



Record of Decision

DEC 23-H6

In the Matter of

Applicant Cameco Corporation

Subject Application to Renew the Uranium Mill Licence
for the Key Lake Operation, Saskatchewan

Public Hearing
Date June 7-8, 2023

Record of
Decision Date October 24, 2023

NOTICE :

This document was modified on February 26, 2024 to update reference links to CNSC documents and web pages that were moved as a result of an upgrade to the CNSC's web site.

RECORD OF DECISION – DEC 23-H6

Applicant: Cameco Corporation

Address/Location: 2121 – 11th Street West, Saskatoon, Saskatchewan, S7M 1J3

Purpose: Application to Renew the Uranium Mill Licence for the Key Lake Operation, Saskatchewan

Application received: April 20, 2021, revised on November 4, 2022

Date of public hearing: June 7-8, 2023

Location: Hilton Garden Inn, 90 22nd Street E, Saskatoon, Saskatchewan, and virtually via Zoom

Members present: R. Velshi, President
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Licence: Renewed

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1.0 INTRODUCTION

1. Cameco Corporation (Cameco) has applied to the Canadian Nuclear Safety Commission¹ (CNSC or the Commission), under subsection 24(2) of the [Nuclear Safety and Control Act](#)² (NSCA), for a 20-year renewal of the uranium mill licence for its [Key Lake Operation](#) (KLO). Cameco's current licence, UML-MILL-KEY.01/2023, is valid until October 31, 2023. The licence authorizes Cameco to operate, modify and decommission a nuclear facility for the milling of uranium ore. The KLO is located in the northern region of the province of Saskatchewan, approximately 70 km southeast of Cree Lake and approximately 570 km north of Saskatoon, Saskatchewan. The KLO is situated within Treaty 10 (1906) territory and the Homeland of the Métis, and within the traditional territories of the Dene, Cree, and Métis peoples. The village of Pinehouse is the nearest community with accessibility by an all-weather road, located approximately 220 km from the KLO.
2. Cameco is the operator and licensee of the KLO. Cameco owns 83.3% of the KLO with Orano Canada Inc. (Orano) owning the remaining 16.7%. The KLO receives uranium ore from the [McArthur River Operation](#) for milling. [On July 25, 2018](#), Cameco announced the temporary suspension of production at the KLO, and that the site would remain in a state of care and maintenance for an indeterminate period of time. [On February 9, 2022](#), Cameco announced its intent to resume production over the course of 2022 and 2023.
3. The KLO site also includes the Deilmann Tailings Management Facility, where all tailings derived from the processing of McArthur River Operation ore are placed.
4. Cameco's [initial licence renewal application for the KLO](#) was for an indefinite licence period. Cameco subsequently [revised its application](#) to request a 20-year period. Cameco also applied for the renewal of its licences for its [McArthur River Operation](#) and [Rabbit Lake Operation](#). These applications are dealt with in separate *Records of Decision*.

Issues

5. The Commission is required to determine whether and what requirements the [Impact Assessment Act](#)³ imposes in relation to the activities sought to be authorized in Cameco's application to renew the licence for the KLO uranium mill. Satisfying any such requirements can be a prerequisite to licensing.

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.

² S.C. 1997, c. 9.

³ S.C. 2019, c. 28, s. 1.

6. Pursuant to paragraphs 24(4)(a) and (b) of the NSCA, the Commission must be satisfied that:
 - a) Cameco is qualified to carry on the activity that the licence would authorize; and
 - b) in carrying on that activity, Cameco 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.

7. As an agent of the Crown, the Commission recognizes its role in fulfilling the Crown's constitutional obligations, along with advancing reconciliation with Canada's Indigenous peoples. The Commission's responsibilities include the duty to consult and, where appropriate, accommodate Indigenous interests where the Crown contemplates conduct which may adversely impact potential or established Aboriginal⁴ or treaty rights⁵. As such, the Commission must determine what engagement and consultation steps and accommodation measures are called for respecting Indigenous interests.

Public Hearing

8. On September 20, 2022, the Commission published a [Notice of Public Hearing and Participant Funding](#) for this matter. The Commission subsequently published a [Revised Notice of Public Hearing](#) on December 2, 2022 to announce the location of the hearing and to reflect a change in Cameco's application requesting that the licence for the KLO be renewed for a period of 20 years instead of an indefinite period.

9. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission over which she would preside, including Commission Members Dr. T. Berube and Dr. V. Remenda, to decide on the application. The Commission, in making its decision, considered all the information submitted for a public hearing held on June 7 and 8, 2023.⁶ The public hearing was conducted in accordance with the [Canadian Nuclear Safety Commission Rules of Procedure](#)⁷ (the Rules). During the public hearing, the Commission considered written submissions and heard oral presentations from Cameco ([CMD 23-H6.1](#), [CMD 23-H6.1A](#) and [CMD 23-H6.1B](#)) and CNSC staff ([CMD 23-H6](#), [CMD 23-H6.B](#) and [CMD 23-H6.C](#)). The Commission also considered oral and written submissions from 35 intervenors (see

⁴ "Aboriginal" is the term used in this document when referring to the Crown's duty to consult as that is the term used in section 35 of the *Constitution Act, 1982*. In all other cases, "Indigenous" is the preferred terminology and used accordingly.

⁵ *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73; *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, 2004 SCC 74.

⁶ The Commission initially decided to hold two public hearings for the three applications by Cameco Corporation: one hearing on the application to renew the uranium mine and mill licence for the Rabbit Lake Operation and another hearing on the applications to renew the uranium mine operating licence for the McArthur River Operation and the uranium mill operating licence for the Key Lake Operation. After reviewing the requests to intervene, it was decided to hear all three applications during the same public hearing as most interventions were identical for both proceedings and raised similar issues for all three applications.

⁷ SOR/2000-211.

Appendix A for a list of interventions). The hearing was webcasted live via the CNSC website, and [video archives](#) are available on the CNSC's website.

Participant Funding Program

10. Pursuant to paragraph 21(1)(b.1) of the NSCA, the Commission has established a [Participant Funding Program](#) (PFP) to facilitate the participation of Indigenous Nations and communities, members of the public and interested parties in Commission proceedings. In [September 2022](#), up to \$150,000 in funding was made available through the CNSC's PFP to review Cameco's licence renewal applications for both the KLO and [McArthur River Operation](#) and associated documents, and to provide the Commission with value-added information through topic-specific interventions. A Funding Review Committee (FRC), independent of the CNSC, reviewed the funding applications received and [made recommendations on the allocation of funds](#). Based on the recommendations from the FRC, the CNSC awarded a total of \$231,784 to 6 applicants:

- Birch Narrows Dene Nation – up to \$26,798.20
- Ya'thi Néné Lands and Resources Office – up to \$66,055
- Canadian Environmental Law Association – up to \$13,000
- Kineepik Métis Local #9 – up to \$48,100
- English River First Nation – up to \$52,280.80
- Métis Nation Saskatchewan – up to \$25,550

2.0 DECISION

11. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Decision*, the Commission concludes the following:
- the [Impact Assessment Act](#) does not impose any obligation upon the Commission in this matter
 - the contemplated activities do not present any novel adverse impact on any potential or established Aboriginal claim or right
 - the Commission's responsibility to uphold the honour of the Crown and its constitutional obligations with regard to engagement and consultation respecting Indigenous interests have been satisfied
 - Cameco is qualified to carry on the activity that the licence will authorize
 - Cameco, in carrying on these activities, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the uranium mill licence issued to Cameco Corporation for its Key Lake Operation located in Northern Saskatchewan. The renewed licence, UML-MILL-KEY.00/2043, is valid from November 1, 2023 to October 31, 2043, unless suspended, amended, revoked or replaced.

12. The Commission includes in the licence the conditions as recommended by CNSC staff in [CMD 23-H6](#). The Commission delegates authority to CNSC staff with respect to the administration of licence condition 3.2 (Reporting Requirements), as recommended by CNSC staff in section 5.6 of CMD 23-H6. Licence conditions and the delegation of authority are further discussed in section 4.5 of this *Record of Decision*.
13. With this decision, the Commission directs CNSC staff to report on the performance of Cameco and the KLO as part of the periodic *Regulatory Oversight Report – Uranium Mines and Mills*. CNSC staff will present this report at a public proceeding of the Commission, where members of the public will be able to participate. The Commission directs CNSC staff to inform the Commission, as part of the Regulatory Oversight Report, of any changes made to the Licence Conditions Handbook. CNSC staff may bring any matter to the Commission’s attention, at any time, as required.
14. The Commission directs that Cameco provide a comprehensive update to the Commission on the conduct of its licensed activities at the KLO every 7 years of licence period, i.e., in 2030 and 2037. The update will also include information on the Environmental Risk Assessment (ERA), Preliminary Decommissioning Plan (PDP), the Environmental Performance Report (EPR), and the impact of climate change on the licenced activities. These updates will be made at public proceedings to be conducted in the community in proximity of the KLO and will allow for the participation, both orally and in writing, of members of the public and Indigenous Nations and communities. The Commission intends that these public meetings will allow a meaningful opportunity to hear and discuss the views of members of the public and Indigenous Nations and communities.

3.0 APPLICABILITY OF THE *IMPACT ASSESSMENT ACT*

15. In coming to its decision, the Commission was first required to determine whether any requirement under the *Impact Assessment Act* (IAA) applied to the licence renewal application and whether an impact assessment was required.
16. Pursuant to the IAA and the [Physical Activities Regulations](#)⁸ made under it, impact assessments are to be conducted in respect of projects identified as having the greatest potential for adverse environmental effects in areas of federal jurisdiction. A licence renewal is not a project designated under the *Physical Activities Regulations*.

⁸ SOR/2019-285.

17. The Commission is satisfied that there is no requirement under the IAA for an impact assessment to be completed in order to renew this licence.⁹ The Commission is also satisfied that there are no other applicable requirements of the IAA to be addressed in this matter.¹⁰ The Commission notes that the NSCA provides a strong regulatory framework for environmental protection and the health and safety of persons. Environmental protection is further discussed in section 4.2.9 of this *Record of Decision*.

4.0 ISSUES AND COMMISSION FINDINGS

18. In making its licensing decision, the Commission considered specific relevant issues and submissions relating to Cameco's qualification to carry on the licensed activities. The Commission also considered the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.
19. The Commission's decision focuses on the issues most relevant for this application, specifically:
- Assessment of the licence application
 - Assessment of Cameco's safety and control measures for the KLO, including Cameco's performance in all SCAs over the past licence period
 - Indigenous engagement and consultation
 - Other matters of regulatory importance
 - Licence period and conditions, including the delegation of authority

4.1 Assessment of Licence Application

20. Cameco submitted its licence renewal application on [April 20, 2021](#) followed by a revised application on [November 4, 2022](#). In its consideration of this matter, the Commission examined the completeness of the application and the adequacy of the information submitted by Cameco, as required by the NSCA, the [General Nuclear Safety and Control Regulations](#) (GNSCR),¹¹ and the [Uranium Mines and Mills Regulations](#) (UMMR),¹² and other applicable regulations made under the NSCA, including the [Radiation Protection Regulations](#),¹³ the [Nuclear Security Regulations](#)

⁹ On [October 13, 2023](#), the Supreme Court of Canada ruled on the constitutionality of the IAA (Reference re *Impact Assessment Act*, 2023 SCC 23). Since the KLO licence renewal application does not impose any requirements under the IAA, the Supreme Court of Canada's decision does not impact the Commission's decision discussed in this *Record of Decision*.

¹⁰ The IAA can impose other requirements on federal authorities in respect of authorizing projects that are not designated as requiring an impact assessment, including projects that are to be carried out on federal lands, or projects outside of Canada. This licence renewal does not engage any such applicable IAA requirements.

¹¹ SOR/2000-202.

¹² SOR/2000-206.

¹³ SOR/2000-203.

