against these objectives and fosters a healthy safety culture.

The management system must satisfy the requirements set out in the *Nuclear Safety and Control Act (NSCA)*, regulations made pursuant to the *NSCA*, the licence and the measures necessary to ensure that safety is of paramount consideration in implementation of the management system. An adequately established and implemented management system provides the evidence that the licensing basis remains valid.

### Compliance Verification Criteria

#### *Licensing Basis Publications*

Source	Document Title	Document Number
CSA Group	Management System Requirements for Nuclear Facilities	N286-12

#### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes
Cameco	Quality Management Program	6757618	Yes

### Guidance

There is no guidance for this licence condition.

## MANAGEMENT SYSTEM

## 2 OPERATING PERFORMANCE

### Licence Condition 2.1

The licensee shall implement and maintain an operating program.

#### Preamble

The “operating performance” safety and control area includes an overall review of the conduct of the licensed activities and the activities that enable effective performance.

#### Compliance Verification Criteria

##### *Licensing Basis Publications*

Source	Document Title	Document Number
CSA Group	Management System Requirements for Nuclear Facilities	N286-12

##### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes
Cameco	Cameco Beaverlodge Mine Site Path Forward Report	4052116	Yes
Cameco	Quality Management Program	6757618	Yes
Cameco	Environmental Monitoring Program	6562595	Yes

Operating performance will be evaluated against the following principles:

- 2.1.1 The process for constructing structures, systems and components follows accepted construction and project management practices.
- 2.1.2 Construction activities are carried out in accordance with the design requirements including drawings and specifications and related work instructions.
- 2.1.3 Procedures and work instructions are documented, reviewed and approved.
- 2.1.4 Operational activities are controlled through the use of and adherence to operational documents.

### OPERATING PERFORMANCE

The planning, control and verification of work will be evaluated against the following principles:

- 2.1.5 Work activities are planned to ensure that they can be carried out safely and effectively. Hazards are assessed and controls are identified.
- 2.1.6 Job hazard assessments are completed prior to conducting non-routine or complex work activities to identify and mitigate potential hazards to worker health and safety, and to the environment to an acceptable level or as low as reasonably achievable (ALARA), social and economic factors being taken into account.
- 2.1.7 Measures are established and documented to assure that non-routine work is carried out under controlled conditions.
- 2.1.8 Work activities are identified, defined in approved plans, procedures, instructions, and/or drawings to provide an appropriate level of reference.
- 2.1.9 Work is assigned to qualified personnel.
- 2.1.10 Work is carried out according to specified requirements. Controls are implemented to assure that work is carried out under controlled conditions. Preventative and protective measures are implemented to address identified hazards and risks.
- 2.1.11 The implementation of routine and non-routine work activities is monitored.
- 2.1.12 Management verifies that work is carried out according to specified requirements.
- 2.1.13 The management of problems will be evaluated against the following:
  - a process exists to formally identify problems
  - problems are identified and immediately controlled, if required
  - the significance of problems is evaluated and the underlying causes determined
  - identified problems are accepted, mitigated or resolved
  - implementation of actions employed to resolve problems are reviewed for effectiveness.

## Guidance

There is no guidance provided for this licence condition.

## Licence Condition 2.2

The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.

### Preamble

This LC requires the licensee to implement and maintain a process for reporting information to the CNSC. This includes monitoring results, changes to facilities or approved activities, performance assessments and the occurrence of unusual events. Sections 29 and 30 of the *General Nuclear Safety and Control Regulations*, section 38 of the *Nuclear Substances and Radiation Devices Regulations* and section 16 of the *Radiation Protection Regulations* provides further insight into reportable events.

### Compliance Verification Criteria

#### *Licensing Basis Publications*

Source	Document Title	Document Number
CNSC	Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills	REGDOC-3.1.2

The licensee shall submit to the CNSC an annual compliance report by April 15 of each year, covering the operation for the 12-month period from January 1 to December 31 of the previous year.

### Guidance

There is no guidance provided for this licence condition.

### 3 SAFETY ANALYSIS

#### Licence Condition 3.1

The licensee shall implement and maintain a safety analysis program.

#### Preamble

The “safety analysis” safety and control area includes the systematic evaluation of the potential hazards associated with the proposed activity or facility and considers the effectiveness of preventative measures and strategies in reducing the effects of such hazards.

