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A Licence Renewal

Renouvellement d'un permis

Cameco Corporation

Cameco Corporation

**Request for 2-Year
Licence Renewal for
Cameco Corporation's
Beaverlodge Project**

**Demande de
renouvellement, pour 2
ans, du permis de
Cameco Corporation
pour le projet de
Beaverlodge**

Hearing in writing based solely on
written submissions

Audience par écrit fondée uniquement
sur des mémoires

Scheduled for:
February 2023

Prévue pour :
Février 2023

Submitted by:
CNSC Staff

Soumis par :
Le personnel de la CCSN

Summary

This CMD presents information about the following matters of regulatory interest with respect to Cameco Corporation's Beaverlodge Project:

- Application for a 2-year licence renewal

CNSC staff recommend the Commission consider taking the following actions:

- Accept CNSC staff's recommendation to renew the CNSC licence issued to Cameco Corporation, WFOL-W5-2120.2/2023, for a period of 2 years, expiring May 31, 2025, with no new authorizations
- Delegate authority as set out in section 5.3 of this CMD

The following items are attached:

- Current licence WFOL-W5-2120.2/2023
- Proposed draft licence WFOL-W5-2120.0/2025
- Proposed draft licence conditions handbook

Résumé

Le présent CMD fournit de l'information sur les questions d'ordre réglementaire suivantes concernant le projet de Beaverlodge de Cameco Corporation :

- Demande de renouvellement de permis pour une période de 2 ans

La Commission pourrait considérer prendre les mesures suivantes :

- Accepter la recommandation du personnel de la CCSN de renouveler le permis de la CCSN délivré à Cameco Corporation, WFOL-W5-2120.2/2023, pour une période de 2 ans, soit jusqu'au 31 mai 2025, sans nouvelle autorisation
- Déléguer les pouvoirs tel qu'il est établi à la section 5.3 du présent CMD

Les pièces suivantes sont jointes :

- Permis actuel WFOL-W5-2120.2/2023
- Permis modifié proposé WFOL-W5-2120.0/2025
- Manuel des conditions de permis proposé

Signed/Signé le

24 November 2022/24 novembre 2022

Kavita Murthy

Director General

Directorate of Nuclear Cycle and Facilities Regulation

Directrice générale de la

Direction de la réglementation du cycle et des installations nucléaires

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EXECUTIVE SUMMARY

Beaverlodge is a decommissioned uranium mine and mill site that is located in northwestern Saskatchewan, near Uranium City. The Beaverlodge site is situated within Treaty 8 (1899) territory and the Homeland of the Métis, and is within the traditional territories of the Dene, Cree, and Métis peoples. The site operated from 1952 to 1982 by a federal Crown corporation, Eldorado Nuclear Inc., that was continued as Canada Eldor Inc. During the period of 1952 to 1977, the mill operated without an effluent treatment process. The site was decommissioned from 1982 to 1985 based on a strategy of initial active decommissioning work followed by long-term natural recovery, and the commencement of a transitional monitoring program. Clean-up and decommissioning began when the site closed in 1982; and was completed in 1985. Cameco, who is the operator (on behalf of a federal Crown Corporation), has been monitoring the site and conducting work to enable the site to be transferred from Canadian Nuclear Safety Commission¹ licensing to the Government of Saskatchewan's [Institutional Control Program](#) (ICP).

Originally there were 70 separate properties on the Beaverlodge site area. In 2009, 5 of the 70 properties were [released](#) from the CNSC-issued licence 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 did not require institutional control measures as there was no environmental or public safety risk associated with the property. In September 2022, the Commission [granted](#) an additional release of 18 properties. These 18 properties, or portions thereof, will be transferred to the ICP. As a result of this release, 27 properties currently remain under the CNSC-issued licence. These properties are in the Verna/Bolger area, the Lower Ace Creek area and the Tailings Management Area.

In order for a transfer to the ICP to occur, 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 in a passively stable state and expected to remain so in the long term. Prior to making a decision, the Commission will hold a hearing in which the public and Indigenous Nations and communities have an opportunity to intervene. Both Cameco and CNSC staff have determined that there will not be sufficient time to consider the final request for release of the remaining 27 properties prior to the May 31, 2023, expiry of the current licence (WFOL-W5-2120.2/2023). The final request still needs to be submitted by Cameco and reviewed by CNSC staff and, if found to be acceptable, a Commission proceeding planned, which cannot be completed prior to the expiry date. Therefore, Cameco is requesting a 2-year licence renewal, with no new authorizations.

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

Cameco submitted an application pursuant to section 24(2) of the [*Nuclear Safety and Control Act*](#). CNSC staff have assessed Cameco's [application](#) and performed compliance verification activities throughout the current licence term, and on the basis of these activities CNSC staff support the proposed 2-year licence renewal. As described within this Commission Member Document (CMD), CNSC staff have rated Cameco's performance for all applicable safety and control areas as 'satisfactory' during the current licence term (2013 to present). CNSC staff have also concluded that there has been adequate provision for the protection of the environment during the current licence term and will continue to be so, during this 2-year term licence renewal.

CNSC staff recommend that the Commission accept CNSC staff's assessment and conclusions and approve the issuance of Waste Facility Operating Licence, WFOL-W5-2120.0/2025 with an expiry date of May 31, 2025. As described in this CMD, CNSC staff will continue to conduct verification activities to ensure that the remaining 27 decommissioned Beaverlodge properties remain in compliance with the requirements of the CNSC-issued licence. Cameco's application is for a short-term licence renewal for a low-risk site and does not propose to alter any of the requirements or authorizations currently in place.

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 two parts.

Part One 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. addenda material that complements items 1 through 4.

Part Two of this CMD provides all available information pertaining directly to the current and proposed licence and its associated licence conditions handbook.

1. Overview

1.1 Background

The decommissioned Beaverlodge mine and mill site is located in the northwest corner of Saskatchewan near the town of Uranium City as shown in figure 1.1. Eldorado Nuclear Limited, a federal Crown Corporation, operated the Beaverlodge mine and mill site for 30 years, from 1952 to 1982. During the early operations, comprehensive environmental protection regulations did not exist, and the site operated without an effluent treatment process for approximately 25 years. In 1977, a licence was issued by the Atomic Energy Control Board (AECB), predecessor to the CNSC, which eventually led the implementation of a water treatment process to adhere to the federal *Metal Mine Liquid Effluent Regulations* (repealed and eventually replaced with the [Metal and Diamond Mining Effluent Regulations](#)).

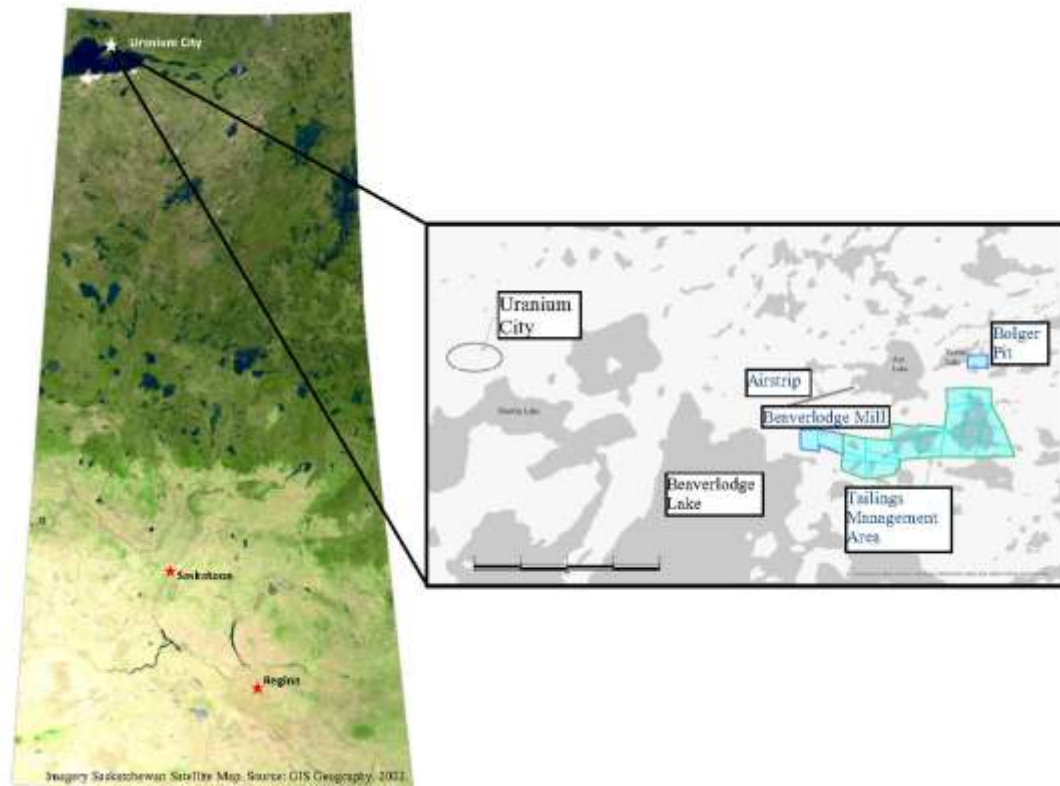
The [Beaverlodge](#) site underwent decommissioning between 1982 and 1985. Decommissioning was performed according to a decommissioning plan which was approved by the provincial and federal agencies, including the AECB. To evaluate the effectiveness of the measures implemented during decommissioning, a transitional phase monitoring program was initiated and continues today.

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 managing the Beaverlodge site, including the transitional monitoring program, and [Canada Eldor Inc.](#), a subsidiary of the Federal Crown Corporation, Canada Development Investment Corporation, was to provide the funding for all activities associated with the site.

Currently, the decommissioned Beaverlodge mine and mill site consists of 2 watersheds that were affected by past operations, the Ace Creek watershed and the Fulton Creek watershed. The former mining properties are located in the Ace Creek watershed and the tailings management area properties are located in the Fulton Creek watershed. Figure 1.1 displays these properties and are labeled as the mill and Bolger Pit (blue boundary) and tailings management area (green boundary). The site originally consisted of 70 individual properties in 5 main areas, the Hab Mine Site, the Dubyna Mine Site, the Verna/Bolger Mine Site, the Lower Ace Creek Area and the Fulton Creek watershed as well as some satellite mine areas.

The process to transfer decommissioned Beaverlodge properties to the Government of Saskatchewan's Institutional Control Program (ICP) was initiated in 2009 when the Commission [granted](#) an exemption from licensing, pursuant to section 11 of the [General Nuclear Safety and Control Regulations](#), with respect to 5 of the Beaverlodge properties. These 5 properties were then transferred to the ICP. In 2019, the Commission granted a release of 20 properties 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. Detailed information related to the release of the 20 properties is provided in CNSC staff's Commission Member Document [CMD 19-H6](#) and the Commission's [Record of Decision](#) issued on December 19, 2019.

Figure 1.1: Beaverlodge Project - location map



Source: Cameco

In 2022 the Commission granted a release of an additional 18 properties, all of which were transferred to the ICP. This information is presented in CNSC staff's submission [CMD 22-H5](#) and the [Record of Decision](#) was issued by the Commission on September 7, 2022. 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.

1.1.1 Institutional Control Program

Within this CMD, CNSC staff refer to the Government of Saskatchewan's [ICP](#). Rather than provide a description of the ICP, CNSC staff have included relevant references where the ICP is described. An overview of the ICP and transfer process was presented on October 3, 2018, by CNSC staff to Commission members in CMD 18-M38 [1]. A summary of the ICP and transfer process is presented in CMD 22-H5, the most recent request for release of properties from CNSC licensing. When a request or application is made to release the remaining properties, a full summary of the ICP will be included in CNSC staff's CMD.

1.1.2 Licensing History

The AECB first issued a licence to Eldorado Nuclear Limited in 1977 to operate the Beaverlodge mine and mill site. Operations ceased in 1982 and the site was decommissioned by 1985.

Cameco was formed in 1988 as a result of the merger of a federal and provincial Crown corporation and became the licensee for Beaverlodge. In 2005, as a result of the new [Nuclear Safety and Control Act](#) that came into force in 2000, the Commission revoked the previous AECB licence to decommission and issued a new 2-year licence with a 2007 expiry. This licence was subsequently amended with a 2009 expiry date. This extension of the licence term was to provide time for Cameco to complete environmental and human health studies and for the implementation of the Government of Saskatchewan's legislative process regarding the future release of former mine sites to the province.

During the 2009 licence renewal hearings, the Commission [requested](#) details and milestones on long term planning activities for the remaining properties during the proposed licensing period. In response to the Commission's request, Cameco presented a management framework and decision flow chart, along with a detailed 3-year work plan. Cameco committed to return to the Commission with a clear remediation plan at the end of that licence period. Following the 2009 hearings, the Commission issued a [3-year licence](#) for the Beaverlodge site with an expiry date of November 30, 2012.

At the request of Cameco, on September 25, 2012, the Commission issued a [6-month licence renewal](#) with an amended expiry date of May 31, 2013. This renewal was issued to allow additional time for Cameco to finalize the performance objectives for the remedial options and to complete additional Indigenous and community consultations.

To create a remediation plan, Cameco developed a Quantitative Site Model (QSM) to characterize the interaction between the properties and the downstream receiving environments through source characterization and dispersion modelling. The QSM 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.

A [summary](#) of the QSM is provided on Cameco's [Beaverlodge website](#). Cameco completed over 20 studies which have contributed to the development of a path forward.

Cameco presented this remediation plan to the Commission at the Beaverlodge [licence renewal hearing](#) in April 2013; reasonable options to support the natural recovery of the site were identified, in addition to other options which were considered but not selected for implementation. The selected remediation options were expected to result in localized improvements in water quality. However, 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 was little effect on the enhanced recovery of Beaverlodge Lake, which contains elevated levels of selenium and uranium. CNSC staff's assessment of Cameco's application and path forward was presented to the Commission as well and is provided in [CMD 13-H4](#) [2].

On May 27, 2013, the Commission [accepted](#) Cameco's proposed 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 provide 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 within CMD 14-M60 [3] and presented to the Commission on October 1, 2014, fulfilling the commitment made by CNSC staff. Cameco outlined a proposed schedule for submissions in support of their application to transfer all Beaverlodge properties into either the ICP or for releasing properties, or portions thereof, from licensing over their current 10-year licensing period and this information was included in CMD 14-M60.

On December 19, 2019, the Commission [granted](#) a release of 20 properties from the CNSC-issued licence WFOL-W5-2120.0/2023, leaving 45 properties remaining under that licence. On September 7, 2022, the Commission [granted](#) the release of an additional 18 properties. There are now 27 properties remaining within the current licence (WFOL-W5-2120.2/2023).