[\(NRS\)](#),¹⁴ and the [Packaging and Transport of Nuclear Substances Regulations, 2015 \(PNNSR, 2015\)](#).¹⁵

21. The GNSCR call on an applicant for a licence renewal to provide information regarding any changes in information to the CNSC as part of its application. Section 5 provides:

An application for the renewal of a licence shall contain

- (a) the information required to be contained in an application for that licence by the applicable regulations made under the Act
- (b) a statement identifying the changes in the information that was previously submitted.

Section 7 of the GSNCR provides that:

An application for a licence or for the renewal, suspension in whole or in part, amendment, revocation or replacement of a licence may incorporate by reference any information that is included in a valid, expired or revoked licence.

Additionally, sections 3 and 6 of the UMMR specify the application information required in respect of an operating licence in respect of a uranium mill.

22. In its application and further described in CMD-H6.1, Cameco provided information to satisfy the requirements set out in each applicable clause of the NSCA and applicable regulations. As detailed in Appendix B.2 of CMD 23-H6, CNSC staff reported that Cameco's application complies with regulatory requirements.
23. Based on the information presented, the Commission concludes that Cameco's licence renewal application is sufficient and complies with the regulatory requirements respecting an application for licence renewal set out in the GNSCR and the UMMR. Cameco's application and supporting documents identify how Cameco will meet regulatory requirements and CNSC staff's assessment demonstrates to the Commission's satisfaction how Cameco has adequately addressed the licence renewal application requirements.

4.2 Assessment of Cameco's Safety and Control Measures for the Key Lake Operation

24. The Commission examined Cameco's safety and control measures for the KLO for the purpose of evaluating Cameco's licence renewal application. This evaluation includes consideration of CNSC staff's assessment of Cameco's performance with respect to the CNSC's SCA framework. CNSC staff submitted information on Cameco's performance in all 14 SCAs. CNSC staff reported that Cameco had implemented and maintained programs as required by its licence, and that Cameco's performance in all SCAs had remained "satisfactory" during the current licence period. CNSC staff based

¹⁴ SOR/2000-209.

¹⁵ SOR/2015-145.

its conclusions on oversight activities which included compliance inspections, document reviews, and technical assessments.

4.2.1 *Management System*

25. The management system SCA covers the framework that establishes the processes and programs required to ensure that Cameco achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture. Subparagraph 3(b)(v) of the UMMR states that an application for a licence to operate a uranium mine or mill shall contain “the proposed management system for the activity, including measures to promote and support safety culture.” Section 3 of the GNSCR contains requirements that form the basis of a management system.
26. CNSC regulatory document¹⁶ [REGDOC-2.1.1, *Management System*](#)¹⁷ addresses the development and implementation of sound management practices and controls, while [REGDOC-2.1.2, *Safety Culture*](#)¹⁸ sets out requirements and guidance for fostering a healthy safety culture and conducting safety culture assessments. Canadian Standards Association (CSA) Group standard CSA N286-12, *Management System Requirements for Nuclear Facilities*¹⁹ provides an overall management framework and direction to develop and implement sound management practices and controls for the licensing basis.
27. In section 3.2 of CMD 23-H6.1, Cameco described its management system and provided information on how it ensures that licensed activities are conducted safely at the KLO. Cameco explained that its operations program included its site management program documents, codes of practice, procedures, and work instructions. Cameco reported its commitment to maintaining and improving its management system in accordance with regulatory requirements. In section 3.9 of CMD 23-H6.1, Cameco reported that it conducts periodic safety culture assessments in accordance with CNSC REGDOC-2.1.2, to improve and strengthen safety culture at the KLO.
28. In section 3.2 of CMD 23-H6.1, Cameco noted that its management system programs also include incident and contractor management. Cameco explained that it addresses incidents occurring at the KLO through Cameco’s nonconformance and corrective action process. Cameco submitted that the volume of events reported, ranging from 1540 events reported in 2013 to 539 events in 2019, are indicative of a strong reporting culture at the KLO.

¹⁶ [REGDOCs](#) play a key role in the CNSC’s regulatory framework. They explain to licensees and applicants what they must achieve in order to meet the requirements set out in the NSCA and the regulations made under the NSCA. When included in the licensing basis, REGDOC requirements are mandatory and must be met to obtain or renew a licence or to operate a nuclear facility.

¹⁷ REGDOC-2.1.1, *Management System*, CNSC, May 2019.

¹⁸ REGDOC-2.1.2, *Safety Culture*, CNSC, April 2018.

¹⁹ N286-12, *Management System Requirements for Nuclear Facilities*, CSA Group, 2012.

29. In section 3.1 of CMD 23-H6, CNSC staff submitted that Cameco has implemented a management system that meets regulatory requirements, including those of CSA N286-12. CNSC staff submitted that it regularly assesses Cameco's documents and programs through desktop reviews and planned compliance verification inspection activities. CNSC staff stated that its verification activities conducted throughout the licensing period included areas of:
- maintenance
 - calibration
 - problem identification and resolution
 - change and design control
 - document and records control
 - procurement
 - internal audit program
 - management self-assessments
 - annual reviews
30. CNSC staff reported that, during the current licence period, it conducted 2 focused management system inspections and 11 general inspections that included management system criteria. CNSC staff noted that all inspection findings in this SCA over the licence period were of low safety significance.
31. CNSC staff noted that REGDOC-2.1.2 was added to the licence conditions handbook for the KLO during the current licence period, with full implementation by Cameco in June 2022. CNSC staff stated that it would verify Cameco's implementation of REGDOC-2.1.2 as part of ongoing compliance activities. CNSC staff will also review any proposed modifications to Cameco's management system documentation as it is adapted to conform to CSA N286-12.
32. In relation to the intervention from PBN Construction ([CMD 23-H6.19](#)), the Commission enquired how Cameco ensures that a contractor's safety culture is aligned with its own. A Cameco representative responded that Cameco's management system includes a contractor management program that details Cameco's safety expectations. The Cameco representative reported that Cameco expects the same standards out of contractors as its own employees and noted that Cameco's oversight of contractors includes activities such as training confirmation.
33. The Commission concludes that Cameco has the appropriate organization and management system in place to carry on the licensed activities. The Commission finds that the information provided by Cameco and CNSC staff demonstrates that Cameco has acceptable programs in place to ensure that it achieves its safety objectives and fosters a healthy safety culture at the KLO. The Commission finds that:
- Cameco has implemented and maintained a management system to operate the facility, and that the management system meets the requirements of CSA N286-12
 - Cameco has made a continued commitment to maintaining and improving its management system in accordance with regulatory requirements

- Cameco has an acceptable safety culture and a process in place to monitor safety culture in the organization through different avenues, such as safety culture self assessments, in accordance with REGDOC-2.1.2

4.2.2 *Human Performance Management*

34. Human performance management encompasses activities to ensure that Cameco workers are sufficient in number in all relevant job areas, and have the necessary knowledge, skills, procedures, and tools in place to safely carry out their duties.
35. Paragraphs 12(1)(a) and 12(1)(b) of the GNSCR establish requirements for a licensee to have sufficient qualified workers and to train workers to carry on the licensed activity in accordance with the NSCA, its regulations and the licence. Paragraphs 3(d), 10(b), and section 15 of the UMMR also establish requirements with respect to a licensee's training program. [REGDOC-2.2.2, Personnel Training, Version 2](#)²⁰ sets out requirements and guidance for the analysis, design, development, implementation, evaluation, documentation and management of training at nuclear facilities within Canada, including the essential principles and elements of an effective training system.
36. In section 3.3 of CMD 23-H6.1, Cameco submitted information on its human performance programs, including details on its training program. Cameco submitted that, in accordance with the requirements of REGDOC-2.2.2, it has implemented a systematic approach to training (SAT) to ensure that workers are competent based on appropriate education, skills, experience, and behaviours. Cameco also noted its measures to track workers' training and mandatory qualifications.
37. In section 3.2 of CMD 23-H6, CNSC staff submitted that Cameco has implemented and maintained a SAT-based training program that satisfies regulatory requirements, including the requirements set out in REGDOC-2.2.2. CNSC staff reported that Cameco met its regulatory requirements and has implemented and maintained a satisfactory human performance management program at the KLO.
38. CNSC staff reported that its onsite compliance activities conducted during the current licence period included verification of the implementation of the SAT, worker training and qualification, and worker onboarding associated with the restart of milling activities. CNSC staff noted that it verified Cameco's implementation of REGDOC-2.2.2 at the KLO during an inspection carried out in November 2022. CNSC staff added that it performed two focused human performance management inspections during the current licence period, and that its general inspections included human performance management criteria. CNSC staff informed that all inspection findings were of low-risk significance.
39. Based on the information on record as described above, the Commission concludes that Cameco has adequate measures in place to manage human performance for the conduct of licensed activities at the KLO. The Commission is satisfied that Cameco's

²⁰ REGDOC-2.2.2, *Performance Training*, Version 2, CNSC, December 2016.

employees are appropriately trained and qualified to carry on the licensed activities. The Commission finds that:

- Cameco's employees are appropriately trained and qualified to carry on the licensed activities
- Cameco has a SAT-based training program in place that meets regulatory requirements, including REGDOC-2.2.2
- Cameco has implemented and maintained a satisfactory human performance management program

4.2.3 *Operating Performance*

40. Operating performance includes an overall review of the conduct of the licensed activities and the activities that enable effective performance at the KLO, as well as improvement plans and significant future activities.
41. Paragraph 6(2)(c) of the UMMR provides that an application for a licence to operate a uranium mill must include information on the proposed policies, methods and programs for operating and maintaining the mill. [REGDOC-3.1.2, Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills, Version 1.1](#)²¹ sets out requirements and guidance for reports and notifications that licensees of uranium mines and mills must submit to the CNSC.
42. In Section 3.4 of CMD 23-H6.1, Cameco provided information on how it ensures that licensed activities are conducted safely at the KLO, including during care and maintenance periods and the resumption of production. Cameco provided information on the processes it has implemented to ensure that the KLO is operated safely and in accordance with its licence. Cameco also submitted information about its management of operating limits, that must meet the requirements of its *Radiation Code of Practice* and *Environmental Code of Practice*.
43. Cameco submitted that, for the transition into care and maintenance, Cameco reduced activities in the KLO while continuing the treatment of water collected from various locations across the KLO site. Cameco further submitted that, to resume production, Cameco developed and followed a formal commissioning process for all systems, facilities or devices taken offline during care and maintenance. Cameco added that it retained a third-party subject matter expert to assist the commissioning of the mill process circuits.
44. In section 3.3 of CMD 23-H6, CNSC staff submitted that Cameco has operated the KLO in compliance with CNSC regulatory requirements. CNSC staff reported that, during the current licence period, it performed 10 inspections related to the operating performance SCA. CNSC staff noted that Cameco implemented appropriate corrective actions in a timely manner.

²¹ REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills*, Version 1.1, CNSC, July 2022.

45. CNSC staff further submitted that, for reportable events, Cameco submitted detailed reports in accordance with REGDOC-3.1.2. CNSC staff noted that it reviewed all reported events and reported significant events at public meetings of the Commission with details on each reported event in the ROR on uranium mines and mills for the year in which the event occurred. CNSC staff added that Cameco proactively disclosed reportable events, in accordance with CNSC's [REGDOC-3.2.1, *Public Information and Disclosure*](#).²² CNSC staff added that Cameco conducted investigations into the reported events to determine probable causes and took necessary corrective actions.
46. The Commission asked for information regarding CNSC staff regulatory oversight given the possibility that Cameco might change its operations over the proposed licence period. CNSC staff reported that its regulatory oversight can adapt to a given situation, as was demonstrated during the COVID-19 pandemic as well as during the transition to care and maintenance and the return to operations.
47. Asked to describe the regulatory process for changes to operations, CNSC staff explained that licensees are required to inform the CNSC in advance of any potential change. CNSC staff added that it would then evaluate whether the changes require Commission approval.²³
48. Based on the information on record as described above, the Commission concludes that Cameco has appropriate programs and measures in place to conduct licensed activities at the KLO in a manner that provides for the protection of the health and safety of persons and the environment. The Commission finds that:
 - Cameco operated the KLO in accordance with regulatory requirements over the licence period
 - Cameco's programs and procedures for operating the KLO meet regulatory requirements, including a program for reporting that conforms with REGDOC-3.1.2
 - Cameco reported and implemented appropriate corrective actions for reported events

4.2.4 *Safety Analysis*

49. Safety analysis, which supports the overall safety case for a facility, includes a systematic evaluation of the potential hazards associated with the conduct of the licensed activity or the operation of a facility. Safety analysis also considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.