#### Compliance Verification Criteria

##### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes
Cameco	Environmental Monitoring Program	6562595	Yes
Cameco	Quantitative Site Model	3956318	Yes
Cameco	Model Update and Environmental Risk Assessment	6379444	Yes

The safety analysis program will be evaluated against the following principles:

- 3.1.1 A process has been implemented and maintained to identify, assess, and eliminate or control health and safety and environmental risks associated with existing and new processes or changes to work procedures, equipment, organizational structure, staffing, products, services and suppliers.
- 3.1.2 Risks to health, safety and the environment have been identified, assessed, eliminated or controlled for existing and new processes or for changes to work procedures, equipment, organizational structure, staffing, products, services and suppliers.
- 3.1.3 Appropriate methodologies are used to identify potential hazards and consider the effectiveness of preventative measures and strategies in reducing the effects of such hazards.
- 3.1.4 Modelling is regularly updated using measured values to replace important assumptions and to increase the certainty of predicted long-term behaviour of contaminants.

Job hazard assessments conducted when planning non-routine and complex work activities are discussed under operating performance.

#### SAFETY ANALYSIS

## **Guidance**

There is no guidance provided for this licence condition.



## 4 PHYSICAL DESIGN

### Licence Condition 4.1

The licensee shall implement and maintain a design program.

#### Preamble

The “physical design” safety and control area 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 and taking changes in the external environment into account.

The design basis is the range of conditions and events taken into account in the design of structures, systems and components of a facility according to established criteria, such that the facility can withstand them without exceeding authorized limits for the planned operation of safety systems.

#### Compliance Verification Criteria

##### *Licensing Basis Publications*

Source	Document Title	Document Number
CSA Group	Management System Requirements for Nuclear Facilities	N286-12

##### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes
Cameco	Quality Management Program	6757618	Yes
Cameco	Property Description Manual	6921687	Yes

#### Guidance

There is no guidance provided for this licence condition.

## 5 RADIATION PROTECTION

### Licence Condition 5.1

The licensee shall implement and maintain a radiation protection program.

#### Preamble

The “radiation protection” safety and control area covers the implementation of a radiation protection program in accordance with the *Radiation Protection Regulations*. This program must ensure that contamination and radiation doses received are monitored, controlled, and kept as low as reasonably achievable (ALARA), with social and economic factors being taken into account.

There are no full time workers at the site and most maintenance and monitoring work is completed by contractors. Estimated radiation doses to workers are well below the regulatory public dose limit of 1 mSv/year; therefore, Cameco is not required to ascertain individual worker dose by means of direct measurement. Workers are not required to wear licensed dosimetry to measure and monitor dose.

The overall radiation risks for workers and the public accessing the decommissioned Beaverlodge mine and mill site are low because of the low levels of radiation. The radiological risks for non-routine work activities will be assessed by completing a Job Hazard Analysis and if required, radiation protection measures will be implemented in accordance with the Beaverlodge Facility Licensing Manual.

#### Compliance Verification Criteria

##### *Licence Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes

The radiation protection (RP) program will be assessed against the following principles:

- 5.1.1 The organization and administration of RP provides effective implementation and control of RP activities. The roles, responsibilities and qualification requirements of all persons involved in the RP program are clearly defined. All levels of management and workers are committed to RP requirements and practices within their level of responsibility. A performance review process is established to evaluate the RP program.
- 5.1.2 RP personnel and RP supervisors have the qualifications (knowledge, skills, experience) needed to effectively implement and conduct the RP program.

## RADIATION PROTECTION

- 5.1.3 Radiological conditions are monitored and sources of internal and external radiation exposures are controlled. Access and work in radiological areas are controlled so that collective and individual radiation exposures are kept in accordance with the ALARA principle.
- 5.1.4 RP instrumentation and equipment are calibrated, maintained and used so that radiation levels are accurately determined. Uncalibrated equipment is removed from use.
- 5.1.5 Appropriate contamination control measures are implemented to control and minimize the contamination of areas, equipment and personnel.
- 5.1.6 Effective decontamination control measures are implemented to control and prevent the contamination of areas, equipment and personnel.

## Guidance

### *Guidance Publications*

Source	Document Title	Document Number
CNSC	Radiation Protection	REGDOC-2.7.1

## 6 CONVENTIONAL HEALTH AND SAFETY

### Licence Condition 6.1

The licensee shall implement and maintain a conventional health and safety program.