1.2 Highlights

On August 10, 2022, Cameco submitted an [application](#) [4] pursuant to section 24(2) of the [Nuclear Safety and Control Act](#) for a 2-year licence renewal for its Beaverlodge Project. CNSC staff assessed all aspects of Cameco's application for the proposed 2-year renewal of its CNSC licence, WFOL-W5-2120.2/2023, and Cameco's compliance with the current licence and found both satisfactory. CNSC's staff assessment of Cameco's licence application included a completeness check, a sufficiency check, and a technical assessment against regulatory requirements (appendix B.2).

Cameco's original schedule presented to the Commission in 2014 [3] projected having requests for release of all properties submitted by the end of the current licence term (2023). However, Cameco has determined that this is no longer feasible within the current licence term, due to the time it will take to submit a request, the request to be reviewed, and a Commission proceeding planned. Cameco now plans to submit the final request for the release of all remaining CNSC-issued licensed Beaverlodge properties in late 2022/early 2023. While a delay in Cameco's application does not pose any safety or environmental concerns, Cameco's projected final application timeframe will not provide CNSC staff with sufficient time to review Cameco's request and prepare the necessary documentation for the Commission prior to the end of the current licence period (as the licence will expire on May 31, 2023). Therefore, Cameco is requesting a 2-year licence renewal which is expected to provide sufficient time for the complete consideration of their final application.

Cameco's request is for a short-term renewal for the remaining 27 properties and does not propose any changes to the requirements or authorizations currently listed in the licence. The Beaverlodge properties will remain under CNSC licensing until a request for release of a given property or set of properties is approved by the Commission. Any request for release from licensing of the remaining 27 properties will be subject to a public Commission hearing. All CNSC requirements will be maintained and CNSC compliance activities will continue as long as the licence remains in effect.

During the 2019 licence amendment hearing, the [Commission](#) recommended that annual updates be provided on engagement activities conducted by CNSC staff and Cameco specific to the Beaverlodge Project. This CMD includes the requested update related to engagement activities conducted in 2022 by CNSC staff. Cameco will be submitting a CMD that provides a summary of their 2022 engagement activities.

Based on CNSC staff's regulatory oversight activities (which included compliance inspections, document reviews and technical assessments) conducted at the Beaverlodge Project site between June 1, 2013, to October 31, 2022, , CNSC staff have confirmed Cameco's performance for all applicable safety and control areas (SCAs) is "[satisfactory](#)".

1.3 Overall Conclusions

CNSC staff's assessment is that Cameco's application under consideration by the Commission complies with regulatory requirements as set out in appendix B of this CMD.

CNSC staff concluded that the licensee's performance during the licensing term was satisfactory and met all regulatory requirements.

1.4 Overall Recommendations

CNSC staff recommend that the Commission:

1. Conclude, pursuant to paragraphs 24(4)(a) and (b) of the [Nuclear Safety and Control Act](#), that the licensee/applicant:
 - a) Is qualified to carry on the activities authorized by the licence
 - b) Will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed
2. Renew the Waste Facility Operating Licence for the Beaverlodge Project and issue the proposed licence, WFOL-W5-2120.0/2025, with no new authorizations.
3. Delegate authority as set out in section 5.3 of this CMD.

2. Environmental Protection Review

CNSC staff reviewed Cameco's licence renewal application to identify the type of environmental review required. As part of this process, CNSC staff must assess whether an integrated impact assessment or a federal lands review under the [Impact Assessment Act](#) (IAA) is required. For this licence application, it was determined that neither reviews are required because the application does not include activities listed in the IAA [Physical Activities Regulations](#) that require an impact assessment, or that meet the definition of a project on federal lands.

CNSC staff conduct environmental protection reviews (EPRs) for all licence applications with potential environmental interactions, in accordance with its mandate under the [Nuclear Safety and Control Act](#) (NSCA) and associated regulations. The EPRs help inform the Commission's conclusions on whether the licensee or applicant provides adequate protection of the environment and the health of persons.

For this licence renewal application, CNSC staff conducted an EPR to verify that the environment and the health of persons remain protected. More information on CNSC staff's evaluation of Cameco's environmental protection program can be found in section 3.9 of this CMD. CNSC staff's assessment included a review of Cameco's licence renewal application, supporting documents, annual compliance monitoring reports, and past environmental performance. This section contains results of this assessment and accounts for the fact that the Beaverlodge Project is a decommissioned mine/mill site that is in a state of post-decommissioning monitoring.

No changes to the project-environment interactions will transpire as a result of this licence renewal as no new activities are proposed and the site is in a stable and passively stable state. There are no airborne emission point sources and air monitoring consists solely of passive monitoring using radon track etch cups, which are detectors used to measure radon concentrations in air. Overall, measured radon levels have remained relatively constant in recent years, and while not at background concentrations, are much lower than while operational. There are no water treatment facilities nor any water retaining structures on site. Water flows naturally through the site and is monitored at established water quality monitoring stations. There are also established stations where water quality is compared to modelled predictions to verify:

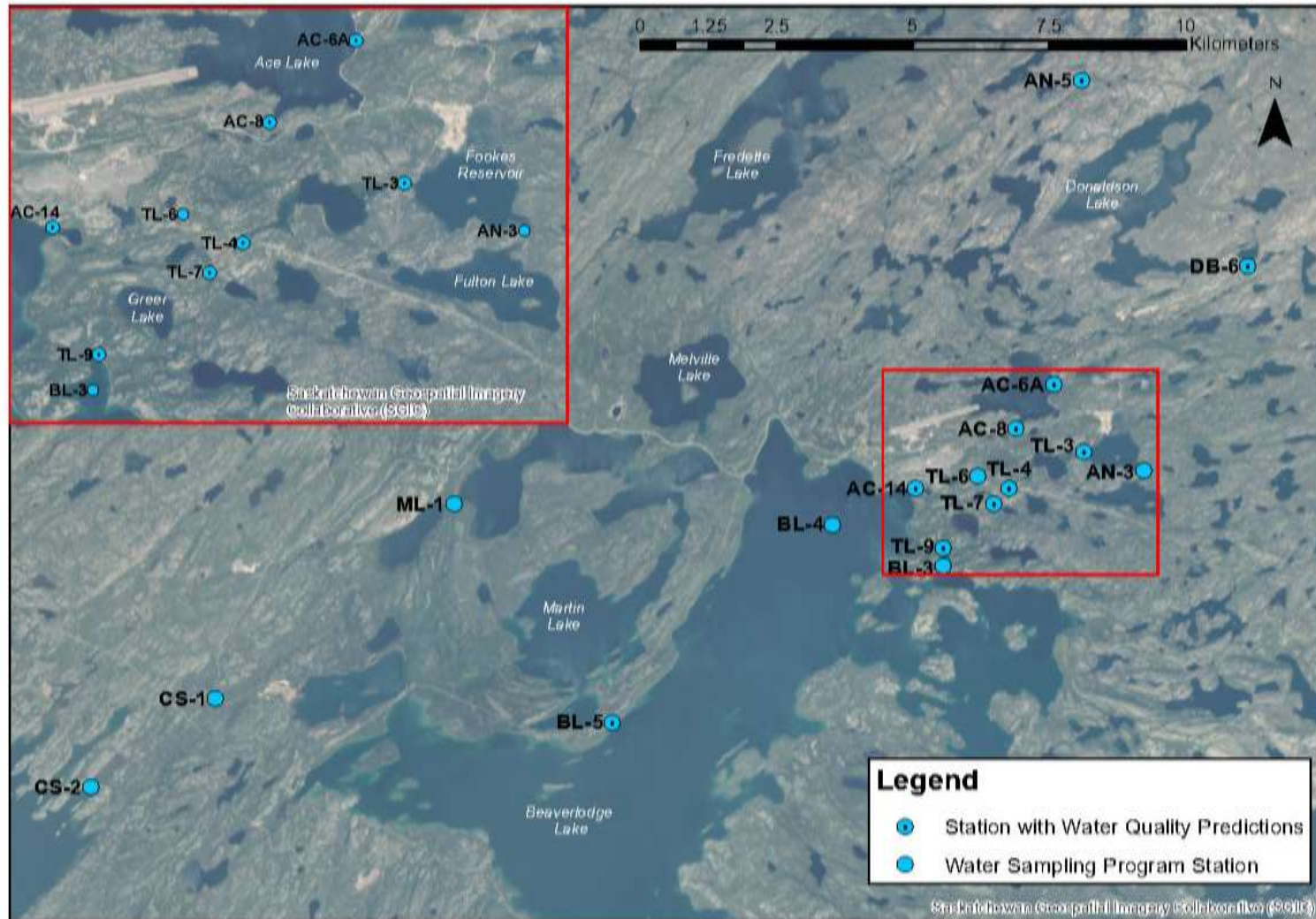
- that remedial options expected to result in localized improvements are having the desired effects and,
- that natural recovery on and downstream of the decommissioned properties is continuing as predicted.

Cameco submits annual reports as required by their licence, which compare water quality with modelled predictions. Cameco is also required to have an acceptable Environmental Risk Assessment (ERA) in place, which is revised on a 5-year basis, at a minimum. The most recent ERA submission was submitted in September 2020 [5]. The 2020 ERA included updated inputs, using the most current water quality results. The ERA also included a new modelling framework which allowed for a fully probabilistic assessment. The new modelling framework is consistent with that used by Cameco at the operating mine sites. The environmental performance indicators were also updated accordingly, with the most current water quality information. CNSC staff have accepted the updated indicators and conclusions from the 2020 ERA and agree that the conclusions from the 2020 ERA are consistent with the 2018 ERA. CNSC staff also concluded that the ERA was conducted in accordance with the applicable Canadian Standards Association standard. A [summary](#) of the 2020 ERA is provided on Cameco's [Beaverlodge website](#).

Cameco is required to monitor water quality on a regular basis and compare the results with the water quality predictions provided in the ERA. Figure 2.1 displays 10 monitoring stations established at the Beaverlodge site which have long term water quality predictions for uranium, radium-226 and selenium. Figure 2.1 also illustrates all current water sample stations; the red insert displays the water quality stations in greater detail at the main Beaverlodge area.

Water quality results are associated with properties for which the established water quality performance criteria are applicable. There are properties where water quality is not affected. Therefore, these properties do not have water quality performance indicators associated with them. Properties where water quality is not affected would be a result of either the properties not being adjacent to a waterbody or, if the properties are adjacent, adequate remediation was completed to limit releases to surface water.

Figure 2.1: Monitoring stations with long term water quality modeling predictions



Applicable waterbodies can be considered stable/improving when the water quality monitoring data trends are within the predicted range. 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. Should water quality data be above the predicted range, this is not considered a non-compliance by the CNSC, nor would it necessarily mean that conditions on the site are unsafe, but it would impact the ability for Cameco to request release of properties from licensing. CNSC staff verify that the water quality is within modelled predictions when considering any request for release of properties.

The 2020 ERA indicated the following:

- Uranium is predicted to remain above the applicable guideline (*Saskatchewan Environmental Quality Guidelines* [SEQG] of 15 µg/L) at a number of stations in the Ace Creek watershed, the outlet of the Fulton Creek watershed, in Beaverlodge Lake, and in the environment downstream of Beaverlodge Lake. Within the Ace Creek watershed, uranium levels at the outlet of Ace Lake (AC-8) are currently slightly below the guideline and are predicted to continue to improve while annual average uranium levels at the outlet of the Ace Creek watershed (AC-14) are currently above the SEQG and are predicted to improve in the future. Consistent with previous assessments, predictions indicate however that uranium levels at Verna Lake (AC-6A) are expected to remain above the SEQG through 2100. Uranium levels at the outlet of the Fulton Creek Watershed (TL-9) are also expected to remain above the SEQG beyond 2100. Similarly, for stations in Beaverlodge Lake and farther downstream, uranium levels are expected to remain above 15 µg/L past 2100 but expected to be close to the guideline by 2150.
- Radium-226 levels are predicted to drop below the applicable guideline (SEQG of 0.11 Bq/L) at Verna Lake (AC-6A) within the next 20 years. Similar to the previous assessments, radium-226 levels in the water column have shown an increase in the Fulton Creek Watershed and, depending on the waterbody, the concentrations are expected to maintain current concentrations or increase slightly before they decline. Radium-226 is expected to continue to increase due to release of historically precipitated radium from the sediments; after the peak is reached, levels are expected to gradually improve. Radium-226 precipitates in Fookes and Marie reservoirs is associated with naturally occurring calcium and barium which may have been introduced in the milling process while radium-226 was intentionally precipitated out into the Meadow Fen and Minewater Reservoir (as well as downstream in Greer Lake) through addition of ferric sulphate and barium chloride during operations (TL-9). Radium-226 concentrations at the outlet Ace Lake, Lower Ace Creek and the outlet of Beaverlodge Lake are below the guideline and are predicted to remain so in the long term.

- Selenium is predicted to remain below the SEQG of 1 µg/L, at all Ace Creek watershed stations. Selenium levels at the outlet of the Fulton Creek watershed and most locations downstream to Lake Athabasca are currently above the SEQG but are expected to meet and fall below the SEQG in the next 50 to 100 years.

Cameco acquires samples and provides reports on the long-term predictions of the quality of water at the water quality stations. Figures 2.2 to 2.4 show the water quality predictions for the outlet of Beaverlodge Lake (Station BL-5) for radium-226, uranium and selenium, respectively.