²² REGDOC-3.2.1, *Public Information and Disclosure*, CNSC, May 2018.

²³ Licensing basis is described under the licence and in the LCH .

50. Paragraph 3(1)(i) of the GNSCR provides that 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.
51. In section 3.5 of CMD 23-H6.1, Cameco submitted that it systematically assesses risk using risk analysis tools, such as hazards and operability assessments, job hazard analyses, and field level risk assessments, to ensure sustainable and safe operation. Cameco submitted that these analyses ensure that changes to the KLO are controlled and that risks posed are acceptable. Cameco also reported that it completed a risk assessment to evaluate the likelihood and consequence of a wildland fire directly impacting the KLO.
52. Specific to the tailings management facilities at the KLO, Cameco reported that a third-party subject matter expert conducted a dam safety review, in accordance with [Canadian Dam Association Guidance Documents](#).²⁴ Cameco reported that this review found the KLO dam to be in sound condition without information of any dam safety issues, and that the KLO dam is being managed in a manner consistent with sound engineering and good industry practice.
53. In section 3.4 of CMD 23-H6, CNSC staff reported that Cameco has implemented and maintained processes at the KLO to identify and evaluate potential safety hazards associated with the operation of the KLO. CNSC staff noted that it performed one focused safety analysis inspection and 3 general inspections with safety analysis criteria at the KLO during the current licence period. CNSC staff reported that it also verified that Cameco has the necessary safety analyses to plan, implement and monitor construction operations mitigating risks to workers, the public and the environment. Based on these assessments, CNSC staff is of the view that Cameco is meeting regulatory requirements for safety analysis at the KLO.
54. Based on the information on record as described above, the Commission concludes that Cameco's safety analysis is adequate for the licensed activities associated with the operation of the KLO under the proposed licence. The Commission finds that:
 - evaluation of potential hazards and preparedness for reducing the effects of such hazards demonstrates the safety case through defence in depth
 - Cameco has the necessary safety analyses in place, ensuring the risks to workers, the public and the environment have mitigated

4.2.5 *Physical Design*

55. Physical design includes the activities to design systems, structures and components to meet and maintain the design basis of a facility. The design basis is the range of conditions, according to established criteria, that the facility must withstand without exceeding authorized limits for the planned operation of safety systems.

²⁴ CDA Guidance Documents are available for purchase on the [Canadian Dam Association's website](#).

56. Paragraph 3(1)(d) of the GNSCR 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. Paragraph 6(2)(b) of the UMMR requires that an application to operate a uranium mill contain a description of the structures, components, systems and equipment at the mill, including any changes to their design and their design operating conditions as a result of the commissioning.
57. In section 3.6 of CMD 23-H6.1, Cameco described its physical design program for the KLO. Cameco explained that the design program utilizes facility change control and design control to ensure that any physical changes to the facility are reviewed and approved by appropriate personnel before implementation. Cameco submitted that it employs an electronic system ensuring that required approvals, including regulatory approvals, are in place prior to the changes being implemented.
58. In section 3.5 of CMD 23-H6, CNSC staff submitted that Cameco is meeting regulatory requirements for the physical design SCA. CNSC staff provided information on the most significant changes and improvements which have been or are being made at the KLO during the current licence period, including the following:
- Mill ammonia tanks and piping upgrade
 - Calciner repairs/refurbishment
 - Deilmann Tailings Management Facility pit wall stabilization
 - Yellowcake packaging automation
 - Mill automation and process upgrades
 - Bulk neutralization gypsum desaturation project
 - Uranium recovery well infrastructure

CNSC staff noted that Cameco's change management process includes a risk assessment requirement for new designs and design changes. CNSC staff added that Cameco has implemented and maintained design control processes at the KLO that verify and validate designs to ensure safety, performance and dependability of the facility.

59. CNSC staff reported that it completed 2 focused physical design inspections at the KLO during the licence period and 2 general inspections that included physical design criteria. CNSC staff noted that all non-compliances identified by CNSC staff were of low safety significance and were adequately addressed by Cameco.
60. Based on the information on record as described above, the Commission concludes that the physical design program that Cameco continues to implement and maintain at the KLO is adequate for the requested licence period. The Commission finds that:
- Cameco has adequate resources in place to safely manage and implement design changes that are within the licensing basis
 - Cameco's physical design program meets regulatory requirements
 - Cameco satisfactorily addressed all non-compliances identified by CNSC staff

4.2.6 *Fitness for Service*

61. Fitness for service covers activities that are performed to ensure that systems, structures and components at the KLO continue to effectively fulfill their intended purpose. Paragraph 6(2)(c) of the UMMR requires that an application to operate a uranium mill contain the proposed policies, methods and programs for operating and maintaining the mill.
62. In section 3.7 of CMD 23-H6.1, Cameco described its fitness for service programs and activities. Cameco provided details on its maintenance activities for infrastructure or equipment, as appropriate. Cameco noted that it re-implemented maintenance plans for systems, equipment and devices taken off-line during care and maintenance to transition the KLO back into production.
63. CNSC staff assessed Cameco's fitness for service program and found that Cameco has implemented and maintained programs to ensure structures and equipment remain effective and perform as designed over time. In section 3.6 of CMD 23-H6, CNSC staff submitted that Cameco has adequate routine and preventive maintenance programs in place at the KLO to ensure structures, systems and components remain effective over time. CNSC staff reported that it conducted 2 fitness-for-service-focused inspections and 7 general inspections containing fitness for service criteria at the KLO during the current licence period. CNSC staff reported that all non-compliances identified were of low safety significance and were adequately addressed by Cameco.
64. Based on the information on record as described above, the Commission concludes that the measures that Cameco has in place to ensure fitness for service at the KLO are adequate for Cameco carry on the licensed activities under the renewed licence. The Commission finds that:
 - Cameco's programs for ensuring fitness for service meet regulatory requirements
 - Cameco has implemented and maintained programs to ensure structures and equipment remain effective and perform as designed over time
 - Cameco has adequate routine and preventative maintenance programs in place at the KLO to ensure structures, systems and components remain effective over time

4.2.7 *Radiation Protection*

65. Radiation protection includes measures for protecting the health and safety of persons from hazards associated with ionizing radiation. Radiation protection ensures that contamination levels and radiation doses received by individuals are monitored, controlled and maintained as low as reasonably achievable (ALARA), while taking into consideration social and economic factors.

66. Section 4 of the *Radiation Protection Regulations* requires licensees to implement a radiation protection program. As part of this program, licensees must keep effective and equivalent doses received by, and committed to, persons ALARA, taking into account social and economic factors, and ascertain the quantity and concentration of any nuclear substance released as a result of the licensed activity. Section 14 of the *Radiation Protection Regulations* also prescribe equivalent dose limits for Nuclear Energy Workers (NEWs) and any other person.²⁵ Section 14 of the UMMR prescribe areas that require radiation signage and direct-reading dosimeters for workers.
67. In section 3.8 of CMD 23-H6.1, Cameco submitted that it mitigated radiation exposures through a combination of engineering and administrative controls that include:
- shielding
 - training
 - zone control
 - radiation work permits
 - personal protective equipment (e.g., respiratory protection)

Cameco submitted that it monitored and confirmed the effectiveness of these controls through area monitoring, direct reading dosimeters, optically stimulated luminescence dosimeters and personal alpha dosimeters.

68. Cameco reported that, over the licence period, it did not exceed any regulatory limits with respect to radiation protection at the KLO. The highest maximum annual effective dose for a Nuclear Energy Worker (NEW) was 7.56 millisieverts per year (mSv/y) in 2015, which was well below the regulatory dose limit.²⁶ Cameco submitted information related to 5 events resulting in action level exceedances²⁷ at the KLO during the current licence period. Cameco reported that these action level exceedances were addressed in accordance with Cameco's corrective action process. Cameco added that its radiation protection program was working as intended to keep worker exposures ALARA.
69. In section 3.7 of CMD 23-H6, CNSC staff submitted that Cameco's radiation protection program meets regulatory requirements. CNSC staff reported that Cameco's effective doses have been maintained well below regulatory dose limits. CNSC staff noted that Cameco's maximum annual collective dose²⁸ for NEWs at the KLO ranged from 850 person-mSv (p-mSv) in 2013, to a low of 69 p-mSv in 2019, reflecting the reduced activities at the site due to the beginning of care and maintenance in late 2017.

²⁵ The regulatory dose limits for nuclear energy workers are 50 mSv in any one year and 100 mSv in a five-year dosimetry period. The regulatory dose limit for any other person is 1 mSv in one calendar year.

²⁶ The regulatory dose limits for nuclear energy workers are 50 mSv in any one year and 100 mSv in a five-year dosimetry period. The regulatory dose limit for members of the public is 1 mSv in one calendar year.

²⁷ Action levels are designed to alert licensees before regulatory dose limits are reached. By definition, if an action is reached, a loss of control of some part of the associated radiation protection program may have occurred, and specific action is required, as defined in the *Radiation Protection Regulations*. The licensee shall notify the Commission or a person authorized by the Commission within 24 hours of becoming aware that an action level has been exceeded and shall file a written report within 45 working days of becoming aware of the matter.

²⁸ The annual collective dose is the sum of effective dose assigned to workers at the operation in a given calendar year.

70. CNSC staff reported that it assessed the compliance of Cameco's radiation protection program and practices at the KLO through 1 focused inspection and 23 general compliance inspections during the licence period. CNSC staff noted that the inspection findings were of low safety significance, and that Cameco addressed all findings in a timely manner. CNSC staff submitted that low safety significance non-compliant findings have been identified; however, these regulatory findings were not indicative of widespread deficiencies in RP program implementation at KLO and that the inspection findings confirmed Cameco's ongoing compliance with the *Radiation Protection Regulations* during the current licensing period.
71. CNSC staff further reported that Cameco adequately controlled radiological hazards, including sealed sources, unsealed sources and radiation devices that are regulated under the [Nuclear Substances and Radiation Devices Regulations](#).²⁹ CNSC staff explained that Cameco's radiation protection program controls the radiological hazards associated with these radiation sources by means of:
- training
 - leak testing
 - radiation warning signs
 - access control to areas where such sources are used or stored
72. Based on the information on record as described above, the Commission concludes that Cameco has an adequate radiation protection program in place to protect the health and safety of persons and the environment from radiation hazards associated with the KLO. The Commission finds that:
- Cameco has implemented a radiation protection program that meets the requirements of the *Radiation Protection Regulations* and the *Nuclear Substances and Radiation Devices Regulations*
 - The Commission is satisfied that effective and equivalent doses to NEWs at the KLO are below regulatory limits
 - Cameco addressed all action items raised during radiation protection-related inspections over the current licence period

4.2.8 Conventional Health and Safety

73. A conventional health and safety program's objective is to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace. A conventional health and safety program manages conventional workplace safety hazards and ensures compliance with applicable labour codes. The NSCA provides that the Commission must ensure that a licence applicant takes the necessary measures to safeguard the health of persons. The regulation of non-radiological health and safety at uranium mines and mills is governed by Part II of the [Canada Labour Code](#)³⁰.

²⁹ SOR/2000-207.

³⁰ R.S.C. 1985, c. L-2.

74. In section 3.9 of CMD 23-H6.1, Cameco provided information regarding its conventional health and safety program, including the implementation of its safety policy, safety statistics during the licence period and its COVID-19 pandemic response. Cameco reported that it conducts periodic safety culture assessments in accordance with REGDOC-2.1.2, *Safety Culture*.