#### Preamble

The “conventional health and safety” safety and control area covers the implementation of a program to manage workplace safety hazards and to protect personnel and equipment.

The regulation of non-radiological health and safety at uranium mines and mills is governed by the *Canada Labour Code Part II*, which is administered by Employment and Social Development Canada (ESDC). However, the *Saskatchewan Uranium Mines and Mills Exclusion Regulations* (SOR/2001-115) defer the regulation of occupational health and safety in Saskatchewan uranium mines and mills to the province of Saskatchewan in accordance with the requirements of *The Mines Regulations, 2018* Part II Revised Regulations of Saskatchewan.

The CNSC also has regulatory responsibilities for the oversight of the protection of the health and safety of workers. The CNSC harmonizes the oversight of conventional health and safety with the Saskatchewan Ministry of Labour Relations and Workplace Safety.

#### Compliance Verification Criteria

##### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes

The conventional health and safety program will be assessed against the following principles:

- 6.1.1 Housekeeping standards have been identified and are enforced to ensure that work areas are kept clean and organized.
- 6.1.2 Facilities, processes and procedures have been implemented to ensure the safe management of hazardous materials.
- 6.1.3 Employees and contractors actively participate in the management of conventional health and safety.
- 6.1.4 Management verifies that employees and contractors actively participate in the management of health and safety in their workplace.
- 6.1.5 A process has been established and maintained to monitor, measure and record conventional health and safety performance and the effectiveness of the occupational health and safety program on a regular basis.

### CONVENTIONAL HEALTH AND SAFETY

- 6.1.6 Routine inspections are performed by workers, supervisors, senior staff and/or safety professionals to identify any potential safety issues.
- 6.1.7 Processes and procedures are established and maintained to investigate accidents and incidents, to identify root causes, to implement corrective actions and to verify that corrective actions have been completed and will effectively prevent recurrence.
- 6.1.8 Procedures have been implemented and maintained for reporting work-related injuries, illnesses, fatalities and conventional health and safety incidents including near misses.
- 6.1.9 The causes of injuries are investigated, corrective actions implemented, and the effectiveness of corrective actions verified.
- 6.1.10 A preventative and corrective action procedure has been established and maintained to address non-conformances and inadequately controlled risks.

## **Guidance**

There is no guidance provided for this licence condition.

## 7 ENVIRONMENTAL PROTECTION

### Licence Condition 7.1

The licensee shall implement and maintain an environmental protection program.

#### Preamble

The “environmental protection” safety and control area covers programs that identify, control and monitor all releases of radioactive and hazardous substances and effects on the environment from facilities or as the result of licensed activities.

#### Compliance Verification Criteria

##### *Licensing Basis Publications*

Source	Document Title	Document Number
CNSC	Environmental Protection: Environmental Principles, Assessments and Protection Measures	REGDOC-2.9.1
CSA Group	Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills	N288.4-10
CSA Group	Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills	N288.6-12

##### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes
Cameco	Cameco Beaverlodge Mine Site Path Forward Report	4052116	Yes
Cameco	Quantitative Site Model	3956318	Yes
Cameco	Environmental Monitoring Program	6562595	Yes
Cameco	Model Update and Environmental Risk Assessment	6379444	Yes

### ENVIRONMENTAL PROTECTION

## Guidance

### *Guidance Publications*

<b>Source</b>	<b>Document Title</b>	<b>Document Number</b>
CSA Group	Environmental Management Systems – Requirements with Guidance for Use	ISO 14001:2015

## 8 EMERGENCY MANAGEMENT

### Licence Condition 8.1

The licensee shall implement and maintain an emergency preparedness program.

#### Preamble

The “emergency management and fire protection” safety and control area covers emergency plans and emergency preparedness programs which exist for emergencies and for non-routine conditions. It also includes any results of exercise participation.

Licensees are required to continually maintain and enhance their emergency management programs.

#### Compliance Verification Criteria

##### *Licensing Basis Publications*

Source	Document Title	Document Number
CNSC	Nuclear Emergency Preparedness and Response, Volume 2*	REGDOC-2.10.1

\* Off-site reporting timelines accepted by CNSC staff for Saskatchewan uranium mine and mill sites are described in January 30, 2020 letter from Cameco to the CNSC (L. Mooney to H. Tadros, e-Doc 6109667).

##### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	6763787	Yes

#### Guidance

There is no guidance provided for this licence condition.



## 9 SAFEGUARDS AND NON-PROLIFERATION

### Licence Condition 9.1

The licensee shall implement and maintain a safeguards program.

#### Preamble

The “safeguards and non-proliferation” safety and control area covers the programs and activities required for the successful implementation of the obligations arising from the Canada/International Atomic Energy Agency (IAEA) safeguards agreements, as well as all other measures arising from the *Treaty on the Non-Proliferation of Nuclear Weapons*.

#### Compliance Verification Criteria

##### *Licensing Basis Publications*

Source	Document Title	Document Number
CNSC	Safeguards and Nuclear Material Accountancy*	REGDOC-2.13.1

\* Sections of REGDOC applicable to Beaverlodge listed in July 24, 2018 letter from Cameco to the CNSC (L. Mooney to H. Tadros, e-Doc 5614635).

##### *Licensee Documents that Require Notification of Change*

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licencing Manual	6763787	Yes

#### Guidance

There is no guidance provided for this licence condition.

## **APPENDIX A CHANGE CONTROL PROCESS**

### **A.1 Change Control Process**

A change control process is applied to the LCH to ensure that:

- preparation and use of the LCH are properly controlled
- all referenced documents are correctly identified and maintained
- procedures for modifying the LCH are followed.

A request to change this LCH can be initiated by either CNSC staff or the licensee. The licensee will be consulted on any changes to the LCH that are proposed by CNSC staff.

CNSC staff will take the following steps to update the LCH:

1. the CNSC receives or initiates written notification of proposed change
2. initiate a change request using the Change Request Form
3. complete a technical review of the proposed change, if required
4. consult the licensee and in case of disagreement on the proposed change, the dispute resolution process outlined in section A.3 will apply
5. obtain consent and signature from a Delegated Officer
6. update the LCH in accordance with the Change Request Form and send the updated document to the parties identified on the distribution list (section A.5).

### Change Request Form

1. GENERAL INFORMATION			
<b>File Plan #</b>		<b>e-Doc #(s) for Change Request Form</b>	
<b>Licensee</b>	<b>Licence Number</b>	<b>LCH #, Rev/Version</b>	<b>Request Date</b>
<b>Licensing Officer</b>			
2. CHANGE(S) TO THE LCH			
#	Description and Purpose	Proposed Change	References
1	<initiator, nature, reason for change, e.g. administrative, change to a licensee doc, etc.>	<identify modifications, such as by track changes, highlighting, etc.>	<LC, page, section #, etc.>
2			
3. ASSESSMENT (text and/or e-Doc #s)			
#	Division/Org	Comment	Disposition
1	<division>		
	<division>		
	<licensee>		
	<division>		
2	etc.		
4. CONSENT TO MODIFY			
#	Agreed	Comment	
1			
2			
Name	Title	Signature	Date
5. LCH DOCUMENTATION AND DISTRIBUTION			
New LCH Number	LCH Effective Date	e-Doc # (include version number)	
CNSC Outgoing Notification		e-Doc #	Date Sent

## APPENDIX A

## A.2 Review Criteria for Proposed Changes to Licensing Basis Documents

The licensee must provide the CNSC with written notification of a proposed significant change to key licensee documents before the licensee implements the change. The notification must be accompanied by sufficient information to demonstrate that the change is within the intent of the licensing basis. Written notification of minor or administrative changes may be made in batches after the changes have been implemented.

The following criteria will be used by CNSC staff to determine if the proposed change is acceptable:

1. The submission includes the appropriate level and quality of information with regards to:
  - a) The description of the proposed change including:
    - a summary of the change, including the purpose or need for the change
    - a preliminary finding of whether this proposal or notification is required under the NSCA, a regulation made under the Act or the licence, or has implications under the *Impact Assessment Act*, or whether a licence amendment or other licensing action would likely be required
    - where applicable, the alternatives evaluated and the reasons for selection of the chosen option
    - any changes to the inventories of nuclear substances on site related to the proposed change
    - the construction, commissioning and operating schedule for the proposed change including hold points or progress reports for regulatory review and approval (as appropriate)
    - expected impacts, if any, on the proposed decommissioning or closure plans
    - results of any risk analysis or hazard operability studies performed, and a summary of the identified hazards and the mitigation measures identified to control potential hazards
  - b) The description of the design control, operating specifications and criteria including:
    - the design basis and criteria, and performance specifications
    - the design drawings such as the general arrangement, process and instrumentation diagrams, and process flow sheets
    - the quality management program for the various key stages of the change (e.g., design, construction, commissioning, etc.)