Figure 2.2: Long-term radium-226 predictions and water quality data for the outlet of Beaverlodge Lake

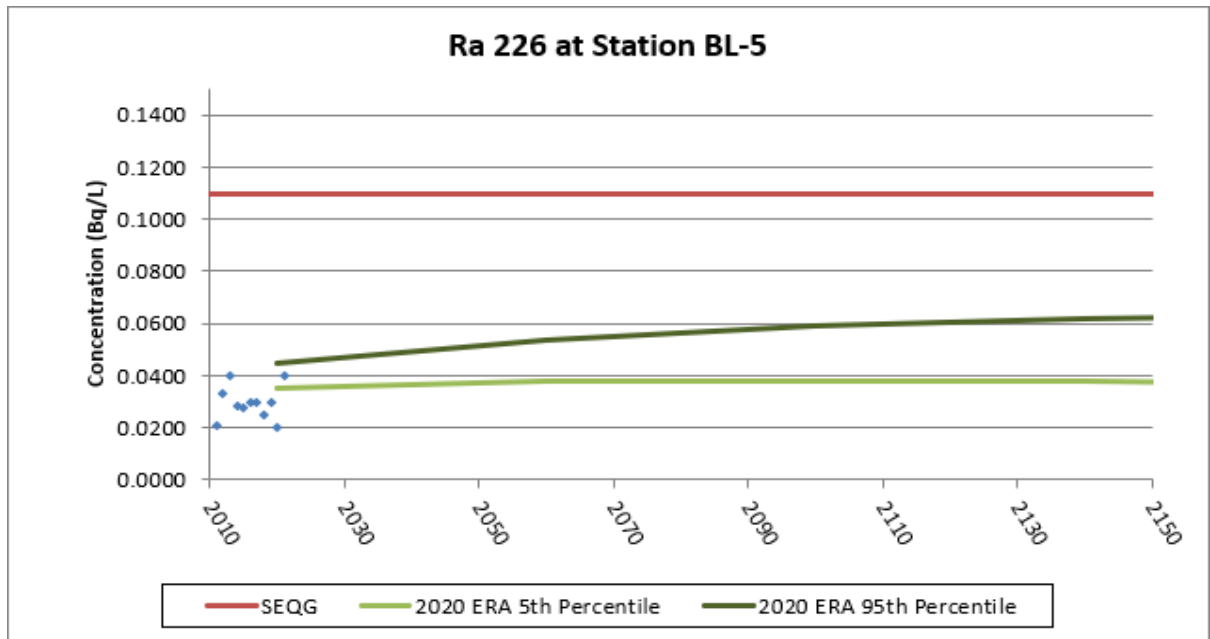


Figure 2.3: Long-term uranium predictions and water quality data for the outlet of Beaverlodge Lake

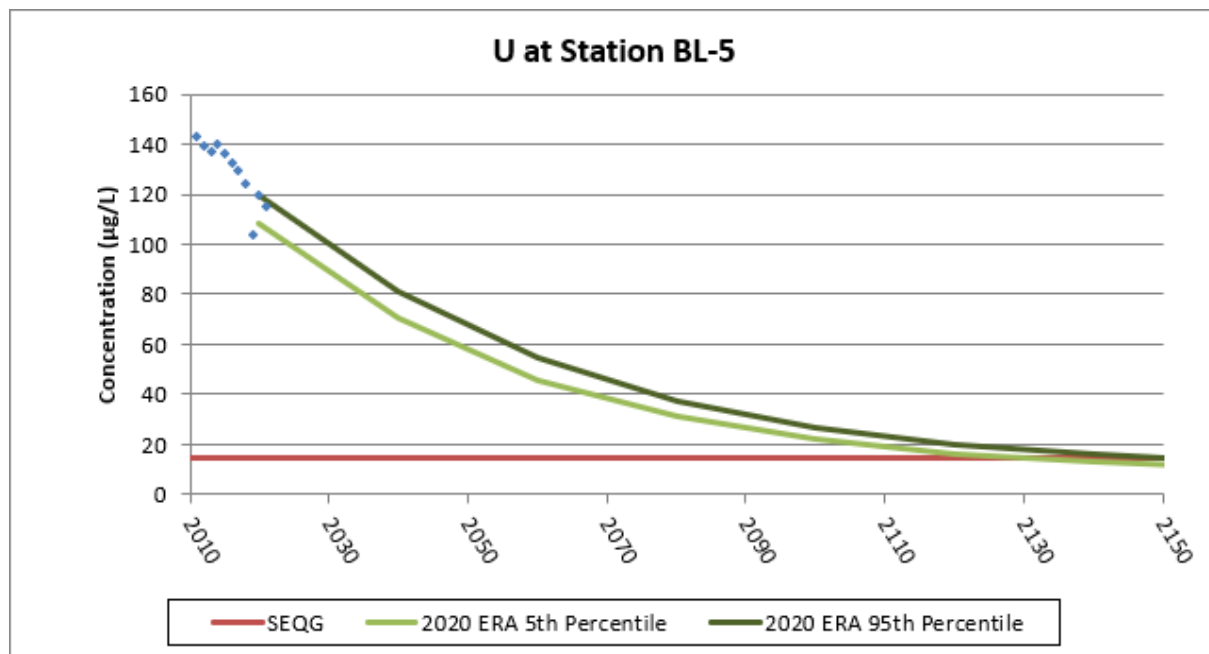
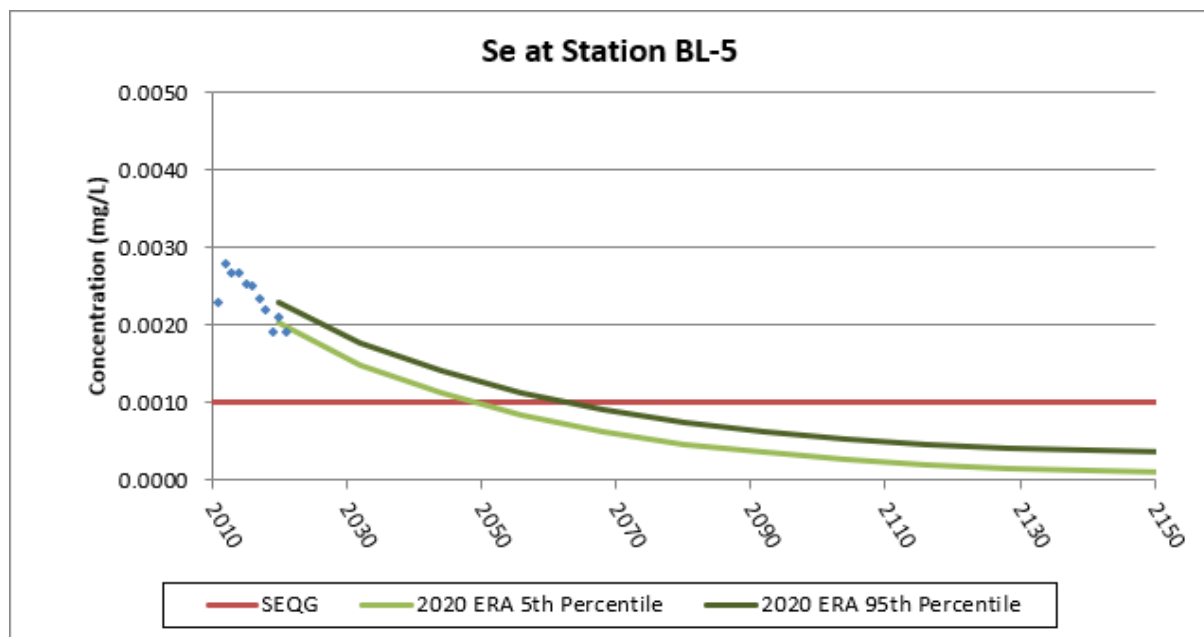


Figure 2.4: Long-term selenium predictions and water quality data for the outlet of Beaverlodge Lake



Within the 2020 ERA, ecological and human health risk was evaluated. It was concluded that, while levels of key constituents in surface water and sediments are predicted to remain above applicable guidelines within a number of waterbodies, potential risks to ecological receptors evaluated across the site were assessed to be low for most species at the majority of locations within the Ace Creek drainage. However, within the tailings management area and the waterbodies downstream, potential risks have been identified related to exposure to elevated selenium levels for fish and piscivorous receptors (i.e., merganser and mink), and elevated uranium levels for aquatic biota (i.e., aquatic plants and benthic invertebrates). Within the Fulton Creek system, uranium is also a potential risk for receptors that consume primarily benthic invertebrates (i.e., scaup and muskrat). These findings are largely consistent with potential risks identified in previous Beaverlodge area assessments.

A human health risk assessment (HHRA) was completed as part of the 2020 ERA. The HHRA evaluated a set of receptors (adult, child and toddler) at Verna Lake, Ace Lake, Beaverlodge Lake, Martin Lake north basin, Martin Lake south basin, and Crackingstone River. The assessment of these receptors found that exposure to radiological constituents resulted in a small incremental dose (<0.15 mSv/year), well below the public dose limit of 1mSv/yr specified in the [*Radiation Protection Regulations*](#). Exposure to radioactivity is not expected to pose a 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. Under current conditions, the 95th percentile is above the toxicity reference value (TRV) for selenium and uranium in select waterbodies for children and/or toddlers. A TRV defines the level of a particular substance to which people can safely be exposed over a specified period. These concentrations are expected to decline in the near-term and modelling indicates there will be no effects. It is worth noting that the 95th percentile indicates that a high level of intake would be required for an individual to exceed these TRVs, and so this is unlikely to occur based on the conservative nature of the modelling.

It was also concluded in the 2020 ERA that consuming country foods from the area, while respecting the water and fish advisories, can continue to be done safely.

CNSC staff have found that the information provided by Cameco regarding environmental protection is sufficient to meet the applicable regulatory requirements under the NSCA and associated regulations for the licence renewal. Cameco will be required to continue to monitor water quality at the Beaverlodge site and compare these results with the ERA predictions to ensure that the results are consistent with predictions and the ERA conclusions remain valid. CNSC staff will continue to verify and ensure that, through ongoing licensing and compliance activities and reviews, the environment and health of persons are protected and will continue to be protected over the proposed licence period.

Local Community Health Studies

Although the Beaverlodge Project is in a state of post decommissioning monitoring and maintenance, CNSC staff review the results of existing health reports to assess whether the health of people living near the Beaverlodge site remain protected.

CNSC staff reviewed local community health reports from the [Northern Saskatchewan Population Health Unit](#) and the [Northern Inter-Tribal Health Authority](#) as well as provincial health reports from [Saskatchewan Health Authority](#) and the [Saskatchewan Cancer Agency](#) to assess various health indicators. Reviewing reports is an important component of assessing the overall health of people living near nuclear facilities.

According to the [Saskatchewan First Nations 2018 Health Status Report](#) [6] Saskatchewan Indigenous communities continue to experience health disparities as compared to non-Indigenous communities. These disparities are related to the social determinants of health.

The population and community health studies and reports indicate that the most common causes of death among the Saskatchewan populations are heart disease and cancer. This is similar to the rest of Canada, where heart disease and cancer are the 2 leading causes of death, aside from Nunavut, where heart and respiratory diseases are the leading causes of death [7].

Cancer rates tend to increase as the population ages. In northern Saskatchewan, cancer is predominantly seen in people that are over 50 years of age. Overall, cancer rates for all cancers combined in northern Saskatchewan are lower for males and similar for females, when compared to southern Saskatchewan. However, lung cancer rates are greater in northern Saskatchewan compared to the provincial average. Lung cancer is the most common cause of cancer death in Indigenous communities in northern Saskatchewan. To put this into perspective, lung cancer was projected to continue to be the most commonly diagnosed cancer and the leading cause of cancer death in Canada, accounting for 1 in 4 of all cancer deaths [8]

According to the Canadian Cancer Society, approximately 72% of lung cancer cases are due to smoking tobacco[8]. Other factors include second-hand smoke, radon, radiation, asbestos, family history, occupational exposure to certain chemicals, and outdoor air pollution. The number of daily smokers in northern Saskatchewan is significantly higher than the provincial and national average [8, 9].

In Canada, exposure to indoor radon is the second leading cause of lung cancer [10]. Research from the Saskatchewan Cancer Agency has demonstrated that community work is essential for cancer control, particularly in northern Saskatchewan, where the focus should be on cancer prevention and education, including ways to support cancer patients and their families.

Occupational Health Studies

Not only is it important to understand the overall health of the community near a mine/mill site, understanding the relationship between workplace exposures and long-term health is important.

CNSC staff examined the relationship between radiation exposure and health among workers who worked at the Beaverlodge Project, the Port Radium uranium mine sites and the Port Hope radium and uranium facility between 1932 and 1982 [11]. Their mortality and cancer incidence were followed to 1999. Overall, uranium mining, milling, and processing workers were as healthy as the general Canadian population. Lung cancer was the one exception – lung cancer mortality and cancer incidence rates were higher among uranium workers. The risk of lung cancer increased with increasing cumulative radon exposure [12].

Studies of past uranium workers led to strict radiation protection regulations, including dose limits and the ongoing monitoring of occupational exposure which has resulted in a drastic decrease in workplace radiation exposures [13]. Today, miners' exposure to radon are at natural background levels so uranium miners in the present day are highly unlikely to develop lung cancer from their occupational radiation exposures.

However, studies of the long-term health of workers are important; our radiation protection knowledge base reflects the best available science for the protection of workers and the public. The CNSC and its partners, including the Province of Saskatchewan and University of Saskatchewan, initiated a study of 80,000 past and present Canadian uranium workers to add new knowledge on the long-term health of workers and the relationship between radon and lung cancer, especially at the low radon exposures of today's workers [Canadian Uranium Workers Study - Canadian Nuclear Safety Commission](#). This study includes follow-up from the historic Beaverlodge uranium miners. The historic study concluded that overall, workers were as healthy as the general Canadian male population, with heart disease, cancer, injury and poisonings, and respiratory diseases as the leading causes of death. Lung cancer was due to the past high workplace radon progeny exposures.

Health Studies Conclusion

Based on exposure and health data, CNSC staff have not observed and do not expect any adverse health outcomes relating to current activities at the Beaverlodge Project.

Conclusion

Cameco has implemented and maintains an effective environmental protection program to adequately monitor and protect the environment and the health and safety of persons. Through ongoing reviews, licensing, and compliance activities, CNSC staff have and will continue to verify that Cameco will continue to make adequate provisions for the protection of the environment during this 2-year licence renewal.

3. 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. Although CNSC staff's assessment of the application considers multiple SCAs, only those that are most relevant in providing a good overall indication of how regulatory requirements will be met by applicants and the past safety performance of the licensees are covered in this CMD. CNSC staff may also choose to combine multiple SCAs together to provide a more integrated picture of the licensee's performance over the licensing period. Rating level categories for the SCAs are provided in appendix A.

The regulatory and technical basis for the matters discussed in this CMD arise directly from the [Uranium Mines and Mills Regulations](#) and the [General Nuclear Safety and Control Regulations](#) as well as other regulatory requirements associated with the [Nuclear Safety and Control Act](#). Further information regarding the regulatory and technical basis for the matters discussed in this CMD are provided in appendix B to this document.

The specific areas that comprise the SCAs for the Beaverlodge Project site are identified in appendix C, section C.2. If specific areas are listed for an SCA in section 3, then related regulated activities/information about them are provided in appendix C to this CMD. If specific areas are not listed for a given SCA in section 3, then a decision has been made to encompass them in an overall approach to that SCA.

As the Beaverlodge Project is a decommissioned site, regular updates have been provided in CNSC staff's regulatory oversight reports (RORs). Within these RORs, staff provide the SCA ratings for radiation protection, environmental protection and conventional health and safety. These 3 SCAs for Beaverlodge have been rated as "satisfactory" as reported in the RORs ([2015](#), [2017](#) and [2020](#)²). The SCA evaluation included within this CMD is more comprehensive than the information provided in these RORs, as all relevant SCAs are included, but the conclusions are consistent with the information presented in those RORs.

² Posting of the 2020 ROR expected to be completed by 2023.

3.1 Management System

The management system SCA covers the framework that establishes the processes and programs required to ensure an organization achieves its safety objectives, monitors its performance against these objectives and fosters a healthy safety culture. CSA standard N286-12, *Management System Requirements for Nuclear Facilities* [14] contains the requirements for a management system for nuclear facilities and extends to all SCAs. The management system must satisfy the requirements set out in the [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.