75. Cameco reported that it controls risks to workers through the adoption of a safety system comprised of the following elements:

- site inspections
- safety meetings
- daily contact card
- daily safety huddles
- job task observations
- work permits

Cameco added that, for non-routine tasks, it uses Job Hazard Analysis tools to identify any hazards associated with the task and controls to mitigate the hazards.

76. Cameco submitted that it assessed the effectiveness of its safety control measures through indicators, such as audits, preventative and predictive maintenance plans and compliance to program requirements. Cameco added that it recorded and reported, on a monthly and annual basis, worker safety measures such as:

- first aids
- medical incident injuries
- lost-time injuries (LTI)
- total recordable injury rate

Cameco reported 2 LTIs at the KLO during the current licence period and that these were reported to the Commission during the corresponding RORs. Cameco added that no worker at the KLO has had an LTI since 2016, when the 2 LTIs were reported.³¹

77. Cameco also described the safety enhancements it made during the COVID-19 pandemic, such as:

- adopting screening protocols for access to facilities that aligned with the directives of government and public health authorities
- implementing protective measures in the workplace, including increased sanitization, physical distancing and use of face masks
- making arrangements to limit the number of persons on-site, such as by allowing individuals to work from home

78. In section 3.8 of CMD 23-H6, CNSC staff reported that Cameco had effectively implemented a conventional health and safety program that meets applicable regulatory requirements. CNSC staff explained that it verified Cameco's conventional health and safety program during routine onsite inspections over the licence period. CNSC staff

³¹ CMD 23-H6 page 40

noted that the Saskatchewan Ministry of Labour Relations and Workplace Safety³² inspectors also carries out inspections and that the two entities share inspection reports.

79. CNSC staff reported that it completed 2 focused conventional health and safety inspections and 24 general inspections containing conventional health and safety criteria during the current licence period. CNSC staff reported that all non-compliances identified were of low safety significance and that Cameco addressed all non-compliances and recommendations identified during the current licence period. CNSC staff added that conventional health and safety-related findings and incidents were properly investigated and corrected by Cameco in a timely manner and the resulting reports were acceptable to the CNSC and Saskatchewan Ministry of Labour Relations and Workplace Safety.
80. The Commission asked whether any of the measures adopted in response to the COVID-19 pandemic were still in place. A Cameco representative responded that Cameco had removed all restrictions. The Cameco representative noted that the COVID-19 pandemic led to a greater awareness around the need for employees to stay home when sick, as well as for improvements to facility sanitization.
81. Based on the information on record as described above, the Commission concludes that the conventional health and safety of workers was adequately protected during the operation of the facility over the current licence period, and will continue to be adequately protected throughout the proposed licence period. The Commission finds that:
 - Cameco's conventional health and safety program meets regulatory requirements
 - Cameco has adequate measures in place to protect the health and safety of workers from conventional hazards associated with licensed activities
 - Cameco adequately addressed all inspection findings over the current licence period
 - Cameco had no lost-time injuries at the KLO since 2016

4.2.9 *Environmental Protection*

82. Environmental protection programs are intended to identify, control, and monitor all releases of radioactive and hazardous substances, and aim to minimize the effects on the environment that may result from licensed activities. These programs include effluent and emission control, environmental monitoring, and estimated doses to the public.
83. In accordance with the NSCA, licensees are required to make adequate provision for the protection of the environment. Paragraphs 12(1)(c) and (f) of the GNSCR require

³² The [Saskatchewan Ministry of Labour Relations and Workplace Safety](#) is the provincial regulatory body responsible for the implementation of the *Occupational Health & Safety Act*. In addition to the NSCA, Cameco must comply with applicable federal and provincial health and safety related acts and regulations.

each licensee to take all reasonable precautions to protect the environment and the health and safety of persons, and to control the release of radioactive nuclear substances or hazardous substances within the site of the licensed activity and into the environment. The licence for the KLO also requires that Cameco control, monitor and record releases of effluent concentrations from the facility, and that the releases shall not exceed the limits refer to in the licence.

84. In addition to the GNSCR requirements, section 3 and subsection 4(2) of the UMMR prescribe information regarding environmental protection that applicants are required to provide for a licence in respect of a uranium mine or mill.
85. In section 3.10 of CMD 23-H6.1, Cameco provided the Commission with detailed information regarding its environmental monitoring and protection programs. Cameco reported that it implemented changes to the action levels for treated water from the KLO, in accordance with CSA N288.8-17, *Establishing and Implementing Action Levels for Releases to the Environment from Nuclear Facilities*,³³ in April 2022.
86. Cameco listed the additional environmental protection regulatory documents and standards it implemented during the licence period, including:
 - CSA N288.4-10, *Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*³⁴
 - CSA N288.5-11, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*³⁵
 - CSA N288.6-12, *Environmental Risk Assessment at Class I Nuclear Facilities, and Uranium Mines and Mills*³⁶
 - CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*³⁷
 - [REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures. Version 1.1](#)³⁸
87. In section 3.10.6 of CMD H6.1, Cameco submitted that it completes an Environmental Performance Report (EPR) on a 5-year cycle. Cameco explained that the EPR provides an update, assessment, and summary of the operationally relevant environmental data and other information relating to performance of the KLO. Cameco reported that its EPRs demonstrate that the KLO is performing within the scope of its respective environmental monitoring programs and predictions of previous environmental risk

³³ CSA N288.8-17, *Establishing and Implementing Action Levels to Control Releases to the Environment from Nuclear Facilities*, CSA Group, 2020.

³⁴ CSA N288.4-10, *Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2010.

³⁵ CSA N288.5-11, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2011.

³⁶ CSA N288.6-12, *Environmental Risk Assessment at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2012

³⁷ CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2015.

³⁸ REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures, Version 1.1*, CNSC, April 2017.

assessments. Cameco added that its EPR shows that the environment and human health in the vicinity of the KLO remains protected. Environmental monitoring and the environmental risk assessment are further discussed below.

88. In section 3.9 of CMD 23-H6, CNSC staff submitted that Cameco's implementation of the environmental protection program meets CNSC's regulatory requirements and expectations, including REGDOC-2.9.1. CNSC staff reported that it conducted 2 focused inspections and 18 general inspections with environmental protection criteria at the KLO during the current licence period. CNSC staff reported that all findings were of low safety significance and that Cameco adequately addressed them.
89. CNSC staff further reported that Cameco has implemented and maintained an environmental management system at the KLO to describe the activities associated with the protection of the environment. CNSC staff added that it verified the effectiveness of KLOs environmental management system through desktop reviews of annual compliance reports and inspections. CNSC staff reported that Cameco's environmental management system demonstrates that KLO's emissions and effluent discharge of nuclear and hazardous substances are properly controlled, and that Cameco's environmental monitoring program meets regulatory requirements.

Air Quality Monitoring

90. In section 3.10.3 of CMD 23-H6.1, Cameco reported that it monitors ambient air quality monitoring by monitoring radon concentrations at representative locations surrounding the boundaries of the KLO. Cameco reported that, during the current licence period, the ambient radon concentrations were less than the typical range of northern Saskatchewan regional background concentrations, which range from 37 to 74 Bq/m³.³⁹
91. Cameco submitted that its air monitoring at the KLO also includes the monitoring of particulate matter, metals and radionuclides. Cameco reported that ambient air quality monitoring results show that the ambient air quality was well below the reference criteria⁴⁰ during the current licence period.
92. In section 3.9 of CMD 23-H6, CNSC staff noted that for 2013 to 2022:
 - average concentrations of radon in ambient air at the KLO were below the reference level for radon
 - total suspended particulate values remained low and well below the provincial standard of 60 micrograms per cubic metre (µg/m³)

³⁹ CMD 23-H6.1, page 49

⁴⁰ Reference value for particulate matter from Saskatchewan Ministry of the Environment, Table 20: *Saskatchewan Ambient Air Quality Standards (SAAQS)*. Metal reference annual air quality levels derived from the Ontario Ministry of Environment's *Ontario's Ambient Air Quality Criteria*

Aquatic Environment

93. In section 3.10.5 of CMD 23-H6.1, Cameco submitted that its aquatic environment monitoring meets the requirements for release limits stipulated in the [*Metal and Diamond Mining Effluent Regulations*](#) (MDMER).⁴¹ Cameco reported that all treated water released to the environment was sampled to ensure that regulatory requirements were met. Cameco reported that its 2022 environmental monitoring program for the aquatic environment demonstrated a decline in molybdenum concentrations in both near- and far-field sediment sampling areas, as well as declines in selenium concentrations in the near-field exposure area from levels observed in 2007. Cameco added that results from the fish samples were lower than those observed during previous monitoring periods.
94. Cameco reported that, in 2018, it noted an increase in uranium concentrations in a groundwater monitoring well near the molybdenum extraction building. In response, Cameco contracted a third-party expert to conduct a site assessment in the area to inform the development of a corrective action plan. Cameco submitted that the corrective action plan was approved by the CNSC and Saskatchewan Ministry of Environment in 2021 and includes the drilling of groundwater recovery wells and associated infrastructure to collect the groundwater for treatment.
95. Cameco further reported that it observed elevated constituents of potential concern (COPCs), specifically ammonia and sulfate, in 2 of the newly installed deeper groundwater monitoring wells as part of the response to the 2018 molybdenum extraction building event. Cameco noted that the elevated COPCs observed in these wells were deemed to be unrelated to the molybdenum extraction building event, and it reported these elevated COPCs to the CNSC as a new discovery in June 2021. Cameco added that it again contracted a third-party expert to conduct a site assessment and develop a corrective action plan. Cameco reported that the corrective action plan was nearing completion, and that Cameco was currently undertaking additional inspections of containment systems within the KLO, and making repairs, as required.
96. The Commission asked for more information concerning the movement of uranium in groundwater under the KLO. A Cameco representative responded that the uranium is retarded within the groundwater flow system. Asked to explain further, the Cameco representative reported that monitoring data shows that the uranium is mainly concentrated close to the sources of the release. CNSC staff noted that based on the modeling of the monitoring results, it was determined that the distribution coefficient for the transport of uranium, which covers different uranium transportation mechanisms, had a large value, meaning that uranium transportation is slowed down significantly. The Commission expects an update on the status of the contaminated plume, as well as its migration mechanism, in future uranium mines and mills RORs.

⁴¹ SOR/2002-222.

97. Cameco also provided information about 2 pH limit exceedances⁴² that took place at the KLO during the licence period. Cameco reported that it implemented corrective actions following the releases, and that there was no impact to the receiving environment. Cameco submitted that downstream monitoring confirmed that pH continued to meet all regulatory requirements. CNSC staff concurred with this assessment.⁴³
98. Cameco noted that it provided regular updates on these events and on the status of the KLO assessments and corrective actions plans to Indigenous communities located in the vicinity of KLO, in accordance with Cameco's Collaboration Agreements and its Public Information Programs. Cameco reported that it provided information to:
- Joint Engagement Subcommittee
 - Joint Engagement and Environment Subcommittee
 - Lac La Ronge Indian Band
 - Traditional Lands and Resource Advisory Committee

Cameco's public information program is addressed in section 4.4.1 of this *Record of Decision*.

99. In section 3.9 of CMD 23-H6, CNSC staff reported that effluent from the KLO did not pose a risk to the environment throughout the licence period. CNSC staff reported that effluent contaminant concentrations were maintained below the effluent discharge limits except for the 2 short-term pH limit exceedances at the KLO. CNSC staff confirmed that the effluent discharge from the KLO met the requirements set out in the MDMER throughout the current licence period.
100. Cameco submitted that 2 key areas of environmental focus at KLO were:
- preventing uncontrolled releases to the environment
 - collecting and treating potentially contaminated water

Cameco reported that all treated water released to the environment was sampled to ensure that regulatory requirements are met. Cameco added that this included the groundwater collected from the Deilmann and Gaertner dewatering systems and the water treated in the KLO's bulk neutralization circuit.