## APPENDIX A

- c) The assessment of both the short and long term impacts with the mitigation measures in place on:
    - worker’s health and safety, including potential radiological and non-radiological exposures
    - the environment
    - security
    - Canada’s international obligations
  - d) The planned administrative controls including:
    - changes to the organization, roles and responsibilities
    - changes to applicable programs and procedures
    - a description of the proposed monitoring, inspection and test plans, including locations and frequency proposed to evaluate both positive and negative results
  - e) Changes to contingency plans including “full-stop measures”
  - f) Evidence that the licensee’s internal reviews and approvals have been completed, including meeting the requirements of the licensee’s change management procedure and consultation with the onsite occupational health and environmental committees, where applicable
  - g) Identification of the documents and training programs that may require revision when the proposed change is implemented
2. The effects of the proposed change or action remain within the licensing basis.
  3. Following the implementation of the change the licensee will remain in compliance with the requirements set out in the applicable acts, regulations, and LCs.

### **A.3 Dispute Resolution**

In case of a dispute between the licensee and CNSC staff regarding changes to the LCH, both parties will meet to discuss the dispute and reach a decision on the path forward. The decision, including its rationale will be documented. If any party is not satisfied with the decision, the resolution process will proceed up to the Director, Director General or Executive Vice-President and Chief Regulatory Operations Officer level. If any party is still not satisfied with the decision, the issue will be brought to the attention of the Commission at a Commission meeting. The decision made by the Commission will be final.

### **A.4 Records Management**

In order to track changes to the LCH, the document change request and accompanying documentation will be archived in records and referenced in the revision history of the LCH. Electronic communication related to the change, such as comments from reviewers will be stored in the CNSC information management system.

## **APPENDIX A**

## **A.5 Distribution**

A copy of the updated version of the LCH will be distributed to the following parties:

- Uranium Mines and Mills Division, CNSC
- Cameco Corporation

## **A.6 Reporting to the Commission**

CNSC staff will report on the changes made to the LCH in their report to the Commission.

# **APPENDIX A**

## APPENDIX B LICENSEE DOCUMENTS THAT REQUIRE NOTIFICATION OF CHANGE

Document Title	e-DOC
Facility Licensing Manual	6763787
Quality Management Program	6757618
Environmental Monitoring Program	6562595
Property Description Manual	6921687
Public Information Program	6660192
Quantitative Site Model	3956318
Cameco Beaverlodge Mine Site Path Forward Report	4052116
Model Update and Environmental Risk Assessment	6379444
Financial Assurance for Cameco Corporation, Beaverlodge Decommissioned Mine and Mill Site, Northern Saskatchewan	1260110

### APPENDIX B

## APPENDIX C LIST OF DOCUMENTS USED AS GUIDANCE OR COMPLIANCE VERIFICATION CRITERIA

Document	Document Title	Document Number
CNSC	Radiation Protection	REGDOC-2.7.1
CNSC	Financial Guarantees for the Decommissioning of Licensed Activities	G-206
CNSC	Decommissioning Planning for Licensed Activities	G-219
CNSC	Environmental Protection: Environmental Principles, Assessments and Protection Measures	REGDOC-2.9.1
CNSC	Nuclear Emergency Preparedness and Response, Version 2	REGDOC-2.10.1
CNSC	Safeguards and Nuclear Material Accountancy	REGDOC-2.13.1
CNSC	Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills	REGDOC-3.1.2
CNSC	Public Information and Disclosure	REGDOC-3.2.1
CNSC	Regulatory Fundamentals	REGDOC-3.5.3
CSA Group	Management System Requirements for Nuclear Facilities	N286-12
CSA Group	Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills	N288.4-10
CSA Group	Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills	N288.6-12
CSA Group	Environmental Management Systems – Requirements with Guidance for Use	ISO 14001:2015

**Note:** For CNSC documents, the most recent version of a referenced document shall be implemented following review and agreement between Cameco and the Canadian Nuclear Safety Commission.

### APPENDIX C