3.1.1 Trends

The following table indicates the overall rating trends for the management system SCA over the current licensing period:

TRENDS FOR MANAGEMENT SYSTEM									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.1.2 Discussion

Cameco's Safety, Health, Environment and Quality policy applies to all of Cameco's licensed facilities, where Cameco has sole operational control or more than a 50% interest, including the Beaverlodge site. Cameco's Lead, Reclamation Specialist - Beaverlodge, is responsible for managing all activities at the Beaverlodge site. Canada Eldor Inc., a subsidiary of the federal Crown corporation, Canada Development Investment Corporation, provides the funding for all activities associated with the site.

During the previous licence term (2009-2013), all site activities were conducted by contractors under Cameco's Contractor Management Program. However, it was recognized that the implementation of proposed remedial options (Bolger flow path reconstruction, etc.) during the present licence term would result in increased activity on the site that necessitated additional management oversight and control by Cameco. As a result, Cameco developed a site-specific management system to ensure that the implementation of remedial options was effectively managed and controlled. CNSC staff reviewed the program against management system requirements and accepted the program in February 2013. The program was developed to ensure that appropriate measures were in place prior to Cameco's implementation of the remedial options during the term.

During the current licence term, there were no reportable events for which the management system SCA was the main contributory factor nor any non-compliances raised by CNSC staff under the management system SCA.

3.1.3 Summary

CNSC staff concluded that Cameco has appropriate organization and management structures in place to adequately carry out the activities during the current licence term. Cameco has an acceptable quality management program to ensure an effective management system. Through compliance verification, CNSC staff are satisfied that Cameco has an appropriate management system in place to monitor and maintain the Beaverlodge site, and acceptable measures are in place to complete the remaining activities during the current licence term.

Although the remedial activities are considered complete at the Beaverlodge site, Cameco's Quality Management Program will be maintained during the proposed 2-year licence renewal.

CNSC staff rate the management system SCA as satisfactory during the current licence term and have no concerns related to the management system.

3.1.4 Conclusion

CNSC staff concluded that Cameco maintained appropriate organization and management structures in place to adequately carry out licensed activities during the current licence term. The management system is expected to continue to be implemented and maintained during the proposed 2-year licence renewal.

3.2 Human Performance Management

The human performance management SCA covers activities that enable effective human performance through the development and implementation of processes that ensure a sufficient number of licensee personnel are in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.

This SCA is not relevant to this CMD as there are no full-time personnel on site to manage the properties. This SCA is also not listed within the current licence.

There are no licence conditions under this SCA in the current licence, WFOL-W5-2120.2/2023 (provided in Part Two of this CMD), nor are any proposed.

3.3 Operating Performance

The operating performance SCA includes an overall review of the conduct of the licensed activities and other activities that enable effective performance. The specific areas that comprise this SCA are not addressed individually in this document.

3.3.1 Trends

The following table indicates the overall rating trends for the operating performance SCA over the current licensing period:

TRENDS FOR OPERATING PERFORMANCE									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.3.2 Discussion

The operating performance SCA requires that the licensee implement and maintain an operating performance program for the conduct of licensed activities. This SCA focuses on the conduct of operations and the controls that are in place to manage risks from licensed activities.

The CNSC expects Cameco to take all reasonable precautions to protect workers and to control the release of nuclear and hazardous substances into the environment during the conduct of activities. The necessary precautions include engineering and administrative controls to minimize risks.

Cameco is currently authorized to possess, store and manage uranium mill tailings and residual waste rock for the decommissioned site. During the licence term, a number of remedial activities were conducted, including the following:

- Bolger flow path remediation project where waste rock was relocated to re-establish the creek between Zora and Verna Lakes
- installation of stainless-steel caps over mine shaft/raises either covering or replacing concrete caps installed at the time of decommissioning
- plugging of boreholes
- crown pillar remediation and assessment of crown pillar stability throughout the site
- a comprehensive gamma scan of the site and covering of areas with elevated gamma radiation, where required.

Based on CNSC's risk-based inspection program, a CNSC inspection of the Beaverlodge site is currently required at a minimum frequency of once every 3 years; however, inspections were conducted on an annual basis during the licence term. This frequency ensured that CNSC staff could observe and evaluate Cameco's remediation projects/activities, and, since 2016, inspections have also included verification of property conditions and information provided in closure report submissions submitted by Cameco. The COVID-19 pandemic restricted most onsite inspections in order to reduce transmission of the virus. However, following established safety protocols, approval was granted for CNSC staff to continue with the 2020 and 2021 onsite inspections of the Beaverlodge site.

These inspections were conducted to verify that properties proposed for release from CNSC licensing and transfer to the ICP met the performance indicators/regulatory acceptance criteria.

During the current licence term, there were 5 low risk notices of non-compliance issued as a result of inspection findings. The findings relate to inconsistency between a sampling manual and a work instruction; expired conductivity standards; absence of a work instruction for geotechnical inspections; and missing information on health and safety measures to protect workers and contractors in procedures/work instructions. These findings have all been adequately addressed by Cameco and are closed. CNSC staff will continue to verify compliance through inspections to ensure Cameco is maintaining the health and safety of persons and the environment.

3.3.3 Summary

Cameco is required to report unplanned events to the CNSC and take necessary corrective actions to improve safety and to prevent recurrence.

As identified in the attached licence conditions handbook (LCH), and as reflected in [CNSC's REGDOC-3.1.2, Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills](#), Cameco is required to submit detailed reports on unplanned situations or events. Cameco maintains the documentation and processes for an effective operating performance program, including the processes for the reporting of information to the CNSC. CNSC staff verified that, in accordance with [CNSC's REDGOC-3.2.1, Public Information and Disclosure](#), Cameco has continued to proactively disclose reportable events.

During the licence term there were 2 reportable events at the Beaverlodge site:

- October 2013 - crown pillar failure at the Ace 1 property
- August 2015 - release of high turbidity/total suspended solids water during the Bolger flow path remediation project.

The crown pillar failure and release of water are explained in further detail in sections 3.4 and 3.9, respectively.

Over the licence term, CNSC staff conducted technical assessments of the studies and submissions completed by Cameco. Annual reports were also reviewed for regulatory compliance and an assessment of the environmental monitoring data.

Cameco has operated the Beaverlodge Project in compliance with CNSC regulatory requirements during the licensing term and findings from inspections or desktop reviews were addressed accordingly.

CNSC staff rated Cameco's overall performance for the operating performance SCA as satisfactory for the current licence period.

3.3.4 Conclusion

During the current licence period, CNSC staff observed that Cameco has operated the Beaverlodge Project in compliance with the CNSC's regulatory requirements.

CNSC staff concluded that Cameco has maintained and satisfactorily implemented their operational performance program and has made adequate provision for safe operation of the site.

The operational performance program will continue to be implemented and maintained during the proposed 2-year licence renewal.

3.4 Safety Analysis

The safety analysis SCA includes the systematic evaluation of the potential hazards associated with the licensed activity or facility and considers the effectiveness of preventative measures and strategies in reducing the effects of such hazards. Cameco maintains a safety analysis program for the Beaverlodge site.

3.4.1 Trends

The following table indicates the overall rating trends for the safety analysis SCA over the current licensing period:

TRENDS FOR SAFETY ANALYSIS									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.4.2 Discussion

Cameco completed an initial safety analysis in September 2010 to characterize the current risks associated with the Beaverlodge site. This document informs the Beaverlodge Management Framework for the evaluation of residual risks and mitigation measures. Following the completion of the studies that were conducted to support the proposed remediation plan, these risks were updated in the [Path Forward Report](#). It is CNSC staff's opinion that the initial safety analysis and studies effectively identified and recorded the risks associated with the site. CNSC staff reviewed these reports and concluded that the methodology and conclusions are acceptable. A complete summary of these reports is provided in CMD 13-H4 [2] and therefore has not been reiterated here. In support of releasing the properties from the CNSC-issued licence, Cameco provided a revised environmental risk assessment (ERA). The updated 2020 ERA [5] contained revised surface water quality performance indicators; assessed using a different model and more recent water samples as previously stated in section 2. This report has also been accepted by CNSC staff as described in section 3.9.

During the licence term, there was 1 event report for which this SCA was the main contributory factor. This event, observed in October 2013, was the failure of the crown pillar at the Ace 1 property. A crown pillar is the rock mass between the uppermost mine working and the ground surface. If a crown pillar fails, the ground surface will subside which can present a safety hazard. Stable crown pillars are also one of the established performance indicators for the Beaverlodge site.

The safety significance of the event was considered low as there were no injuries associated with the event. The surface subsidence was also limited in extent and occurred in an isolated area. A geotechnical assessment of the crown pillar stability at the site as a whole was undertaken from 2014 to 2015 to assess the potential for long term ground surface subsidence above the crown pillars and to investigate associated potential safety risks. Corrective actions and preventative measures were developed based on the assessment results. CNSC staff accepted the assessment and actions after it was concluded that it was completed using an appropriate methodology and that the actions would prevent future ground subsidence. This subsidence event was a contributing factor to the decision by CNSC staff to establish the stable crown pillar performance indicator which was presented to the Commission in 2014 [3]. On [September 7, 2022](#), the Commission released the Ace 1 property from CNSC licensing, and this property was transferred to the ICP.

3.4.3 Summary

CNSC staff will continue to monitor performance in this area through regulatory oversight activities, including inspections and desktop reviews of annual compliance reports and revisions to relevant program documentation pertaining to this SCA.

3.4.4 Conclusion

It is CNSC staff's conclusion that the initial safety analysis and additional studies and analysis have effectively identified and recorded the risks associated with the site. CNSC staff have conducted detailed reviews on the completed studies. All the residual risks have been assessed by Cameco and reasonable efforts have been made to manage them.

In the future, CNSC staff will continue to monitor the water quality results and verify remedial performance based on the derived performance indicators and regulatory acceptance criteria. Based on the above assessment, CNSC staff rate the safety analysis SCA as satisfactory.

Although the remedial activities are considered complete at the Beaverlodge site, the safety analysis program will be maintained during the proposed 2-year licence renewal.

3.5 Physical Design

The physical design SCA 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. Cameco maintains a physical design program.

3.5.1 Trends

The following table indicates the overall rating trends for the physical design SCA over the current licensing period:

TRENDS FOR PHYSICAL DESIGN									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.5.2 Discussion

During the current licence term, design efforts were focused on the designs of various remedial options including the following:

- Bolger flow path reconstruction project (to remove waste rock in direct contact with Zora Creek and re-establish the Zora Creek flow path between Zora and Verna Lake) - approximately 133,000 m³ of waste rock was relocated to Bolger Pit
- plugging all identified boreholes (to prevent groundwater outflow from reaching the surface)
- replacing/covering caps on all vertical mine openings (installation of engineered caps to improve the long-term safety of the site)
- covering all waste rock and tailings areas that have an elevated gamma field (for the purpose of reducing gamma exposure, any areas with elevated gamma levels were conducted in accordance with the gamma radiation and risk evaluation reports).

These remedial activities and reports were reviewed by CNSC staff throughout the licence term.

3.5.3 Summary

During the current licence period, Cameco has demonstrated to CNSC staff that they have followed their design control process when undertaking these activities.

CNSC staff will continue to monitor performance in this area through regulatory oversight activities including inspections and desktop reviews of Cameco's annual compliance reports and revisions to relevant program documentation pertaining to this SCA.

3.5.4 Conclusion

CNSC staff concluded that Cameco's overall performance at the Beaverlodge site is satisfactory, and that Cameco is qualified to carry out the authorized activities in this SCA.

Although the remedial activities are considered complete and all mine openings have been sealed, the physical design program will be maintained during the proposed 2-year licence renewal.

3.6 Fitness for Service

The fitness for service SCA covers activities that impact the physical condition of structures, systems and components to ensure that they remain effective over time. This area includes programs that verify equipment is available to perform its intended design function when called upon to do so.

This SCA is not relevant to this CMD as the Beaverlodge Project is a decommissioned site which is currently in a passively stable state. This SCA is also not listed within the current licence. Maintenance of structures, such as sealed mine openings, are discussed when requests are received for the transfer of properties from CNSC licensing to the ICP.

There are no licence conditions under this SCA in the current licence, WFOL-W5-2120.2/2023 (provided in Part Two of this CMD), nor are any proposed.

3.7 Radiation Protection

The radiation protection SCA covers the implementation of a radiation protection program in accordance with the [Radiation Protection Regulations](#). This program must ensure that contamination levels and radiation doses received are monitored, controlled, and kept as low as reasonably achievable (ALARA) with social and economic factors being taken into account.

3.7.1 Trends

The following table indicates the overall rating trends for the radiation protection SCA over the current licensing period:

TRENDS FOR RADIATION PROTECTION									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.7.2 Discussion

There are no full-time workers at the site and most maintenance and monitoring work is completed by contractors. Radiation doses to workers and contractors are estimated to be well below the public dose limit of 1 mSv per calendar year for persons who are not nuclear energy workers.

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 potential dose to the public was originally assessed in the [Quantitative Site Model](#) (QMS) [15] and [Country Foods Study](#) [16-18] both concluded that the radiological dose is well below the public dose limit. Summaries of the QSM and the Country Foods Study are provided on Cameco's Beaverlodge website. These original determinations have also been confirmed through the gamma risk evaluation completed in 2015 [19] and environmental risk assessments, the most recent of which was completed in 2020 [5]. Summaries of the [gamma risk evaluation](#) and [environmental risk assessment](#) are provided on Cameco's Beaverlodge website.

The radiological risks for non-routine work activities are assessed by completing a Job Hazard Analysis and, if required, radiation protection measures are implemented in accordance with the [Beaverlodge Facility Licence Manual](#).

There was 1 remedial activity conducted during the licence period where personal dosimeters were used. This project was the Bolger flow path reconstruction project which was completed between 2014 and 2015 with additional outstanding items completed in 2016. Although it was not anticipated that workers would be exposed to levels above the annual dose limit for the general public (1mSv), as a precautionary measure, workers that were expected to be on site for more than 5 consecutive days were classified as nuclear energy workers and wore personal dosimeters to measure gamma radiation exposure. A radiation protection plan was submitted to CNSC staff prior to the start of construction work. The plan was reviewed by CNSC staff, and it was determined that there were adequate measures in place to protect works and therefore it was accepted by CNSC staff. The plan included the use of administration levels for gamma radiation levels.

Representative day-to-day gamma dose monitoring was performed using a personal dosimeter and a representative worker expected to be working in an area that would be at the greatest risk of gamma exposure. The daily dose to workers was monitored to ensure dose levels are maintained to meet the ALARA principle. There were no exceedances of Cameco's administrative levels during the project.

In 2014, the average and maximum gamma radiation exposure for workers on the site was 0.25 and 0.90 mSv, respectively. In 2015 the average and maximum gamma radiation exposure was 0.10 and 0.30 mSv, respectively. Dosimetry monitoring was not conducted in 2016 due to the short duration of the remaining activities on site. No other individual dose monitoring was conducted during the current licence term.