101. Cameco provided information about an environmental action level exceedances that took place at the KLO during the licence period. Cameco reported that the action level for uranium concentrations in treated water was exceeded in October 2022, for a single pond release. Cameco explained that the composite uranium concentration was 81 micrograms per litre ($\mu\text{g/L}$), which exceeded the 80 $\mu\text{g/L}$ action level. Cameco added that this event was under investigation. The Commission expects an update on this event in the upcoming uranium mines and mills ROR.

⁴² The pH exceedances, 10.8 in December 2013 and 10.16 in October 2018, were above the upper pH limit (9.5) specified in the MDMER and the maximum grab sample limit within the provincial operating approval (9.5).

⁴³ Page 59-60 of CMD 23-H6.

102. CNSC reported that the monitoring station closest to the mill effluent discharge point had a gradual increase in uranium levels over the previous 5 years while remaining well below the CNSC's interim objective of 0.1 mg/L throughout this period. CNSC staff added that molybdenum and selenium concentrations have remained relatively constant over the previous 5 years, and other parameters have remained below [Saskatchewan Environmental Quality Guidelines](#).
103. The Canadian Environmental Law Association (CELA), in its intervention ([CMD 23-H6.31](#)), expressed concerns about Cameco's Deilmann Tailings Management Facility and whether it is being adequately monitored. Asked about Cameco's monitoring of the Deilmann Tailings Management Facility, a Cameco representative reported that the groundwater monitoring currently in place, including around the Deilmann Tailings Management Facility, shows that the environment in the vicinity of the KLO is protected. CNSC staff reported that it performed geotechnical inspections of the tailings facility to review the slope stability. CNSC staff added that it also reviews Cameco's annual geotechnical reports as well as the results of all groundwater monitoring. CNSC staff reported that it did not identify any concerns with the Deilmann Tailings Management Facility.⁴⁴

Terrestrial Environment Monitoring

104. In section 3.10.5 of CMD 23-H6.1, Cameco provided information on its terrestrial environment monitoring, including plants, soil, and lichen, at the KLO. Cameco explained that the monitoring takes place on a five-year frequency to verify the potential influences of air emissions on the surrounding environment. Cameco reported that results from the 2021 program indicated that the majority of licensed parameters are comparable to, or lower than, historical results. The monitoring results also confirmed the presence of a healthy lichen community.
105. Cameco explained that it completes an Environmental Performance Report (EPR) on a 5-year cycle. Cameco explained that the EPR provides an update, assessment, and summary of the operationally relevant environmental data and other information relating to performance of the KLO. Cameco reported that its EPRs demonstrate that the KLO is performing within the scope of its respective environmental monitoring programs and predictions of previous environmental risk assessments. Cameco added that the EPR showed that the environment and human health in the vicinity of the KLO remains protected.
106. In CMD 23-H6.B, *Key Lake Operation Environmental Protection Review Report*, CNSC staff reported that results from soil samples collected around the KLO show that concentrations of metal parameters in soil were below available [Canadian Environmental Quality Guidelines](#)⁴⁵ for residential/parkland land use. CNSC staff also reported that radionuclide concentrations in soils were also low, near or at background levels and analytical detection limits. CNSC staff reported that the concentrations of

⁴⁴ Transcript of June 7, 2023 Public Hearing, page 168.

⁴⁵ Canadian Council of Ministers of the Environment, *Canadian Environmental Quality Guidelines*.

constituents of potential concern in soil surrounding the KLO are acceptable and do not pose a risk to ecological receptors in the vicinity of the facility.

107. In reference to the intervention from CELA, CMD 23-H6.31, the Commission asked about the concern regarding the accounting for potential cumulative effects. A Cameco representative reported that environmental monitoring, including water, fish, sediments and other environmental media at varying distances downstream in the watersheds, does not show cumulative effects nor increasing trends over time.

Environmental Risk Assessment

108. In section 3.10.4 of CMD 23-H6.1, Cameco submitted that it reviews and updates its environmental risk assessment (ERA) for the KLO on a five-year cycle, in accordance with CSA N288.6-12. Cameco reported that the most recent ERA for the KLO, completed in 2020, concluded that the KLO remains within the objective of the licensing basis, and that human health and the environment in the vicinities of the KLO remain protected. Cameco added that it posted a summary of the current ERA on its [website](#).
109. In section 3.9 of CMD 23-H6, CNSC staff reported that it reviewed the ERA for the KLO and determined that it complies with CSA N288.6-12. CNSC staff added that Cameco completed a human health risk assessment, as part of the ERA, which evaluated numerous human receptors, such as workers, and families using the area surrounding the KLO in various ways. CNSC staff further reported that the ERA for the KLO considered usage of the area by Indigenous Nations and communities when evaluating potential impacts to human receptors, including trappers, seasonal residents and future permanent residents (post-decommissioning) in the areas surrounding the KLO. CNSC staff added that Cameco also used dietary information from the local Indigenous community, as well as specific information from a trapper in the area, to calculate country food consumption rates. CNSC staff reported that, based on this assessment, human exposure to radionuclides and hazardous substances are not expected to pose a risk to human health.
110. CNSC staff noted that Cameco's 2020 ERA for the KLO identified that there is a potential for aquatic biota to be influenced by continued operation and long-term post-decommissioning loads around the KLO. CNSC staff specified that potential influences on the aquatic community are limited to the near-field exposure zone. CNSC staff added that the aquatic community further downstream in the Wheeler River drainage is expected to remain protected and not adversely influenced by the KLO.
111. The intervention from Karen Weingeist ([CMD 23-H6.36](#)) included an infographic on pollution from the nuclear fuel cycle. The Commission noted that the infographic was interesting but lacked information on measures in place to address the various identified risks, and asked CNSC staff to comment. CNSC staff acknowledged that it would be useful for the CNSC to create a similar graphic with the appropriate regulatory context to provide a complete understanding of the risks depicted. The Commission encourages CNSC staff to do so.

Climate Change

112. The Commission asked Environment and Climate Change Canada (ECCC) for comments on the climate change projections in the area around the KLO. An ECCC representative submitted that the most immediate concerns were regarding flood risk and the probable maximum precipitation. The ECCC representative reported that the values currently used by Cameco for the KLO are adequate, and that Cameco should have an adequate margin of safety to contain potential 24-hour probable maximum precipitation events over the next 20 years.⁴⁶
113. Asked for projections with respect to wildfires, an ECCC representative reported that climate projections predict slightly increased temperatures in Northern Saskatchewan with a potential for a slightly drier climate to the year 2100. The ECCC representative was of the view that Cameco was managing wildfire risk appropriately.
114. Further on wildfires, CNSC staff reported that, as wildfires are a relatively frequent event in the KLO area, Cameco has an effective program for preventing impacts to its operations from wildfire. A Cameco representative reported that Cameco does wildfire assessments at KLO with the help of the Saskatchewan Public Safety Agency. The Cameco representative noted that Cameco has been dealing effectively with wildfire as a risk since the construction of the KLO. Fire protection is further addressed in section 4.2.10 of this *Record of Decision*.

CNSC Independent Environmental Monitoring Program

115. As mentioned in section 3.9 of CMD 23-H6, the CNSC has implemented its [Independent Environmental Monitoring Program \(IEMP\)](#) to support its assessments of whether the public and the environment around licensed nuclear facilities are safe. The IEMP is separate from, but complementary to, the CNSC's ongoing compliance verification program. The IEMP involves taking samples from public areas around nuclear facilities and measuring and analyzing the amount of radiological and hazardous substances in those samples. CNSC staff collect the samples and send them to the CNSC's independent laboratory for testing and analysis.
116. CNSC staff reported that it developed an IEMP sampling plan around the KLO in consultation with interested Indigenous Nations and communities. CNSC staff submitted that it consulted with the Ya'thi Néné Lands and Resources Office, Métis Nation of Saskatchewan and the English River First Nation, and that the English River First Nation provided suggestions, including sampling locations where traditional activities occur and species of interest, such as moose harvested near the KLO. CNSC staff reported that it incorporated the suggestions in the final sampling plan, and that the English River First Nation provided the moose samples included in the sampling campaign.

⁴⁶ Transcript of June 8 Commission Hearing, page 152-155.

117. CNSC staff reported that IEMP results from 2021 and 2014 were consistent with the results submitted by Cameco, supporting CNSC staff's assessment that Cameco's environmental protection programs are effective. CNSC staff added that the results add to the body of evidence that people and the environment in the vicinity of the KLO are protected and that there are no anticipated health impacts from these operations. CNSC staff noted that the [results are posted](#) on the CNSC's IEMP web page and that CNSC staff created a IEMP brochure with the results that it shared with interested Indigenous Nations and communities.
118. The Commission enquired whether CNSC staff exchanges information with and took the opportunity to learn from Indigenous Nations' land technicians. CNSC staff explained that it has an Indigenous knowledge policy for listening and learning from Indigenous Nations and communities that are interested in sharing Indigenous knowledge with the CNSC and integrating that into the sampling programs wherever possible.
119. Throughout the hearing, CNSC staff, Cameco and intervenors such as the Athabasca Joint Engagement and Environmental Subcommittee ([CMD 23-H6.16](#)) discussed several separate environmental monitoring programs including the Community-Based Environmental Monitoring Program (CBEMP) (CMD 23-H6.1 and CMD 23-H6.16),⁴⁷ the Eastern Athabasca Regional Monitoring Program (EARMP) (CMD 23-H6.1 and CMD 23-H6.16),⁴⁸ and the CNSC's IEMP (CMD 23-H6).⁴⁹ The Commission asked CNSC staff if there was an opportunity to identify synergies between these programs that would lead to efficiencies, improvements and increased confidence and trust in the results. CNSC staff noted that each program has evolved over time in response to the varying needs of the communities, and each program is addressing a different role, even though some of the activities may overlap. The Commission encourages CNSC staff to work with the communities and other interested parties to identify opportunities to bring the environmental monitoring programs together, make them more coherent and potentially improve the depth of the data collected. Other issues related to environmental protection raised by intervenors are discussed in detail in section 4.3.3 of this *Record of Decision*.

⁴⁷ The Community-Based Environmental Monitoring Program (CBEMP) for the Athabasca region was created in 2018 to enhance the data collected through the Athabasca Working Group Environmental Monitoring program (a product of the original Impact Management Agreement signed in 1999 by Cameco and northern First Nations and Communities). The CBMEP allows community members to become more involved and provide input to steer the direction of the program in their particular community.

⁴⁸ The Eastern Athabasca Regional Monitoring Program (EARMP) was established in 2011 under the Province of Saskatchewan's Boreal Watershed Initiative, and is supported by contributions from various interested parties, including the Saskatchewan Ministry of Environment, CNSC, Cameco and Orano. The program was developed to identify potential cumulative effects downstream of uranium mining and milling operations in the Eastern Athabasca region of northern Saskatchewan.

⁴⁹ The CNSC's Independent Environmental Monitoring Program (IEMP) was implemented as an added measure of verification that the public, indigenous Nations and communities, and the environment around licensed facilities are protected. The IEMP complements CNSC's ongoing compliance verification program.

Estimated Dose to the Public

120. In its *Key Lake Operation Environmental Protection Review Report* ([CMD 23-H6.B](#)), CNSC staff reported that Cameco's 2020 human health risk assessment for the KLO showed that the predicted maximum incremental dose resulting from KLO was 0.49 mSv per year for a camp worker. CNSC staff noted that the majority of the incremental radiation dose for camp workers comes from radon exposure. CNSC staff reported that it reviewed Cameco's assessment and concluded that public doses for all receptors are well below the annual public dose limit of 1 mSv per year.