3.7.3 Summary

CNSC staff evaluated the effectiveness of Cameco's radiation protection program for the decommissioned Beaverlodge mine and mill site by reviewing the program, taking gamma measurements during inspections and reviewing annual compliance reports, including Cameco's radon monitoring data.

3.7.4 Conclusion

CNSC staff concluded that the overall risk of radiation exposure at the decommissioned Beaverlodge mine and mill site is low. CNSC staff rate the performance of the radiation protection SCA as satisfactory.

The radiation protection program will be maintained during the proposed 2-year licence renewal.

3.8 Conventional Health and Safety

The conventional health and safety SCA covers the implementation of a program to manage workplace safety hazards and to protect personnel and equipment.

3.8.1 Trends

The following table indicates the overall rating trends for the conventional health and safety SCA over the current licensing period:

TRENDS FOR CONVENTIONAL HEALTH AND SAFETY									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.8.2 Discussion

There are no full-time workers at the site and most maintenance and monitoring work is completed by contractors. Cameco maintains an effective conventional health and safety program and requires their contractors to comply with the program.

3.8.3 Summary

No conventional health and safety incidents or lost-time injuries were reported for either Cameco staff or contractors during the current licensing period. There was 1 event (crown pillar collapse) related to this SCA as described in section 3.4.

A warning sign is posted at the main Beaverlodge site entrance to inform the public that the properties are licensed nuclear facilities. There is no risk to the public from casual access to the site. The public is encouraged to report any incidents or potential safety issues to either Cameco, the CNSC, [Saskatchewan Ministry of Environment](#), or the [Ministry of Labour Relations and Workplace Safety](#).

CNSC staff will continue to monitor the condition of the site through regular compliance inspections.

3.8.4 Conclusion

CNSC staff concluded that the performance in the conventional health and safety SCA is satisfactory.

Although the remedial activities are considered complete at the Beaverlodge site, the conventional health and safety program will be maintained during the proposed 2-year licence renewal.

3.9 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 monitoring program which reflects the current status of the site (post decommissioning monitoring).

3.9.1 Trends

The following table indicates the overall rating trends for the environmental protection SCA over the current licensing period:

TRENDS FOR ENVIRONMENTAL PROTECTION									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments									
There are no comments for this SCA									

3.9.2 Discussion

Environmental monitoring during the current licence term included: surface water sampling, geotechnical monitoring, radon monitoring, monitoring boreholes for leaks and hydrology monitoring. As the site has been shown to be passively stable, the following environmental monitoring requirements have been reduced:

- frequency of surface water sample collection
- radon sampling stations

The removal of seep monitoring and hydrology monitoring was also authorized by both the CNSC staff and Saskatchewan Ministry of Environment, who also require Cameco to have an environmental monitoring program.

On September 7, 2022, the Commission [accepted](#) the release of 18 properties from the current CNSC-issued licence. As a result of the decision, the environmental monitoring program will be revised to reflect the removal of the Hab and Dubyna area monitoring requirements from the program, as these properties were among the 18 properties released from the licence. Monitoring of these properties will be managed by Saskatchewan Ministry of Energy and Resources under the ICP. Special studies have been conducted as required, including preparation and submission of ERAs, generally submitted every 5 years. The most recent ERA was submitted in 2020 and is discussed further in this section (as well as section 2).

CNSC staff verified Cameco's performance with respect to environmental protection through inspections and desktop reviews. The results of these activities allowed CNSC staff to conclude that Cameco's implementation of the environmental protection program at the site meets CNSC's regulatory requirements. In addition, in order for properties to be considered for release from licensing and transferred to the ICP, Cameco must demonstrate that the performance indicators and regulatory acceptance criteria have been met. This requirement includes that surface water quality be within modelled predictions established for those properties where the predictions apply. A comparison of water quality to the accepted performance indicators is made at the time of the request for release of properties and therefore is not included in this CMD. An example of how the monitoring data is compared to the performance indicators is discussed in section 2.1.

During the current licence term, there was 1 event related to this SCA. A release of high turbidity/total suspended solids water occurred during the Bolger flow path remediation project where the waste rock was being relocated to re-establish the creek between Zora and Verna Lakes. On August 9, 2015, during the excavation of frozen waste rock/water, a rapid increase in water flow from the excavation area occurred. This caused water to overflow the settling basin and silt curtains, resulting in water with elevated solids entering a bay of Verna Lake. Both provincial and federal agencies were notified of the event.

Based on water quality samples collected during the event there were no impacts to the environment observed as a result of the event and it was considered to be of low safety significance by CNSC staff and other regulatory agencies. The corrective actions and preventative measures implemented by Cameco during the remainder of the project as a result of this event were deemed acceptable by CNSC staff.

Environmental Risk Assessment

In September 2020, Cameco submitted an update to the then-current 2018 ERA. The updated 2020 ERA [5] was completed in accordance with CSA standard N288.6-12, *Environmental Risk Assessment at Class I Nuclear Facilities and Uranium Mines and Mills* [20]. CNSC staff reviewed the ERA and determined it to be in compliance with this standard.

CNSC staff reviewed the 2020 Beaverlodge ERA to assess the updated risks and conclusions using water quality results and predictions of the new model. CNSC staff concluded that the updated surface water quality indicators are appropriate to assess the performance of the Beaverlodge site and that predictions remain largely unchanged from previous assessments. Predictions from the 2020 ERA are discussed in more detail in section 2.1. A [summary](#) of the 2020 ERA is provided on Cameco's [Beaverlodge](#) webpage.

3.9.3 Summary

Cameco has developed, implemented, and maintains an effective environmental monitoring program that protects the environment and the public in accordance with CNSC regulatory requirements. CNSC staff monitor implementation of the environmental monitoring program through compliance verification activities and have rated Cameco's overall performance at the Beaverlodge site for this SCA as satisfactory for the current licence period.

CNSC staff will continue to monitor performance in this area through regulatory oversight activities, inspections, and desktop reviews of Cameco's annual compliance report and revisions to relevant program documentation pertaining to this SCA.

3.9.4 Conclusion

Cameco has implemented and maintains an environmental monitoring program that adequately protects the environment and the public in accordance with regulatory requirements. No adverse effects are expected on human health.

Cameco has and will continue to make adequate provision for the protection of the environment and the health and safety of persons.

CNSC staff concluded that the performance in the environmental protection SCA is satisfactory.

The environmental monitoring program will be maintained during the proposed 2-year licence renewal.

3.10 Emergency Management and Fire Protection

The emergency management and fire protection SCA covers emergency plans and emergency preparedness programs which exist for emergencies and for non-routine conditions.

3.10.1 Trends

The following table indicates the overall rating trends for the emergency management and fire protection SCA over the current licensing period:

TRENDS FOR EMERGENCY MANGEMENT AND FIRE PROTECTION									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.10.2 Discussion

As the Beaverlodge Project is a decommissioned site with no onsite infrastructure, emergency management and fire protection are focused on wildfire prevention and response. Cameco develops and submits a Wildfire Prevention and Preparedness Plan on an annual basis which is available for CNSC staff to review.

In addition, when remedial work was conducted during the licence term, Cameco prepared emergency response plans that catered to the projects being conducted. The most notable project was the Bolger flow path reconstruction project where a health, safety and emergency response plan was submitted to CNSC staff in advance of the Bolger flow path reconstruction project and deemed acceptable.

3.10.3 Summary

CNSC staff concluded that Cameco's emergency preparedness program continues to be satisfactory for the Beaverlodge Project.

3.10.4 Conclusion

Appropriate emergency response plans/measures have been put in place as part of the implementation of remedial projects, which are now considered complete. The annual submission of the Wildfire Prevention and Preparedness Plan ensures forest fire prevention and preparedness is addressed.

CNSC staff rate the emergency management and fire protection SCA as satisfactory.

Although the remedial activities are considered complete at the Beaverlodge site, the emergency management program will be maintained during the proposed 2-year licence renewal.

3.11 Waste Management

The waste management SCA covers internal waste-related programs that form part of a facility's operations up to the point where the waste is removed from that facility to a separate waste management facility or placed into long-term storage on site. This area also covers the planning for decommissioning.

This SCA is not relevant to this CMD. The activities authorized by the licence are all related to the management of wastes for the decommissioned site, which are static – that is, no new radioactive wastes are being generated at the Beaverlodge site, and all existing radioactive wastes are part of passively stable site features such as the tailings management areas. Therefore, the requirements for waste management are stipulated in the operating performance SCA.

There are no licence conditions under this SCA in the current licence, WFOL-W5-2120.2/2023 (provided in Part Two of this CMD), nor are any proposed.

3.12 Security

The security SCA covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, orders, or expectations for a facility or activity.

Beaverlodge is located in a very remote area of northern Saskatchewan and does not require any security measures. The community of Uranium City has co-existed with the decommissioned mine and mill site since the communities' inception; the residents are aware of the former mining activities that took place on the site. Signs are posted at the main entrances to notify the public that it was a former uranium mining area and also includes contact information for general inquiries.

The site is accessible to the residents of Uranium City as well as the general public by the use of existing gravel roads and trails. This site is stable and does not present any risks that would require additional access controls. In fact, unrestricted public access is anticipated to continue into the future should the existing properties be released from CNSC licensing and transferred to the ICP.

There are no licence conditions under this SCA in the current licence, WFOL-W5-2120.2/2023 (provided in Part Two of this CMD), nor are any proposed.

3.13 Safeguards and Non-Proliferation

The safeguards and non-proliferation SCA 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 other measures arising from the [*Treaty on the Non-Proliferation of Nuclear Weapons*](#). Cameco maintains a safeguards program and complies with [*CNSC's REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy*](#) for those sections applicable to the decommissioned site.

3.13.1 Trends

The following table indicates the overall rating trends for the safeguards and non-proliferation SCA over the current licensing period:

TRENDS FOR SAFEGUARDS AND NON-PROLIFERATION									
OVERALL COMPLIANCE RATINGS									
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Comments There are no comments for this SCA									

3.13.2 Discussion

Regarding the decommissioned site, there is no requirement for the licensee to provide routine access and information for safeguards purposes. However, under the safeguards agreements, the IAEA may request access to a decommissioned site and reasonable support and assistance must be provided, by both CNSC staff and the licensee. During the current licence term, there were no requests by IAEA inspectors to access the Beaverlodge site.

3.13.3 Summary

CNSC staff will continue to monitor performance through participation in IAEA activities and through regulatory oversight activities independent of the IAEA.

3.13.4 Conclusion

CNSC staff rate the safeguards and non-proliferation SCA as satisfactory.

The safeguards program will be maintained during the proposed 2-year licence renewal.

3.14 Packaging and Transport

The packaging and transport SCA covers programs for the safe packaging and transport of nuclear substances to and from the licensed facility. Since the Beaverlodge Project is a decommissioned site this SCA is no longer applicable. There is no longer any movement of radioactive materials associated with the site.

There are no licence conditions under this SCA in the current licence, WFOL-W5-2120.2/2023 (provided in Part Two of this CMD), nor are any proposed.

4. Indigenous and Public Consultation and Engagement

4.1 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 interest in CNSC-regulated activities or 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. The CNSC also provides funding support (through the CNSC's Participant Funding Program) for Indigenous peoples to meaningfully participate in Commission proceedings and ongoing regulatory activities.

4.1.1 Discussion

CNSC staff have identified the following Indigenous Nations, communities and organization which may have an interest in the proposed licence renewal:

- Ya'thi Néné Land and Resource Office (YNLRO - representing Black Lake, Hatchet Lake, and Fond du Lac Denesųliné First Nations as well as the municipalities of Stony Rapids, Uranium City, Wollaston Lake, and Camsell Portage)
- Athabasca Chipewyan First Nation
- 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 renewal. The NSEQC has representatives from the majority of the northern municipal and First Nation 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 being kept informed of CNSC-licensed activities occurring in their treaty lands and/or asserted traditional territories in relation to uranium mines and mills, including decommissioned sites, in northern Saskatchewan.

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.

This engagement included follow-up to the March 24, 2022, Commission hearing where the Commission considered Cameco's request to release 18 properties from licensing. CNSC staff shared the [Record of Decision](#) and offered to meet to discuss the decision and to answer any questions or concerns related to the decision.

CNSC staff also travelled to Fort Chipewyan in September 2022 and provided the Athabasca Chipewyan First Nation (ACFN) Elders Council with updates on the Beaverlodge Project and also visited the Transport Canada dock in the community to follow up on a concern raised by ACFN in their intervention during the October 2, 2019, hearing to consider the release of 20 Beaverlodge properties from licensing. The concern related to historic contamination associated with the [Northern Transportation Route](#) which was used to transport uranium ore from the Port Radium mine in the northwest territories. The visit was in addition to the information provided to ACFN staff on investigations and studies in follow-up emails and videoconferences. No contamination of the Transportation Canada dock was measured by CNSC staff.

In relation to Cameco's current proposed request, CNSC staff sent letters of notification on September 13, 2022, to the identified parties providing information regarding the proposed 2-year licence renewal, the availability of participant funding and details on how to participate in the Commission's hearing in writing.

All of these parties have also received regular updates on the project and the proposed licence renewal, well in advance of these letters being sent out. Follow-up correspondence was 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 Indigenous Nations, communities and organizations. CNSC staff have discussed the proposed licence renewal with interested Indigenous Nations, communities and organizations well in advance of the preparation of this CMD, and the participant funding announcement. All of the identified Indigenous Nations, communities and organizations were encouraged to participate in the Commission's hearing process in order to advise the Commission directly of any concerns they may have in relation to this decision-making matter. As noted in section 4.2.1, CNSC staff also participated in Cameco's organized 2022 site tours to listen to any feedback provided by Indigenous Nations, communities and organizations and to answer questions.

To date, no issues have been raised by the identified Indigenous Nations, communities and organizations related to potential impacts on Indigenous and/or treaty rights as a result of this proposed licence renewal. Interested entities are expected to provide their opinion on the proposed licence renewal as part of their written intervention to the Commission. CNSC staff are committed to continue to address any concerns that are raised and to provide information pertaining to the project. Follow-up activities, where necessary, will be conducted with Indigenous Nations, communities and organizations who express any remaining concerns about the facility following the Commission hearing.

[CNSC's REGDOC-3.2.2, *Indigenous Engagement*](#) 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. 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's request for a 2-year licence renewal does not propose any new activities that could potentially impact Indigenous and/or treaty rights and the requirements of REGDOC-3.2.2 does not apply. Nonetheless, an Indigenous Engagement Report was prepared by Cameco for CNSC staff's review and will be included in Cameco's CMD.

CNSC staff expect Cameco to continue to keep interested Indigenous Nations and communities informed of activities associated with the Beaverlodge Project, including the licence renewal and any future request for the release of properties from CNSC licensing, the transfer of any properties to the ICP, and any on-going activities of interest to these communities.

CNSC staff and YNLRO have now established a Terms of Reference for long-term engagement and will be including Beaverlodge as one of the topics for ongoing discussions. CNSC staff are open to developing long-term relationships with other interested Indigenous Nations.