Conclusion on Environmental Protection

121. Based on the information on record as described above, the Commission concludes that, based on information provided, Cameco has adequate measures in place at the KLO for the purposes of environmental protection under the NSCA for the proposed licence period. The Commission finds that:
- Cameco has maintained an environmental management system in compliance with REGDOC-2.9.1
 - releases to the environment from the KLO during the licence period were well below regulatory limits
 - Cameco's environmental monitoring program meets regulatory requirements
 - environmental monitoring data have shown that public dose remained well below the regulatory limit throughout the current licence period
 - results from the CNSC's IEMP support CNSC staff's assessment that the public and the environment surrounding the KLO sites are protected
 - Cameco's 2020 ERA meets regulatory requirements

4.2.10 Emergency Management and Fire Protection

122. Emergency management and fire protection programs cover the measures for preparedness and response capabilities implemented by Cameco in the event of emergencies and non-routine conditions at the KLO. These measures include nuclear emergency management, conventional emergency response, and fire protection and response.
123. Subparagraph 3(c)(x) of the UMMR stipulates that an application for a licence in respect of a uranium mill shall describe 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:
- assist offsite authorities in planning and preparing to limit the effects of an accidental release
 - notify offsite authorities of an accidental release or the imminence of an accidental release
 - report information to offsite authorities during and after an accidental release

- assist offsite authorities in dealing with the effects of an accidental release
- test the implementation of the measures to prevent or mitigate the effects of an accidental release

124. In section 3.11 of CMD 23-H6.1, Cameco submitted that it maintains an emergency preparedness and response program that describes how it prepares for and addresses emergencies that may impact the health and safety of Cameco's workforce, the environment and the protection of property at the KLO. Cameco added that its program also ensures that appropriate emergency response and contingency plans and procedures are developed, maintained and readily available for use.

125. Cameco reported that it uses administrative and engineered controls to identify and manage risks. Administrative controls include:

- routine drills and exercises,
- communication protocols
- emergency response team, responsible for responding to emergencies

Engineered controls include:

- alarms (fire and smoke sensors)
- emergency facilities (health centre, fire hall)
- equipment (fire truck, ambulance, and spill response equipment)

Cameco further reported that it performs periodic audits, reviews and self-assessments to help identify improvements and provide assurance that the emergency management systems are functioning effectively and efficiently.

126. Cameco submitted that it provides emergency response plan training, including identification of responsibilities during an emergency, to all new workers. Cameco noted that it tests its program through tabletop exercises, drills, or simulations, in accordance with internal, provincial, and federal regulatory requirements.

127. With respect to fire protection, Cameco submitted that its fire protection program accords with the [*National Fire Code of Canada, 2010*](#)⁵⁰ and the [*National Building Code of Canada, 2010*](#).⁵¹ Cameco reported that third-party experts have conducted fire hazard assessments and fire protection audits at the KLO. Cameco noted that these assessments did not identify any significant issues related to fire protection, and that Cameco implemented recommendations from these assessments as part of its corrective action process.

128. Cameco submitted that it was working towards implementing CSA N393-13, *Fire protection for facilities that process, handle, or store nuclear substances*⁵² by December 31, 2023. CNSC staff submitted that it reviewed Cameco's implementation

⁵⁰ *National Fire Code of Canada 2010*, National Research Council Canada, 2010.

⁵¹ *National Building Code of Canada 2010*, National Research Council Canada, 2010.

⁵² CSA N393-13, *Fire protection for facilities that process, handle, or store nuclear substances*, CSA Group, 2013.

plan and was satisfied with Cameco's gap analysis and proposed timeline for the implementation of CSA N393-13.

129. In section 3.10 of CMD 23-H6, CNSC staff submitted that Cameco meets the regulatory requirements in this SCA, including compliance with the *National Fire Code of Canada, 2010* and the *National Building Code of Canada, 2010*. CNSC staff reported that Cameco has an acceptable fire hazard assessment that indicates that Cameco has implemented adequate fire mitigation measures.
130. CNSC staff further reported that it reviewed Cameco's fire hazard assessment for all buildings at the KLO. CNSC staff reported that, after requesting additional information, CNSC staff found the assessment to be acceptable.
131. CNSC staff submitted that it conducted 2 focused and 8 general inspections with emergency management and fire protection criteria at the KLO during the current licence period. CNSC staff reported that all non-compliances identified were of low safety significance and were adequately addressed by Cameco.
132. Based on the information on record as described above, the Commission concludes that Cameco's nuclear and conventional emergency management program and the fire protection measures in place at the KLO are adequate to protect the health and safety of persons and the environment for the proposed licensed activities. The Commission finds that:
 - Cameco's emergency preparedness program meets regulatory requirements, including the *National Fire Code of Canada: 2010* and the *National Building Code of Canada: 2010*
 - Cameco has an acceptable fire hazard assessment which demonstrates that Cameco has implemented adequate fire mitigation measures
 - Cameco has qualified emergency response personnel onsite
 - Cameco has a plan in place for the implementation of CSA N393-13,

The Commission expects CNSC staff to inform the Commission if there are any issues in implementing CSA N393-13 by December 31, 2023.

4.2.11 Waste Management

133. Waste management covers waste-related programs that form part of a facility's operations up to the point where the waste is removed from the licensed site for storage, treatment, or disposal at another licensed location, and includes waste minimization, segregation, characterization, and storage programs. Waste management covers the waste generated during the operations of the KLO.
134. Paragraph 3(1)(j) of the GNSCR provides that the licence application must include 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. Paragraph 3(a)(viii) of the

UMMR requires that an application for a licence in respect of a uranium mill contain the proposed plan for the decommissioning of the mill.

135. In section 3.12 of CMD 23-H6.1, Cameco described its waste management program as well as its progressive reclamation work in areas that are no longer required for future milling activities. Cameco submitted that the waste management program at the KLO ensures that volumes of waste material are being reduced wherever possible and that all waste generated at the KLO is being tracked and handled in a way that is protective of the environment.
136. In section 3.11 of CMD 23-H6, CNSC staff reported that Cameco maintains a waste management program that staff has assessed as adequate for the management of domestic, industrial and chemically and radiologically contaminated waste at the KLO, in accordance with regulatory requirements. CNSC staff based its assessment on its review of Cameco's waste management documentation for the KLO, as well as CNSC staff's inspections during the licence period.
137. CNSC staff reported that it completed 2 focused and 9 general inspections containing waste management criteria during the current licence period. CNSC staff reported that all non-compliances identified were of low safety significance and were adequately addressed by Cameco.
138. For the proposed licence period, CNSC staff reported that Cameco would have to comply with the requirements of [REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste](#).⁵³ CNSC staff submitted that it would continue to monitor Cameco's implementation of this regulatory document through regulatory oversight activities including inspections and desktop reviews.
139. In Section 5.2 of CMD 23-H6, CNSC staff noted that Cameco has an acceptable preliminary decommissioning plan (PDP) and updated financial guarantee in place. The Commission accepted Cameco's updated financial guarantee for the KLO in [July 2020](#).⁵⁴ CNSC staff noted that Cameco has a requirement to update its PDP and its preliminary decommissioning cost estimate (PDCE) on a 5-year cycle. CNSC staff further noted that, to fulfill this requirement, Cameco submitted a revised PDP and PDCE in December 2022, which are currently being reviewed by CNSC staff against the requirements in REGDOC-3.3.1. CNSC staff noted that the Commission would consider any proposed revision of the existing financial guarantee for KLO in a separate Commission hearing.
140. Based on the information on record as described above, the Commission concludes that Cameco has implemented and continues to maintain a waste management program to safely manage waste at the KLO. The Commission finds that:

⁵³ REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*, CNSC, January 2021.

⁵⁴ Record of Decision, [DEC 20-H101](#), *Application for Acceptance of a Revised Financial Guarantee and Licence Amendment for Cameco's Key Lake Operation*, CNSC, July 29, 2020.

- Cameco has implemented a waste management program that meets regulatory requirements
- Cameco has plans in place to implement REGDOC-2.11.1 on waste management.

The Commission expects to be updated on the status of Cameco's implementation of REGDOC-2.11.1 as part of CNSC staff's Regulatory Oversight Report.

4.2.12 Security

141. The security SCA covers the implementation of a program to prevent the loss, unauthorized removal and sabotage of nuclear substances, nuclear materials, prescribed equipment, or information. Cameco's security program for the KLO must comply with applicable provisions of the GNSCR and Part 2 of the [Nuclear Security Regulations \(NSR\)](#).⁵⁵ [REGDOC-2.12.3, Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material, Version 2.1](#)⁵⁶ sets out the security measures that must be implemented to prevent the loss, sabotage and illegal use, possession, or illegal removal of sealed sources during its entire lifecycle.
142. Paragraph 12(1)(c) of the GNSCR requires a licensee to 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. Paragraphs 12(1)(g) and (h) require the licensee to implement measures for alerting the licensee to the illegal use or removal of a nuclear substance, prescribed equipment or prescribed information, or the illegal use of a nuclear facility, and measures for alerting it to acts or attempted sabotage, anywhere at the site of the licensed activity. Paragraph 12(1)(j) requires the licensee to instruct workers on the physical security program at the site of the licensed activity and on their obligations under that program. Section 3(e) of the UMMR also requires, in relation to security, the proposed measures to alert the licensee to acts of sabotage or attempted sabotage at the mine or mill.
143. In section 3.13 of CMD 23-H6.1, Cameco submitted that it conducts threat, risk and vulnerability assessments to ensure appropriate security measures are taken for potential threats. Cameco specified that the objectives of these assessments are to:
 - identify important material and sensitive information that needs protection
 - identify and assess potential threats to the materials and information
 - assess the risks associated with each threat to determine the estimate probability of occurring and potential consequences
 - identify existing vulnerabilities and opportunities for mitigation to reduce residual risk

⁵⁵ SOR/2000-209.

⁵⁶ REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material*, Version 2.1, September 2020.

144. In section 3.12 of CMD 23-H6, CNSC staff submitted that Cameco has implemented a security program that meets regulatory requirements under the GNSCR to prevent the loss or unauthorized removal of nuclear substances, radioactive sources, prescribed equipment or information at the KLO. CNSC staff reported that it does not schedule focused security inspections at the KLO due to the low risk associated with the facility. CNSC staff added that it conducted three general inspections containing security criteria at the KLO during the current licence period. CNSC staff reported that it did not observe any non-compliances and that the security measures at the KLO are sufficient.
145. Based on the information on record as described above, the Commission concludes that Cameco's programs and measures in place to provide for the physical security of the KLO are adequate. The Commission finds that:
- Cameco's security program meets regulatory requirements, including the GNSCR, NSR, and REGDOC-2.12.3
 - CNSC staff inspection did not reveal any non-compliances and that the security measures implemented at the KLO are sufficient to address the current threat level

4.2.13 *Safeguards and Non-Proliferation*

146. The CNSC's regulatory mandate includes ensuring conformity with measures required to implement Canada's international obligations under the [*Treaty on the Non-Proliferation of Nuclear Weapons*](#) (NPT)⁵⁷ of the International Atomic Energy Agency (IAEA) Pursuant to the NPT, Canada has entered into a [*Comprehensive Safeguards Agreement*](#)⁵⁸ and an [*Additional Protocol*](#)⁵⁹ (safeguards agreements) with the IAEA. The objective of these safeguards agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activity in this country.
147. [*REGDOC-2.13.1, Safeguards and Nuclear Materials Accountancy*](#)⁶⁰ sets out requirements and guidance for safeguards programs for applicants and licensees who possess nuclear material, operate a uranium and/or thorium mine, carry out specified types of nuclear fuel-cycle related research and development work, and/or carry out specified types of nuclear-related manufacturing activities.
148. In section 3.14 of CMD 23-H6.1, Cameco described the safeguards and non-proliferation measures in place at the KLO, which includes reporting production results to the IAEA. Cameco reported that it has met all safeguards conditions in its licence, including REGDOC-2.13.1, as well as the terms of the agreement between Canada and the IAEA.

⁵⁷ INFCIRC/140 (22 April 1970).

⁵⁸ INFCIRC/164 (2 June 1972).

⁵⁹ INFCIRC/164/Add.1 (11 October 2000).

⁶⁰ REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*, CNSC, February 2018.