4.1.2 Conclusion

Based on the information received and reviewed, CNSC staff concluded that this 2-year licence renewal will not cause new adverse impacts to any potential or established Indigenous and/or treaty rights. The identified Indigenous Nations and communities have been notified and encouraged to provide a written intervention for this hearing, providing an opportunity to advise the Commission directly of any concerns they may have in relation to this request. CNSC staff will continue to provide opportunities for meaningful long-term engagement with interested Indigenous Nations and communities to address any concerns with regards to the licence renewal application and the Beaverlodge Project as appropriate.

4.2 CNSC Public Consultation and 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.

Public consultation and engagement activities were conducted by Cameco and CNSC in support of this licence renewal. However, because of travel restrictions resulting from the COVID-19 pandemic, site tours organized by Cameco for 2020 and 2021 were conducted virtually. With health and safety measures implemented and restrictions reduced, in-person site tours of the Beaverlodge area resumed in the spring and fall of 2022.

4.2.1 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.

The CNSC organizes outreach sessions and also regularly participates in information-sharing engagements in the Northern Settlement of Uranium City. Additional information on engagement activities related to the Beaverlodge site conducted by both CNSC and Cameco staff in 2020 and 2021 is described in [CMD-21-M34 Regulatory Oversight Report for Uranium Mines, Mills, Historic, and Decommissioned Sites in Canada: 2020](#) and [CMD 22-H5 Request for release of 18 Beaverlodge properties from requiring licensing under the Nuclear Safety and Control Act](#).

In follow-up to the 2019 licence amendment [hearing](#), the Commission recommended that annual updates be provided on engagement activities conducted by CNSC and Cameco specific to the Beaverlodge Project. This CMD serves as the update on engagement activities conducted in 2022. Cameco also indicated an update on their engagement activities will be provided in a CMD submission in support of the licence renewal application.

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, including availability of rental vehicles, 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 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 Denesų́liné First Nation were in attendance. CNSC staff were in attendance and answered any questions posed.

On September 13, 2022, a second site tour was provided to representatives from the Athabasca Joint Engagement and Environment Subcommittee – 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 YNLRO were also in attendance.

In addition to the tour, Cameco, [Saskatchewan Ministry of Energy and Resources](#), [Saskatchewan Ministry of Environment](#) as well as the CNSC presented and recorded presentations and these [presentations](#) have been posted on Cameco's Beaverlodge website. The CNSC staff presentation included information on the Commission's decision to release 18 properties from licensing, the Commission hearing for the proposed 2-year CNSC licence renewal and the opportunities to participate in the Commission hearing. The recordings were conducted to ensure that anyone not in attendance during the tours would be able to access the most recent information.

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 2-year licence renewal at the March 2, 2022 (11 NSEQC representatives in attendance) and June 9, 2022, meetings (9 NSEQC in attendance). CNSC staff further held an outreach session on September 15, 2022, in Saskatoon, which included information on the Beaverlodge site and on Cameco's request for a licence renewal. Approximately 25 people were in attendance at the outreach session.

4.2.2 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 hearings. 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).

4.3 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 found in [REGDOC-3.2.1, *Public Information and Disclosure*](#).

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 and 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 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.

4.3.1 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 its review, CNSC staff took into consideration the unique audience challenges Cameco faces with the remote community surrounding its Beaverlodge site.

All licensees have encountered many challenges due to the COVID-19 pandemic and had to adapt their PIPs accordingly. This included moving away from traditional in-person meetings and events and offering increased digital communications whenever possible.

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.

4.3.2 Conclusion

After reviewing Cameco's PIP for its Beaverlodge site, CNSC staff concluded that Cameco 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.

4.4 Participant Funding Program

Through the CNSC's PFP, up to \$50,000 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.

4.4.1 Discussion

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

The deadline for applications was October 14, 2022. A Funding Review Committee (FRC), independent from CNSC staff, reviewed the applications received, and made recommendations on the allocation of funding to eligible applicants. Based on recommendations from the FRC, the CNSC awarded participant funding to the following recipient, as shown on table 4.1.

Table 4.1: Beaverlodge Project - PFP funding awarded

Applicant	Maximum funding award
Ya'thi Néné Lands and Resource Office	\$38,885
TOTAL	\$38,885

4.4.2 Conclusion

Based on the above information, CNSC staff followed its proceedings process 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.

5. Other Matters of Regulatory Interest

5.1 Cost Recovery

It is a requirement of the [NSCA](#) under paragraph 24(2)(c), that the licence application is accompanied by the prescribed fee. The *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations* ([CRFR](#)) set out the specific requirements based on the activities to be licensed. An applicant for a uranium mines and mills licence is subject to "Part 2" of the CRFR, which is based on "Regulatory Activity Plan Fees".

5.1.1 Discussion

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

Cameco's licence renewal application is not an initial application, and as such, the applicant is not required to submit the initial fee of C\$25,000 as described in paragraph 7(1)(a) of the CRFR. In this case, 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.

5.1.2 Conclusion

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

5.2 Financial Guarantees

Under subsection 24(5) of the NSCA, Cameco is 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. These requirements are found in [*REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*](#).

5.2.1 Discussion

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 [21] 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”.

5.2.2 Conclusion

The CNSC 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-W5-2120.2/2023 and will continue to do so for the proposed licence renewal.

5.3 Delegation of Authority

The Commission may include in a licence any condition it considers necessary for the purposes of the [NSCA](#). The Commission may delegate authority to CNSC staff with respect to the administration of licence conditions, or portions thereof.

There is 1 proposed licence condition in the current Beaverlodge licence, and also within the proposed licence WFOL-W5-2021.0/2025, that contains the phrase “the Commission or a person authorized by the Commission”:

“2.2 *Reporting Requirements*

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

CNSC staff recommend the Commission delegate its authority for the purposes described in the above licence condition to the following staff:

- 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.

No change to this existing wording is proposed.

6. Overall Conclusions and Recommendations

CNSC staff's assessment confirms that Cameco's application under consideration by the Commission complies with regulatory requirements.

CNSC staff concluded that the licensee's performance during the current licensing term was satisfactory and met regulatory requirements.

CNSC staff recommend that the Commission:

1. Conclude, pursuant to paragraphs 24(4)(a) and (b) of the [*Nuclear Safety and Control Act*](#), that the licensee/applicant:
 - a) Is qualified to carry on the activities authorized by the licence
 - b) Will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed
2. Renew the Waste Facility Operating Licence for the Beaverlodge Project and issue the proposed licence, WFOL-W5-2120.0/2025, with no new authorizations.
3. Delegate authority as set out in section 5.3 of this CMD.

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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 below.

ACRONYMS

ACFN	Athabasca Chipewyan First Nation
AECB	Atomic Energy Control Board
ALARA	As low as reasonably achievable
Cameco	Cameco Corporation
CMD	Commission Member Document
CNSC	Canadian Nuclear Safety Commission
CRFR	<i>Cost Recovery Fees Regulations</i>
EPR	Environmental Protection Review
ERA	Environmental Risk Assessment
FRC	Funding Review Committee
GNSCR	<i>General Nuclear Safety and Control Regulations</i>
HHRA	Human Health Risk Assessment
IAA	<i>Impact Assessment Act</i>
IAEA	International Atomic Energy Agency
ICP	Institutional Control Program
LCH	Licence Conditions Handbook
MN-S	Métis Nation Saskatchewan
NSCA	<i>Nuclear Safety and Control Act</i>
NSEQC	Northern Saskatchewan Environmental Quality Committee
PFP	Participant Funding Program
PIDP	Public Information and Disclosure Program
PIP	Public Information Program
QSM	Quantitative Site Model
ROR	Regulatory Oversight Report
SCA	Safety and Control Area
SEQG	<i>Saskatchewan Environmental Quality Guidelines</i>
TRV	Toxicity Reference Value
YNLRO	Ya'thi Néné Lands and Resources Office

TERMS

Adit	An entrance to an underground mine which is horizontal or nearly horizontal
Crown Pillar	The rock mass between the uppermost mine working and the ground surface
Raise	A vertical or near vertical excavation to an underground mine used for ventilation and/or emergency escape
Shaft	A narrow vertical hole used to access an underground mine
Subsidence	The caving or sinking of the land surface

A. SAFETY PERFORMANCE RATING LEVELS

There are three safety performance rating levels: satisfactory; below expectations; and unacceptable, which are explained below.

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.

B. BASIS FOR THE RECOMMENDATION(S)

B.1 Regulatory Basis

The recommendations presented in this CMD are based on compliance objectives and expectations associated with the relevant SCAs and other matters. The regulatory basis for the matters that are relevant to this CMD are as follows.

Management System

The regulatory foundation for the recommendation(s) associated with management system includes the following:

- The [*General Nuclear Safety and Control Regulations*](#) requires that an application for a licence shall contain, under paragraph:
 - 3(1)(k), the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the Act and the regulations made under the Act, including the internal allocation of functions, responsibilities and authority.
- It is a requirement of the *General Nuclear Safety and Control Regulations* under section 15 that every applicant for a licence and every licensee shall notify the Commission of:
 - 15(a), the persons who have the authority to act for them (the applicant/licensee) in their dealings with the Commission.
 - 15(b), the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence.
 - 15(c), any change in the information referred to in paragraphs (a) and (b) within 15 days after the change occurs.
- It is a requirement of the [*Uranium Mines and Mills Regulations*](#) under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by subsection 3(b) of the *General Nuclear Safety and Control Regulations*, in relation to the activity to be licensed:
 - 3(b)(v), the proposed quality assurance program for the activity.

Operating Performance

The regulatory foundation for the recommendation(s) associated with operating performance includes the following:

- It is a requirement of the [*General Nuclear Safety and Control Regulations*](#) under subsection 29(1), that every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:
 - 29(1)(a), a situation referred to in paragraph 27(b) of the Act.
 - 29(1)(b), the occurrence of an event that is likely to result in the exposure of persons to radiation in excess of the applicable radiation dose limits prescribed by the [*Radiation Protection Regulations*](#).
 - 29(1)(c) a release, not authorized by the licence, of a quantity of radioactive nuclear substance into the environment.
 - 29(1)(d), a situation or event that requires the implementation of a contingency plan in accordance with the licence.
 - 29(1)(f), information that reveals the incipient failure, abnormal degradation or weakening of any component or system at the site of the licensed activity, the failure of which could have a serious adverse effect on the environment or constitutes or is likely to constitute or contribute to a serious risk to the health and safety of persons or the maintenance of security.
 - 29(1)(h), a serious illness or injury incurred or possibly incurred as a result of the licensed activity.
 - 29(1)(i) the death of any person at a nuclear facility.
- It is a requirement of the *General Nuclear Safety and Control Regulations* under subsection 29(2), that every licensee who becomes aware of a situation referred to in subsection (1) shall file a full report of the situation with the Commission within 21 days after becoming aware of it, unless some other period is specified in the licence, and the report shall contain the following information:
 - 29(2)(a), the date, time and location of becoming aware of the situation.
 - 29(2)(b), a description of the situation and the circumstances.
 - 29(2)(c), the probable cause of the situation.
 - 29(2)(d), the effects on the environment, the health and safety of persons and the maintenance of security that have resulted or may result from the situation.
 - 29(2)(e), the effective dose and equivalent dose of radiation received by any person as a result of the situation.
 - 29(2)(f), the actions that the licensee has taken or proposes to take with respect to the situation.

- It is a requirement of the [*Uranium Mines and Mills Regulations*](#) under paragraphs 6(1)(a) and 6(2)(a), that an application for a licence in respect of a uranium mine and mill shall contain the results of any commissioning work.
- It is a requirement of the *Uranium Mines and Mills Regulations* under paragraphs 6(1)(c) that an application for a licence in respect of a uranium mine and mill shall contain the proposed policies, methods and programs for operating and maintaining the mine.
- It is a requirement of the *Uranium Mines and Mills Regulations* under subsection 10(a), that every licensee shall establish, implement and maintain written operating procedures for the licensed activity.

Safety Analysis

The regulatory foundation for the recommendation(s) associated with safety analysis includes the following:

- It is a requirement of the [*General Nuclear Safety and Control Regulations*](#) under paragraph 3(1)(i) an application for a licence shall contain a description and the results of any test, analysis or calculation performed to substantiate the information included in the application.
- It is a requirement of the *Uranium Mines and Mills Regulations* under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by subsection 3(c) of the *General Nuclear Safety and Control Regulations*, in relation to the environment and waste management, and (d) health and safety:
 - 3(c)(iii), effects on the environment that may result from the activity to be licensed and the measures that will be taken to prevent or mitigate those effects.
 - 3(d)(i) the effects on the health and safety of persons that may result from the activity to be licensed, and the measures that will be taken to prevent or mitigate those effects.

Physical Design

The regulatory foundation for the recommendation(s) associated with physical design includes the following:

- Paragraph 3(1)(d) of the [*General Nuclear Safety and Control Regulations*](#) requires that an application for a licence shall contain a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence.
- It is a requirement of the [*Uranium Mines and Mills Regulations*](#) under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by subsection 3(a) of the *General Nuclear Safety and Control Regulations*, in relation to the plan and description of the mine or mill:
 - 3(a)(ii), a surface plan indicating the boundaries of the mine or mill and the area where the activity to be licensed is proposed to be carried on.
 - 3(a)(iii), a plan showing existing and planned structures, excavations and underground development.
 - 3(a)(iv) a description of the mine or mill, including the installations, its purpose and capacity, and any excavations and underground development.
- It is a requirement of the *Uranium Mines and Mills Regulations* under subsection 5(2), that an application for a licence to prepare a site for and construct a uranium mill shall contain the following information in addition to the information required by section 3 and subsection 4(2):
 - 5(2)(h), a description of all proposed laboratory facilities and programs.
- It is a requirement of the *Uranium Mines and Mills Regulations* under paragraphs 6(1)(b) and 6(2)(b), that an application for a licence to operate a uranium mine and mill shall contain a description of the structures, components, systems and equipment including any changes to its design and its design operating conditions as a result of the commissioning.
- It is a requirement of the *Uranium Mines and Mills Regulations* under paragraphs 16(1)(e) that every licensee shall keep a record of the design of the uranium mine or mill and of the components and systems installed at the mine or mill.