149. In section 3.13 of CMD 23-H6, CNSC staff reported that its assessment of Cameco's documentation under the safeguards and non-proliferation SCA found that Cameco met regulatory requirements. CNSC staff noted that, in all cases, Cameco provided the IAEA with the necessary access and assistance to perform the activities, and complied with all regulatory requirements. CNSC staff added that no issues were identified by the IAEA as part of these inspection activities.
150. Based on the information on record as described above, the Commission is satisfied that Cameco has implemented and maintains a safeguards program that provides for the implementation of measures that are necessary for maintaining national security, and for implementing international agreements to which Canada has agreed. The Commission finds that:
- Cameco's safeguards and non-proliferation program meets regulatory requirements, including REGDOC-2.13.1
 - Cameco has provided the IAEA with the necessary access and assistance for it to perform its activities, and complied with all safeguards and non-proliferation regulatory requirements over the licence period

4.2.14 Packaging and Transport

151. The packaging and transport SCA covers the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility. Cameco must adhere to the [*Packaging and Transport of Nuclear Substances Regulations, 2015*](#) (PTNSR, 2015)⁶¹ and Transport Canada's [*Transportation of Dangerous Goods Regulations*](#) (TDGR)⁶² for all shipments. These regulations apply to the packaging and transport of nuclear substances at KLO, including the design, production, use, inspection, maintenance and repair of packages, and the preparation, consigning, handling, loading, carriage and unloading of packages.
152. In section 3.15 of CMD 23-H6.1, Cameco provided information on its packaging and transport program. Cameco specified that its program details the methods and practices that are utilized for transportation of bulk commodities, freight, low-grade mineralized material, ore slurry and waste materials to and from the KLO and McArthur River. Cameco reported that, in the most recent year of production (2017), MRO shipped over 4,000 uranium ore slurry trucks in total to KLO, with an additional 1,700 truckloads of low-grade mineralized material.
153. Cameco reported that there were four incidents involving transport at the KLO during the current licence period; none of the incidents resulted in health or radiological effects, or releases to the environment. Cameco added that it investigated these incidents and implemented corrective actions.

⁶¹ SOR/2015-145.

⁶² SOR/2001-286.

154. In section 3.14 of CMD 23-H6, CNSC staff submitted that Cameco's packaging and transport program complies with the PTNSR, 2015 and the TDGR for all shipments, and covers elements of package design and maintenance, and the registration for use of certified packages. CNSC staff reported that it completed 1 focused and 2 general inspections containing packaging and transport criteria at the KLO during the current licence period. CNSC staff reported that all non-compliances identified were of low safety significance and were adequately addressed by Cameco.
155. Based on the information on record as described above, the Commission concludes that Cameco has adequate programs and measures in place to meet regulatory requirements regarding packaging and transport. The Commission finds that:
- Cameco's packaging and transport program meets regulatory requirements, including the PTNSR, 2015 and the TDGR
 - Cameco demonstrated adequate management of transport incidents at the KLO

4.2.15 Conclusion on Assessment of Cameco's Safety and Control Measures for the Key Lake Operation

156. Based on the analysis of all of the information provided and discussed above, the Commission is satisfied and concludes that Cameco is qualified to carry on the licensed activities under the proposed renewed licence. In addition, the Commission agrees that Cameco has adequate programs and measures in place with respect to the 14 SCAs to ensure that adequate provision is made for the protection of the environment, as well as the health and safety of persons, including workers and the public. The Commission further concludes that Cameco has measures in place to provide for the maintenance of national security and to implement international obligations to which Canada has agreed.

4.3 Indigenous Engagement and Consultation

157. The Commission considered the information provided by CNSC staff, Cameco and intervenors regarding Indigenous consultation and engagement activities in respect of this licence renewal application. Indigenous consultation refers to the common law duty to consult with Indigenous Nations and communities pursuant to section 35 of the [*Constitution Act, 1982*](#).⁶³
158. The common law duty to consult with Indigenous Nations and communities is engaged when the Crown contemplates action that may adversely affect established or potential Indigenous and/or treaty rights. The CNSC, as an agent of the Crown and as Canada's nuclear regulator, recognizes and understands the importance of building relationships and engaging with Canada's Indigenous Nations and communities. The CNSC ensures that its licensing decisions under the NSCA uphold the honour of the Crown and

⁶³ Schedule B to the Canada Act 1982 (UK), 1982, c 11.

consider potential impacts to claimed or established Aboriginal and/or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.

159. The duty to consult is engaged wherever the Crown has “knowledge, real or constructive, of the potential existence of an Aboriginal right or title and contemplates conduct that might adversely affect it”.⁶⁴ Licensing decisions of the Commission, where Indigenous interests may be adversely impacted, can engage the duty to consult, and the Commission must be satisfied that it has met the duty prior to making the relevant licensing decision.

4.3.1 *Indigenous Engagement by CNSC Staff*

160. In section 4.1 of CMD 23-H6, CNSC staff provided the Commission with information about its engagement activities with the Indigenous Nations and communities that were identified as having a potential interest in Cameco’s licence renewal application for the KLO. CNSC staff identified the following Indigenous Nations and communities due to the proximity of their communities, treaty areas, and/or traditional territories and homelands to the Cameco facility, or due to previously expressed interest in being kept informed:

- English River First Nation
- Kineepik Métis Local #9
- Lac La Ronge Indian Band
- Ya’thi Néné Lands and Resources Office (representing Black Lake, Hatchet Lake, and Fond du Lac Denesūliné First Nations as well as the municipalities of Stony Rapids, Uranium City, Wollaston Lake, and Camsell Portage)
- Black Lake, Hatchet Lake, and Fond du Lac Denesūliné First Nations
- Métis Nation Saskatchewan (Northern Region 1)
- Prince Albert Grand Council

CNSC staff added that it had also notified the [Northern Saskatchewan Environmental Quality Committee](#), which has representatives from the majority of the northern municipal and First Nation communities located in the Northern Saskatchewan Administration District.

161. CNSC staff reported that on September 26, 2022, it sent letters of notification to the Indigenous Nations and communities listed above. The letters provided information regarding the licence renewal application and details on how to participate in the Commission’s public hearing process. CNSC staff added that it followed-up with the identified Indigenous Nations and communities to confirm receipt of the letters and to answer any questions.
162. CNSC staff noted that it encouraged all of the identified Indigenous Nations and communities to participate in the public hearing process to advise the Commission

⁶⁴ *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73 at para 35.

directly of any concerns they may have in relation to Cameco's licence renewal application.

163. CNSC staff reported that, throughout the consultation and engagement activities, representatives from Indigenous Nations and communities consistently expressed concerns with Cameco potentially receiving a licence period longer than 10 years. CNSC staff added that it heard concerns that, from the Indigenous Nations and communities' perspectives, a longer licence period would reduce the number of public hearings and opportunities for meaningful interaction with the Commission.
164. CNSC staff noted that the requirements and guidance for licensees whose proposed projects may raise the Crown's duty to consult are set out in [REGDOC-3.2.2, Indigenous Engagement, Version 1.1](#).⁶⁵ CNSC staff submitted that Cameco's licence renewal application is not expected to cause any new adverse impacts to potential or established Indigenous and/or treaty rights.

4.3.2 *Indigenous Engagement by Cameco*

165. In section 4 of CMD 23-H6.1, Cameco provided information regarding its ongoing engagement with Indigenous Nations and communities near the KLO. Cameco reported that the primary audience for its engagement activities are the rights-bearing First Nation and Métis communities located in the vicinity of the KLO, specifically:
- Northern village of Pinehouse and the Kineepik Métis Local Inc. #9 (Pinehouse)
 - English River First Nation
 - Lac La Ronge Indian Band
 - Northern settlement of Patuanak and the Patuanak Métis Local #82
166. Cameco reported that it had signed Collaboration Agreements with Pinehouse, English River First Nation and Lac La Ronge Indian Band. Cameco specified that the collaboration agreements are structured to promote:
- workforce development
 - business development
 - community investment and community engagement
 - environmental stewardship

Cameco added that the collaboration agreements included actions such as:

- preference for hiring residents of these communities for Cameco operations and the establishment of employment targets in consultation with the communities
- providing career awareness programs and scholarship funding
- preference for community-owned businesses in meeting the service requirements for Cameco operations
- investing in community projects and priorities.

⁶⁵ REGDOC-3.2.2, *Indigenous Engagement, Version 1.1*, CNSC, August 2019.

- ongoing community engagement and environmental stewardship.
167. In keeping with REGDOC-3.2.2, Cameco prepared and submitted an Indigenous Engagement Report in [CMD 23-H6.1A](#). The report includes information on:
- engagement principles
 - identification of indigenous groups
 - engagement methods
 - summary of indigenous engagement activities to date
 - planned indigenous engagement activities
168. The Commission enquired how Cameco envisioned maintaining and improving its engagement with Indigenous Nations and communities near the KLO over the proposed 20-year licence. A Cameco representative responded that the collaboration agreements in place provide an opportunity for all parties to discuss, on a continuous basis, how the current structure is working, what changes could be made or which areas of focus could be added.

4.3.3 Submissions by Indigenous Nations and Communities, Organizations and Individuals

169. The Commission received written submissions and/or oral interventions from the following Indigenous Nations and communities, organizations and individuals:
- Northern Village of Ile-a-la Crosse
 - Lac la Ronge Indian Band
 - Athabasca Joint Engagement and Environmental Subcommittee (AJES)
 - Kineepik Metis Local #9
 - Candyce Paul
 - English River First Nation
 - Rick Robillard
 - Harry Lariviere
 - Victor Fern Sr
 - Des Nedhe Group
 - Birch Narrows Dene Nation
 - Ya'thi Néné Lands and Resources Office
 - Metis Nation Saskatchewan

Ya'thi Néné Lands and Resources Office

170. In its written submission, [CMD 23-H6.30](#), Ya'thi Néné Lands and Resources Office (YNLR) expressed the view that a 20-year licence would result in lost opportunities for Athabasca Basin communities to influence mining activities, as well as reduced consultation and engagement from Cameco. YNLR also mentioned that its community members were concerned that environmental monitoring would become less of a priority to Cameco if a 20-year licence were granted, and that communities would

receive less information about monitoring results or would not be involved in such efforts.

171. The Commission asked YNLR to comment on its concerns regarding the land around the KLO. A YNLR representative responded that the quality of the water around the KLO was its members' main concern.
172. Asked about Cameco's wildlife protection program, a Cameco representative responded that Cameco aims to minimize potential interactions with wildlife in the vicinity of the KLO through the implementation of Cameco's Wildlife Management Standard. The Cameco representative explained that the goal of Cameco's program is to mitigate any potential impacts on wildlife and minimize interactions between humans and wildlife.
173. The Commission asked for YNLR's view on the effects of Cameco's operations on their traditional way of life. An YNLR representative responded that its community members currently have access to the traditional territory for hunting and fishing in all areas where Cameco Operations are present. The YNLR representative added that YNLR is concerned that a longer licence period may restrict these areas for future generations.

Birch Narrows Dene Nation

174. In its written submission, [CMD 23-H6.29](#), Birch Narrows Dene Nation (BNDN) provided a list of concerns from interviews with 11 community members and 2 focus sessions. The concerns received were related to:

- lack of recognition of BNDN's ties to the Project area
- lack of open communication from Cameco
- concerns around the length of the licensing period
- concerns with the long history of the operation and cumulative impacts to the environment

175. The Commission enquired about possible changes to Cameco's monitoring programs with respect to blueberries, mentioned in BNDN's submission. A Cameco representative reported that its monitoring programs can be updated on a periodic basis, but that Cameco was not updating those at the moment. The Cameco representative added that the monitoring results continue to demonstrate that contaminant values are similar to background level and that Cameco did not observe any temporal changes over time.

Kineepik Metis Local #9

176. In their written submission, [CMD 23-H6.17](#), the Kineepik Metis Local #9 expressed its support for Cameco's licence renewal application. The Kineepik Metis Local #9 expressed the view that the KLO is safe and relatively environmentally friendly. Kineepik Metis Local #9 also advocated that its community members need an

education system that includes advanced math and science to be able to perform in a modern uranium mining operation, while maintaining an Indigenous identity.