Radiation Protection

The regulatory foundation for the recommendation(s) associated with radiation protection includes the following:

- The [*General Nuclear Safety and Control Regulations*](#) require, under subsection 3(1), that a licence application contain the following information under paragraphs:
 - 3(1)(e), the proposed measures to ensure compliance with the [*Radiation Protection Regulations*](#).
 - 3(1)(f), any proposed action level for the purpose of section 6 of the *Radiation Protection Regulations*.
- The *General Nuclear Safety and Control Regulations* require, under subsection 17(b), that a worker comply with the measures established by the licensee to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of radioactive nuclear substances and hazardous substances into the environment.
- It is a requirement for uranium mines and mills licensee to follow the *Radiation Protection Regulations*.
- It is a requirement of the [*Uranium Mines and Mills Regulations*](#) under subsection 4(2), that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain a proposed code of practice that includes:
 - 4(2)(a), any action level that the applicant considers appropriate for the purpose of this subsection.
 - 4(2)(b), a description of any action that the applicant will take if an action level is reached.
 - 4(2)(c), the reporting procedures that will be followed if an action level is reached.
- It is a requirement of the *Uranium Mines and Mills Regulations* under section 9, that every licensee shall post a copy of the code of practice referred to in the licence at a location within the uranium mine or mill that is accessible to all workers and where it is most likely to come to their attention.
- It is a requirement of the *Uranium Mines and Mills Regulations* under section 13, that no licensee shall rely on the use of a respirator to comply with the *Radiation Protection Regulations* unless the use of the respirator:
 - 13(a), is for a temporary or unforeseen situation.
 - 13(b), is permitted by the code of practice referred to in the licence.
- It is a requirement of the *Uranium Mines and Mills Regulations* under section 14, that every licensee shall:

- 14(a), post signs at all entrances to each area where the dose rate of gamma radiation exceeds 25 $\mu\text{Sv/h}$, designating the area as a radiation area and indicating the dose rate of gamma radiation in that area.
- 14(b), provide every worker who is to enter an area where the dose rate of gamma radiation exceeds 100 $\mu\text{Sv/h}$ with a direct-reading dosimeter.
- It is a requirement of the *Uranium Mines and Mills Regulations* under subsection 16(1), that every licensee shall keep a record of:
 - 16(1)(f), the method and relevant data used to ascertain the doses of radiation received by the workers at the uranium mine or mill and the intake of radioactive nuclear substances by those workers.

Conventional Health and Safety

The regulatory foundation for the recommendation(s) associated with conventional health and safety includes the following:

- The [*General Nuclear Safety and Control Regulations*](#) require, under paragraph 12(1)(c), that every licensee shall take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances.
- The *General Nuclear Safety and Control Regulations* require, under subsection 16(1), that every licensee shall make available to all workers the health and safety information with respect to their workplace that has been collected by the licensee in accordance with the Act, the regulations made under the Act and the licence.
- It is a requirement of the *General Nuclear Safety and Control Regulations* under section 17, that every worker shall:
 - 17(a), use equipment, devices, facilities and clothing for protecting the environment or the health and safety of persons, or for determining doses of radiation, dose rates or concentrations of radioactive nuclear substances, in a responsible and reasonable manner and in accordance with the Act, the regulations made under the Act and the licence.
 - 17(b), comply with the measures established by the licensee to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of radioactive nuclear substances and hazardous substances into the environment.
 - 17(c)(i), promptly inform the licensee or the worker's supervisor of any situation in which the worker believes there may be a significant increase in the risk to the environment or the health and safety of persons.
 - 17(e), take all reasonable precautions to ensure the worker's own safety, the safety of the other persons at the site of the licensed activity, the protection of the environment, the protection of the public and the maintenance of the security of nuclear facilities and of nuclear substances.

- It is a requirement of the [Uranium Mines and Mills Regulations](#) under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by subsection 3(d) of the *General Nuclear Safety and Control Regulations*, in relation to health and safety:
 - 3(d)(i), the effects on the health and safety of persons that may result from the activity to be licensed, and the measures that will be taken to prevent or mitigate those effects.
 - 3(d)(ii), the proposed program for selecting, using and maintaining personal protective equipment.
 - 3(d)(iii), the proposed worker health and safety policies and programs.

Environmental Protection

The regulatory foundation for the recommendation(s) associated with environmental protection includes the following:

- The *General Nuclear Safety and Control Regulations*, under paragraphs 12(1)(c) and (f), require that each licensee take all reasonable precautions to protect the environment and the health and safety of persons, and to control the release of radioactive nuclear substances and hazardous substances within the site of the licensed activity and into the environment.
- The [Radiation Protection Regulations](#) prescribe dose limits for the general public, which under subsection 1(3) is 1 mSv per calendar year.
- It is a requirement of the [General Nuclear Safety and Control Regulations](#) under section 17, that every worker shall:
 - 17(a), use equipment, devices, facilities and clothing for protecting the environment or the health and safety of persons, or for determining doses of radiation, dose rates or concentrations of radioactive nuclear substances, in a responsible and reasonable manner and in accordance with the Act, the regulations made under the Act and the licence.
 - 17(b), comply with the measures established by the licensee to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of radioactive nuclear substances and hazardous substances into the environment.
 - 17(c)(i), promptly inform the licensee or the worker's supervisor of any situation in which the worker believes there may be a significant increase in the risk to the environment or the health and safety of persons.
 - 17(e), take all reasonable precautions to ensure the worker's own safety, the safety of the other persons at the site of the licensed activity, the protection of the environment, the protection of the public and the maintenance of the security of nuclear facilities and of nuclear substances.

- It is a requirement of the [*Uranium Mines and Mills Regulations*](#) under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by subsection 3(c) of the *General Nuclear Safety and Control Regulations*, in relation to the environment and waste management:
 - 3(c)(ii), the program to determine the environmental baseline characteristics of the site and the surrounding area.
 - 3(c)(iii), effects on the environment that may result from the activity to be licensed and the measures that will be taken to prevent or mitigate those effects.
 - 3(c)(iv), the proposed positions for and qualifications and responsibilities of environmental protection workers.
 - 3(c)(v), the proposed environmental protection policies and programs.
 - 3(c)(vi), the proposed effluent and environmental monitoring programs.
 - 3(c)(vii), the proposed location, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including its physical, chemical and radiological characteristics.
 - 3(c)(viii), the proposed measures to control releases of nuclear substances and hazardous substances into the environment.
 - 3(c)(ix), a description of the anticipated liquid and solid waste streams within the mine or mill, including the ingress of fresh water and any diversion or control of the flow of uncontaminated surface and ground water.
- It is a requirement of the [*Uranium Mines and Mills Regulations*](#) under subsection 4(2), that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain a proposed code of practice that includes:
 - 4(2)(a), any action level that the applicant considers appropriate for the purpose of this subsection.
 - 4(2)(b), a description of any action that the applicant will take if an action level is reached.
 - 4(2)(c), the reporting procedures that will be followed if an action level is reached.
- It is a requirement of the *Uranium Mines and Mills Regulations* under section 9, that every licensee shall post a copy of the code of practice referred to in the licence at a location within the uranium mine or mill that is accessible to all workers and where it is most likely to come to their attention.
- The Cigar Lake Operation operating licence requires Cameco to control, monitor and record releases of effluent concentrations from the facility and that the releases shall not exceed the limits found in the licence.

Emergency Management and Fire Protection

The regulatory foundation for the recommendation(s) associated with emergency management and response includes the following:

- It is a requirement of the [*General Nuclear Safety and Control Regulations*](#) under subsection 12(1) that every licensee shall:
 - 12(1)(c), take all reasonable precautions to protect the environment and the health and safety of persons and to maintain security of nuclear facilities and of nuclear substances.
 - 12(1)(f), take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances within the site of the licensed activity and into the environment of the licensed activity.
- It is a requirement of the *Uranium Mines and Mills Regulations* under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by subsection 3(a) of the *General Nuclear Safety and Control Regulations*, in relation to the plan and description of the mine or mill:
 - 3(a)(ix), a description of the proposed emergency power systems and its capacities.
- It is a requirement of the [*Uranium Mines and Mills Regulations*](#) under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by subsection 3(c) of the *General Nuclear Safety and Control Regulations*, in relation to the environment and waste management:
 - 3(c)(viii), the proposed measures to control releases of nuclear substances and hazardous substances into the environment.
 - 3(c)(x), the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of security, including measures to:
 - ❖ 3(c)(x)(A), assist off-site authorities in planning and preparing to limit the adverse effects of an accidental release.
 - ❖ 3(c)(x)(B), notify off-site authorities of an accidental release or the imminence of an accidental release.
 - ❖ 3(c)(x)(C), report information to off-site authorities during and after an accidental release.
 - ❖ 3(c)(x)(D), assist off-site authorities in dealing with the adverse effects of an accidental release.
 - ❖ 3(c)(x)(E), test the implementation of the measures to control the adverse effects of an accidental release.

Safeguards and Non-Proliferation

The regulatory foundation for the recommendation(s) associated with safeguards and non-proliferation includes the following:

- It is a requirement of the *General Nuclear Safety and Control Regulations* under paragraph 12(1)(i) that each licensee take all necessary measures to facilitate Canada's compliance with any applicable safeguards agreement.
- Under subsection 21(1) of the *General Nuclear Safety and Control Regulations*, information that concerns any of the following, including a record of that information, is prescribed information for the purposes of the Act:
 - 21(1)(a), a nuclear substance that is required for the design, production, use, operation or maintenance of a nuclear weapon or nuclear explosive device, including the properties of the nuclear substance.
 - 21(1)(b), the design, production, use, operation or maintenance of a nuclear weapon or nuclear explosive device.
 - 21(1)(c), the security arrangements, security equipment, security systems and security procedures established by a licensee in accordance with the Act, the regulations made under the Act or the licence, and any incident relating to security.
 - 21(1)(d), the route or schedule for the transport of Category I, II or III nuclear material, as defined in section 1 of the *Nuclear Security Regulations*.
- It is a requirement of the [*General Nuclear Safety and Control Regulations*](#) under subsection 30(1), that every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the situation and of any action that the licensee has taken or proposes to take with respect to it:
 - 30(1)(a), interference with or an interruption in the operation of safeguards equipment or the alteration, defacement or breakage of a safeguards seal, other than in accordance with the safeguards agreement, the Act, the regulations made under the Act or the licence.
 - 30(1)(b), the theft, loss or sabotage of safeguards equipment or samples collected for the purpose of a safeguards inspection, damage to such equipment or samples, or the illegal use, possession, operation or removal of such equipment or samples.
- It is a requirement of the *General Nuclear Safety and Control Regulations* under subsection 30(2), that every licensee who becomes aware of a situation referred to in subsection (1) shall file a full report of the situation with the Commission within 21 days after becoming aware of it, unless some other period is specified in the licence, and the report shall contain the following information:
 - 30(2)(a), the date, time and location of becoming aware of the situation.
 - 30(2)(b), a description of the situation and the circumstances.

- 30(2)(c), the probable cause of the situation.
- 30(2)(d), the adverse effects on the environment, the health and safety of persons and the maintenance of national and international security that have resulted or may result from the situation.
- The Agreement between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the *Treaty on the Non-Proliferation of Nuclear Weapons*.
- The Protocol Additional to the Agreement between Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the *Treaty on the Non-Proliferation of Nuclear Weapons*.

Decommissioning Strategy and Financial Guarantees

The regulatory foundation for the recommendation(s) associated with Cameco's Beaverlodge Project post-decommissioning financial guarantees includes:

- The *General Nuclear Safety and Control Regulations* requires under paragraph 3(1)(l) that a licence application contains a description of any proposed financial guarantee relating to the activity to be licensed.
- It is a requirement of the [Uranium Mines and Mills Regulations](#) under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by section 3 of the [General Nuclear Safety and Control Regulations](#), in relation to the plan and description of the mine or mill:
 - 3(a)(viii), the proposed plan for the decommissioning of the mine or mill.

Licensee's Public Information Program

- It is a requirement of the *Uranium Mines and Mills Regulations* under section 3, that an application for a licence in respect of a uranium mine or mill, other than a licence to abandon, shall contain the following information in addition to the information required by section 3 of the *General Nuclear Safety and Control Regulations*, in relation to the environment and waste management:
 - 3(c)(i), the program to inform persons living in the vicinity of the mine or mill of the general nature and characteristics of the anticipated effects of the activity to be licensed on the environment and the health and safety of persons.

B.2 Detailed Summary of CNSC Assessment of Application

CNSC's staff assessment of Cameco's licence application included a completeness check, a sufficiency check, and a technical assessment against regulatory requirements. The completeness check verified whether the application included the prescribed information in accordance with the [Nuclear Safety and Control Act](#) and applicable regulations. For all facilities (i.e., Class I and Class II facilities), it is important to consider and address all licence application requirements within the applicable CNSC regulations.

The sufficiency check verified whether the application included sufficient and quality information in order for CNSC staff to conduct the technical assessment. The technical assessment verified whether the application included adequate safety and control measures to address CNSC requirements. Documents originally submitted as part of the application may have been revised, updated or replaced over the course of the assessment to address CNSC requirements.

Pursuant to Section 3 of the General Nuclear Safety and Control Regulations Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by Cameco	Complete?	Sufficient?	Adequate?
(1) An application for a licence shall contain the following information:				
(a) the applicant's name and business address;	Beaverlodge Facility Licence Manual	Y	Y	Y
(b) the activity to be licensed and its purpose;	Beaverlodge Facility Licence Manual	Y	Y	Y
(c) the name, maximum quantity, and form of any nuclear substance to be encompassed by the licence;	Beaverlodge Property Description Manual	Y	Y	Y
(d) a description of any nuclear facility, prescribed equipment, or prescribed information to be encompassed by the licence;	Beaverlodge Property Description Manual	Y	Y	Y
(e) the proposed measures to ensure compliance with the Radiation Protection Regulations , the Nuclear Security Regulations and the Packaging and Transport of Nuclear Substances Regulations, 2015	Beaverlodge Facility Licence Manual	Y	Y	Y

Pursuant to Section 3 of the <u>General Nuclear Safety and Control Regulations</u> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by Cameco	Complete?	Sufficient?	Adequate?
(f) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment, or prescribed information;	Beaverlodge Facility Licence Manual	Y	Y	Y
(g) the proposed measures to prevent loss or illegal use, possession, or removal of the nuclear substance, prescribed equipment, or prescribed information;	Beaverlodge Property Description Manual	Y	Y	Y
(h) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;	Beaverlodge Facility Licence Manual & Beaverlodge Property Description Manual	Y	Y	Y
(i) the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed, or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;	Beaverlodge Property Description Manual	Y	Y	Y

Pursuant to Section 3 of the <u>General Nuclear Safety and Control Regulations</u> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by Cameco	Complete?	Sufficient?	Adequate?
(j) the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the <u>Act</u> and the regulations made under the Act, including the internal allocation of functions, responsibilities and authority;	Beaverlodge Facility Licence Manual	Y	Y	Y
(k) a description of any proposed financial guarantee relating to the activity to be licensed;	Beaverlodge Facility Licence Manual	Y	Y	Y
(l) any other information required by the Act or the regulations made under the Act for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence.	Beaverlodge Facility Licence Manual & Beaverlodge Property Description Manual	Y	Y	Y

B.3 Technical Basis

The technical basis for recommendations, including several guidance documents, national standards and regulatory documents has been presented in this CMD and is addressed in detail in the LCH.

C. SAFETY AND CONTROL AREA FRAMEWORK

C.1 Safety and Control Areas Defined

The safety and control areas discussed in summary in sections 3.1 through 3.14 are comprised of specific areas of regulatory interest which vary between facility types.

The following table provides a high-level definition of each SCA. The specific areas within each SCA are to be identified by the CMD preparation team in the respective areas within section 3 of this CMD.

SAFETY AND CONTROL AREA FRAMEWORK		
Functional Area	Safety and Control Area	Definition
Management	Management System	Covers the framework which establishes the processes and programs required to ensure an organization achieves its safety objectives and continuously monitors its performance against these objectives and fostering a healthy safety culture.
	Human Performance Management	Covers activities that enable effective human performance through the development and implementation of processes that ensure that a sufficient number of licensee personnel are in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.
	Operating Performance	Includes an overall review of the conduct of the licensed activities and the activities that enable effective performance.
Facility and Equipment	Safety Analysis	Covers maintenance of the safety analysis that supports that overall safety case for the facility. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.
	Physical Design	Relates to activities that impact on the ability of systems, components and structures to meet and maintain their design basis given new information arising over time and taking changes in the external environment into account.
	Fitness for Service	Covers activities that impact on the physical condition of systems, components and structures to ensure that they remain effective over time. This area includes programs that ensure all equipment is available to perform its intended design function when called upon to do so.

SAFETY AND CONTROL AREA FRAMEWORK		
Functional Area	Safety and Control Area	Definition
Core Control Processes	Radiation Protection	Covers the implementation of a radiation protection program in accordance with the <i>Radiation Protection Regulations</i> . This program must ensure that contamination levels and radiation doses received by individuals are monitored and controlled and maintained ALARA.
	Conventional Health and Safety	Covers the implementation of a program to manage workplace safety hazards and to protect workers.
	Environmental Protection	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.
	Emergency Management and Fire Protection	Covers emergency plans and emergency preparedness programs which exist for emergencies and for non-routine conditions. This also includes any results of participation in exercises.
	Waste Management	Covers internal waste-related programs which form part of the facility's operations up to the point where the waste is removed from the facility to a separate waste management facility. This area also covers the planning for decommissioning.
	Security	Covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, orders, or expectations for the facility or activity.
	Safeguards and Non-Proliferation	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 <i>Treaty on the Non-Proliferation of Nuclear Weapons</i> .
	Packaging and Transport	Covers programs for the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility.

C.2 Specific Areas for this Facility Type

The following table identifies the specific areas that comprise each SCA for the Beaverlodge Project:

SPECIFIC AREAS FOR THIS FACILITY TYPE		
Functional Area	Safety and Control Area	Specific Areas
Management	Management System	<ul style="list-style-type: none"> Management System Organization Change Management Records Management Management of Contractors
	Operating Performance	<ul style="list-style-type: none"> Conduct of Licensed Activity Reporting and Trending
Facility and Equipment	Safety Analysis	<ul style="list-style-type: none"> Not addressed individually
	Physical Design	<ul style="list-style-type: none"> Not addressed individually
Core Control Processes	Radiation Protection	<ul style="list-style-type: none"> Application of ALARA Worker Dose Control Radiation Protection Program Performance Radiological Hazard Control
	Conventional Health and Safety	<ul style="list-style-type: none"> Performance Practices Awareness
	Environmental Protection	<ul style="list-style-type: none"> Protection of People Environmental Management System (EMS) Assessment and Monitoring Environmental Risk Assessment
	Emergency Management and Fire Protection	<ul style="list-style-type: none"> Fire Emergency Preparedness and Response
	Safeguards and Non-Proliferation	<ul style="list-style-type: none"> Access and Assistance to the IAEA

PART TWO

Part Two provides all relevant information pertaining directly to the licence, including:

1. The current licence
2. Any proposed changes to the conditions, licensing period, or formatting of an existing licence
3. The proposed licence; and
4. The draft licence conditions handbook.

Current Licence



**WASTE FACILITY OPERATING LICENCE
CAMECO CORPORATION
BEAVERLODGE**

I) LICENCE NUMBER: WFOL-W5-2120.2/2023

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, 2013 to May 31, 2023, 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-W5-2120.2/2023 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.

SIGNED at OTTAWA, this 7th day of September, 2022.

**Velshi,
Rumina**

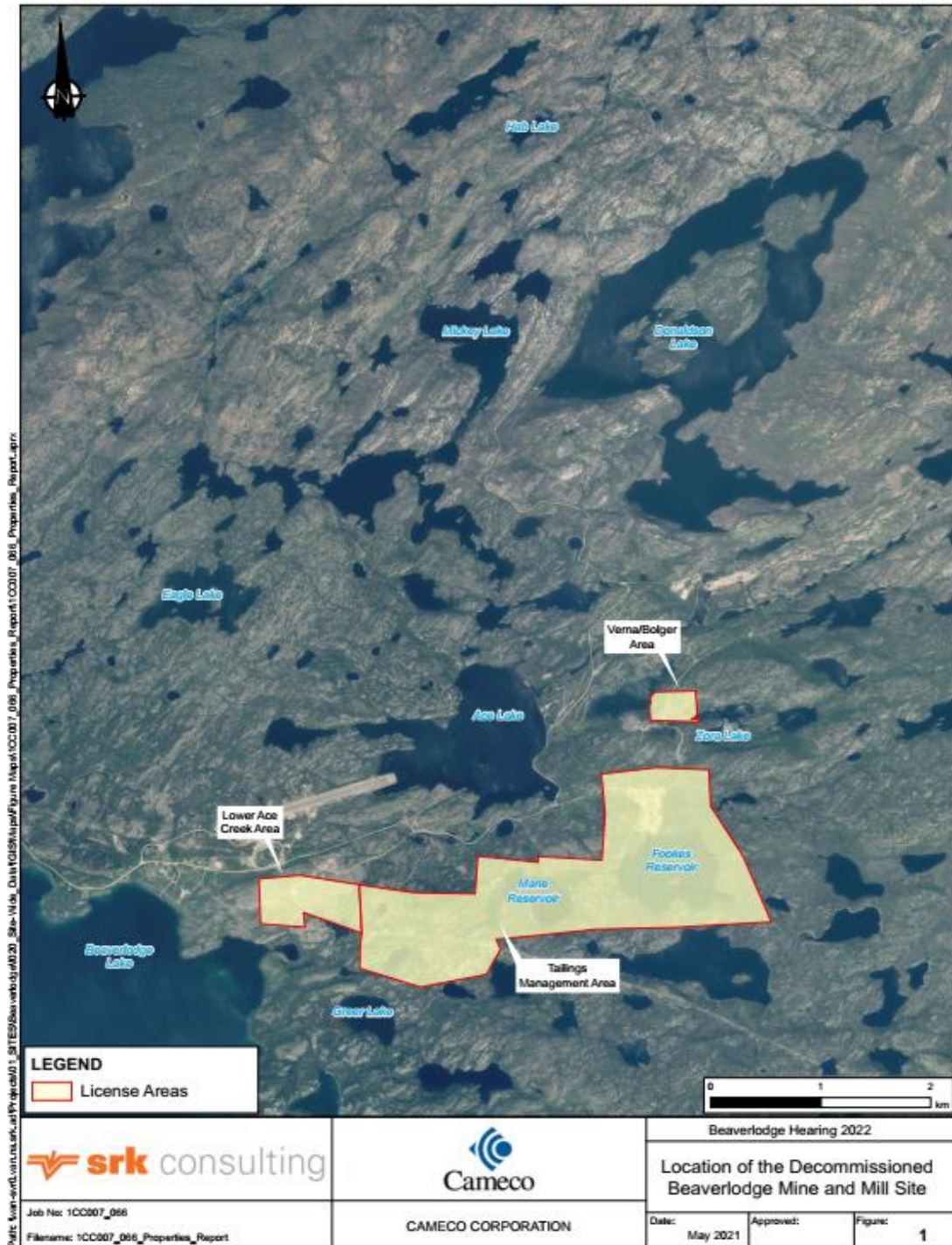


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Rumina Velshi, President
on behalf of the Canadian Nuclear Safety Commission

APPENDIX A

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



Proposed Licence Changes

Overview

There are no changes to the licence conditions or format. The licence term recommended is for a 2-year period.

Licence Conditions

There are no changes to the existing licence conditions.

Licence Format

The licence format was updated previously as part of “[CMD 19-H6](#), Request for Release of 20 Properties from Requiring Licensing under the [Nuclear Safety and Control Act](#). No new changes to the licence format are proposed.

Licence Period

In Cameco’s application to renew the CNSC-issued licence, a 2-year licence term was requested. CNSC has a standardized licence and licence conditions handbook (LCH) framework which provides for effective regulatory oversight of the site.

This renewal is to allow time for their final request for release of the remaining decommissioned Beaverlodge Project properties within the licence to be reviewed by CNSC staff. This renewal will also allow CNSC and Cameco staff time to prepare the necessary documentation to be presented to the Commission.

Therefore, CNSC staff recommend that the Commission accept Cameco’s request for a 2-year licence for the Beaverlodge Project.

Proposed Licence



**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.

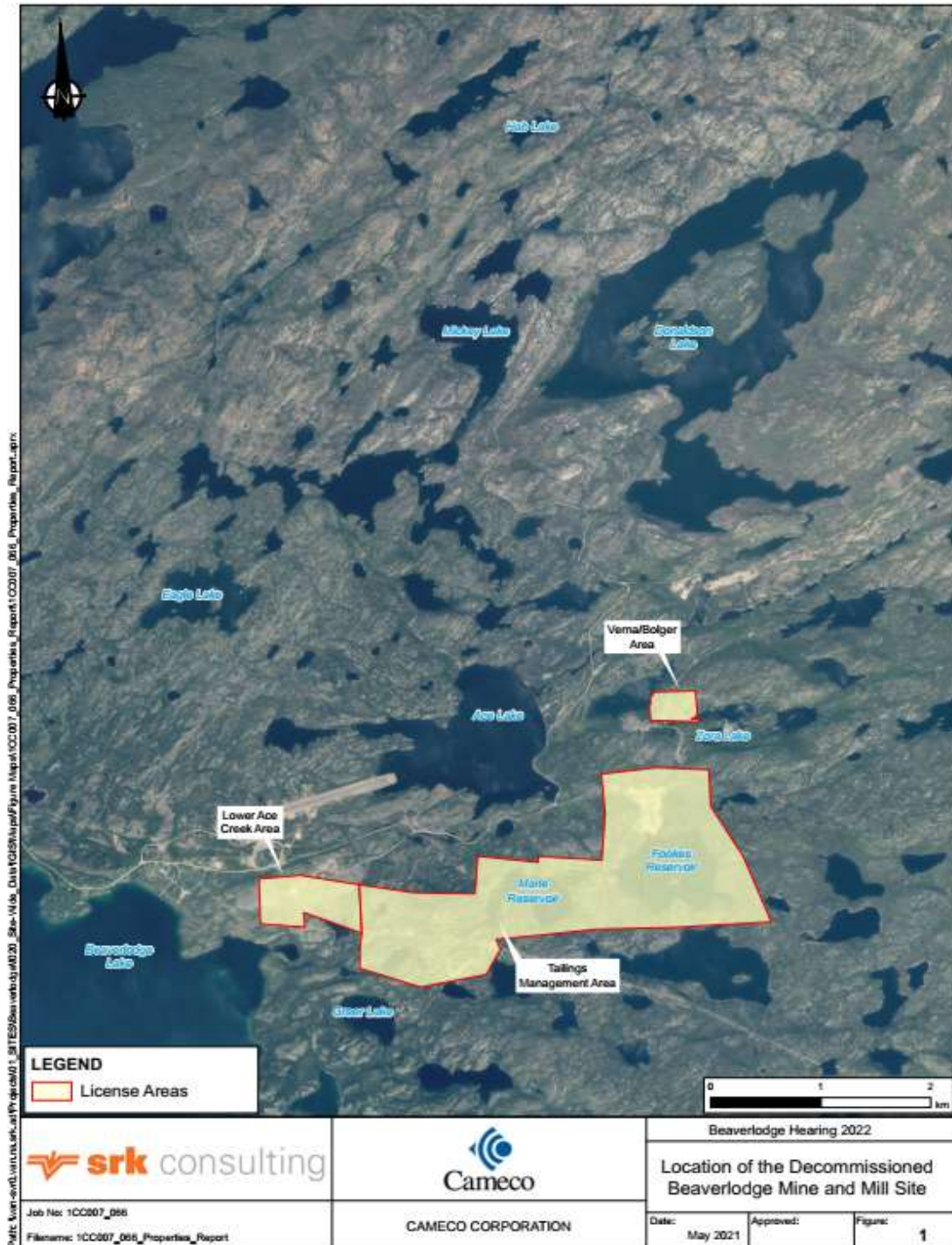
SIGNED at OTTAWA, this _____ day of _____, 2023.

DRAFT

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

APPENDIX A

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



Draft Licence Conditions Handbook



e-Doc 6782115 (Word)

e-Doc 6782124 (PDF)

DRAFT 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: March XX, 2023

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

SIGNED at OTTAWA this **XX day of March, 2023**

Patrick Burton, Director
Uranium Mines and Mills Division
Directorate of Nuclear Cycle and Facilities Regulation
CANADIAN NUCLEAR SAFETY COMMISSION

Revision History:

Effective Date	Revision	Section(s) changed	Description of the Changes	DCR e-DOC
January 23, 2014	0	N/A	Original Document	4053021 (Word) 4069351 (PDF)
March 12, 2020	1	All	Licence and LCH modernization which includes new standard licence conditions and updated LCH text and format.	5913955 (Word) 4069351 (PDF)
May XX, 2022	2	All	Updates to text and tables to reflect current UMMD LCH content, added program references where applicable, update to document references.	6540892 (Word) 6540898 (PDF)
March XX, 2023	0	N/A	Original Document	

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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	Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities	REGDOC-3.3.1

* Section 9.1 and 10

GENERAL

Licence Documents that Require Notification of Change

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	3942669	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.

GENERAL

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	3942669	Yes
Cameco	Public Information Program	6660192	Yes

Guidance

There is no guidance provided for this licence condition.

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	3942669	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	3942669	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	3942669	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	3942669	Yes
Cameco	Quality Management Program	6757618	Yes
Cameco	Property Description Manual	4459861	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

Licensee Documents that Require Notification of Change

Source	Document Title	CNSC e-Access Document Number	Prior Notification Required
Cameco	Facility Licensing Manual	3942669	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	3942669	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	3942669	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

Source	Document Title	Document Number
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	3942669	Yes

Guidance

There is no guidance provided for this licence condition.

EMERGENCY MANAGEMENT

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	3942669	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			
File Plan #		e-Doc #(s) for Change Request Form	
Licensee	Licence Number	LCH #, Rev/Version	Request Date
Licensing Officer			
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
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.)

- 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	3942669
Quality Management Program	6757618
Environmental Monitoring Program	6562595
Property Description Manual	4459861
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