177. In reference to a comment from Kineepik Metis Local #9 regarding its interest in participating in the progressive reclamation at the KLO, a Kineepik Metis Local #9 representative noted that the intent of the community's involvement in the progressive reclamation was to feed the community's science, technology, engineering and math (STEM) education system in order to have the knowledge in the community when Cameco ultimately releases the site. A Cameco representative noted Cameco's commitment to support the Pinehouse Professional Scholarship Program or part of a scholarship program for the development of white-collar jobs in the community.

Lac La Ronge Indian Band and the Kitsaki Management Limited Partnership

178. In its written submission ([CMD 23-H6.13](#)), the Lac La Ronge Indian Band and the Kitsaki Management Limited Partnership expressed their support for Cameco's licence renewal request. The Lac La Ronge Indian Band and the Kitsaki Management Limited Partnership highlighted Cameco's adequate communications.
179. Asked for their views on Cameco's performance with respect to health and safety and environmental protection, a representative of the Lac La Ronge Indian Band noted Cameco's strong environmental protection program and safety culture, adding that it had not heard concerns from other community members.

Candyce Paul, Member of English River First Nation

180. In her written submission ([CMD 23-H6.20](#)), Candyce Paul, a member of English River First Nation, expressed the view that Cameco was disrupting Dene hunting and gathering activities. The intervenor also questioned Cameco's monitoring frequency following a leak of water which contaminated the groundwater (as mentioned in section 3.10.7.1 of CMD 23-H6.1).
181. The Commission asked for an update on the contaminant plume in groundwater that emanated from the leak reported in 2018. A Cameco representative reported that the results of Cameco's ERA modelling showed that there were no incremental risks to the downstream environment with respect to this event. The Cameco representative added that Cameco installed 2 recovery wells for the purpose of removing impacted groundwater in the affected area.
182. The Commission enquired about the bypassing of alarms during operations, raised by Ms. Paul in her intervention. A Cameco representative explained that it was possible for operators to momentarily bypass alarms during maintenance or investigative troubleshooting.

Athabasca Joint Engagement and Environmental Subcommittee

183. In its written submission ([CMD 23-H6.16](#)), the Athabasca Joint Engagement and Environmental Subcommittee (AJES) submitted that one of its roles was to review the Community-Based Environmental Monitoring Program. In section 4.3 of CMD 23-H6.1, Cameco noted that the Eastern Athabasca Regional Monitoring Program partners with communities to monitor the safety of traditionally harvested country foods by collecting and testing representative water, fish, berry, and mammal tissue samples from the seven communities located in the region. AJES reported that the results of this program have all demonstrated that Athabasca communities are not negatively impacted by active uranium mining and milling operations in the region, and that traditional country foods near these communities remain safe. The Commission notes that its conclusion during [Cameco's Beaverlodge licence renewal](#) was that country food in the Beaverlodge area are safe for consumption, while respecting water and fish advisories.⁶⁶
184. The Commission enquired whether some community members had concerns with harvesting traditional country foods. An AJES representative explained that community members had concerns about consuming fish from Beaverlodge Lake due to the water and fish advisories in this area as a result of legacy mining in the region.⁶⁷

English River First Nation

185. In its written submission ([CMD 23-H6.21](#)), the English River First Nation (ERFN) noted that its relationship with Cameco was relatively positive and mutually-beneficial. However, ERFN submitted that it did not support the proposed 20-year licence period. ERFN expressed that a term of between 5 and 7 years would be more appropriate in the present context and more consistent with the [United Nations Declaration on the Rights of Indigenous Peoples](#) (UNDRIP).
186. The Commission asked Cameco about the evolution of its process used to engage with Indigenous communities and how it may change in the future, considering the UNDRIP. A Cameco representative reported that Cameco and ERFN signed a Collaboration Agreement in 2013 that was currently under review. A Cameco representative stated that Cameco supports the principles of the UNDRIP, which is put into practice through the formal agreements with Indigenous Nations and communities, proactive engagement activities, and working to improve its understanding of local Indigenous peoples. The Cameco representative added that Cameco believes that Indigenous peoples and local communities should benefit from resource development on or near their communities or traditional lands through employment, training, business opportunities, community investment, and environmental stewardship.

⁶⁶ [Record of Decision - Cameco Corporation - Licence Renewal for Beaverlodge Project Waste Facility - 23-H101 \(nuclearsafety.gc.ca\)](#)

⁶⁷ Uranium mining and milling operations at Beaverlodge started in 1952 and ended in 1982. Decommissioning began in 1982, with active decommissioning completed in 1985.

187. The Commission asked for CNSC staff's perspective regarding the implementation of the [United Nations Declaration on the Rights of Indigenous Peoples Act \(UNDRIP Act\)](#).⁶⁸ CNSC staff reported that the Canadian government has been working on an action plan for the full implementation of the UNDRIP Act across the government. CNSC staff added that, from the CNSC perspective, the implementation of the UNDRIP Act could result in changes to CNSC's requirements and expectations, such as those found in REGDOC-3.2.2. CNSC staff also noted that, as such changes take place, there are mechanisms in place (e.g., through the Licence Conditions Handbook) to reflect them with the licensees, regardless of the licensing term.

Métis Nation-Saskatchewan

188. In its written submission ([CMD 23-H6.32](#)), Métis Nation-Saskatchewan (MN-S) submitted that Cameco's engagement was inadequate before and during this licence renewal application. MN-S also commented on the lack of Métis Knowledge included in Cameco's application and that Cameco's environmental monitoring, and the conclusions drawn from it, do not reflect Métis Knowledge or land use.
189. The Commission asked for details regarding Cameco's relationship with MN-S. A Cameco representative explained that Cameco's primary audiences for engagement are the rights-bearing First Nations and Métis communities that are located in the vicinity of the KLO. The Cameco representative reported that Cameco provides information and responds to inquiries from MN-S, as with any other groups or organizations that might express interest in Cameco's operations. A Cameco representative also stated that Cameco recognizes that MN-S has entered into a Métis government recognition and self-government agreement with Canada.
190. The Commission asked how Cameco was planning to respond to the recommendations put forward by the MN-S in its intervention. A Cameco representative reaffirmed Cameco's commitment to developing its relationship with the MN-S to better understand its concerns. A Cameco representative suggested that Cameco's existing environmental monitoring programs could incorporate traditional knowledge from the MN-S, instead of creating new programs. The Commission encourages Cameco to address the MN-S's specific recommendations. The Commission expects Cameco to develop an action plan, taking into account MN-S's recommendations and submit it to CNSC staff by the end of 2023. The Commission further expects Cameco to provide an update at the 2030 mid-term update.
191. Asked to describe its relationship with MN-S, CNSC staff noted that its relationship started many years ago. CNSC staff added that MN-S was building up a strong governance structure that needed the CNSC to adapt to and encouraged Cameco to follow that evolution as well.

⁶⁸ S.C. 2021, c. 14.

4.3.4 Conclusion on Indigenous Consultation and Engagement

192. The Commission acknowledges the current efforts and commitments made by Cameco in relation to Indigenous engagement and CNSC staff's efforts in this regard on behalf of the Commission with respect to this licence renewal application. The Commission also acknowledges and appreciates the participation of, and the information and submissions provided by, all of the Indigenous intervenors.
193. The quasi-judicial decision-making being undertaken by the Commission in the matter – the “Crown conduct” that could trigger a duty to consult – is the licence renewal. The application for licence renewal does not include any new project or undertaking at the KLO. The relevant question, therefore, is whether the licence renewal has the potential to affect asserted Indigenous rights in a novel way.⁶⁹
194. Based on the information presented on the record for this hearing, and having heard the submissions of all hearing participants, the Commission is satisfied that the licence renewal for the RLO does not include any new activities that could cause new impacts on the environment or changes in the ongoing licensed activities at the RLO site. Therefore, this licence renewal will not cause any new adverse impacts to any potential or established Indigenous and/or treaty rights.⁷⁰ The Commission is satisfied that the consultation and engagement activities were appropriate and sufficient to appropriately discharge any duty to consult obligations.
195. The Crown's responsibility to Indigenous peoples and in its dealings with Indigenous peoples also requires upholding the honour of the Crown⁷¹ and working towards reconciliation, a fundamental purpose of section 35 of the Constitution. In seeking to uphold the honour of the Crown, the Commission considers carefully the concerns raised by Indigenous Nations and communities, keeping an open mind, and seeking to accommodate concerns where possible. A strict legal interpretation of the extent of the duty need not constrain the Commission's commitment to reconciliation. The Commission is of the view that the honour of the Crown has been upheld in this licensing matter, given the extent of the engagement activities and the opportunities provided by the participant funding program and the public hearing.
196. With respect to the UNDRIP, the Commission notes that it is not the Commission's role to take novel interpretations of law or determine how to interpret the UNDRIP Act in Canadian law. The Commission's decision making must be guided by the current law on the duty to consult and the legal parameters for its decision making under the NSCA.
197. The Commission is satisfied with CNSC staff's efforts to engage with Indigenous Nations and communities who may have interest in the KLO, as described. The efforts

⁶⁹ As noted in *Rio Tinto*, the effects that would trigger a duty to consult are not the effects of the historical harm done. Where there are ongoing effects of historical harm, other types of redress are available to an Indigenous nation or community, outside the duty to consult.

⁷⁰ *Rio Tinto Alcan v. Carrier Sekani Tribal Council*, 2010 SCC 43 at paras 45, 48-49.

⁷¹ *Rio Tinto Alcan v. Carrier Sekani Tribal Council*, 2010 SCC 43 at paras 45, 49.

made by CNSC staff in this regard are key to the important work of the Commission toward reconciliation and relationship-building with Canada's Indigenous Nations and communities. The Commission expects CNSC staff to continue to build meaningful long-term relationships with Indigenous Nations and communities as part of the CNSC's reconciliation efforts.

198. The Commission also heard Cameco's clear intention regarding ongoing engagement with Indigenous Nations and communities. The Commission notes the signed engagement agreement between Indigenous Nations and communities and Cameco, and expects that Cameco will continue to make best efforts to establish relationship agreements with interested Indigenous Nations and communities for the discussion of issues and concerns regarding the KLO.

4.4 Other Matters of Regulatory Importance

4.4.1 Public Engagement

199. A public information and disclosure program (PIDP) is a regulatory requirement for licence applicants and licensed operators under paragraph 3(c)(i) of the UMMR. In section 4.2 of CMD 23-H6.1, Cameco submitted that its PIDP was designed to ensure that local target audiences with an interest in the KLO are informed on a timely basis about operations, activities, and anticipated effects on the environment and the health and safety of persons, in order to elicit feedback and provide meaningful response, and thereby build the trust and support of interested parties. Cameco added that its primary audience for the PIDP are the rights-bearing First Nation and Métis communities, which are in the vicinity of the KLO.
200. In section 3.4 of CMD 23-H6.1, pertaining to operation performance, Cameco submitted that, in accordance with [REGDOC-3.2.1, *Public Information and Disclosure*](#)⁷², it posted information on its website about any significant event that occurred outside of its normal operations.
201. In section 4.3 of CMD 23-H6, CNSC staff submitted that Cameco's PIDP meets the specifications of REGDOC-3.2.1. CNSC staff noted that the PIDP for the KLO:
- identifies clear goals and objectives in terms of dissemination of information to the Athabasca Basin Communities, the Northern Administrative District and the province of Saskatchewan
 - is available to the public and is posted on the licensee's website
 - provides information on the facilities requiring a CNSC licence for nuclear related activities

CNSC staff noted that Cameco adapted its public information programs in light of the challenges due to the COVID-19 pandemic by offering increased digital communications whenever possible.

⁷² REGDOC-3.2.1, *Public Information and Disclosure*, CNSC, May 2018.

202. Based on the information on record as described above, the Commission concludes that Cameco has adequate measures in place to communicate to the public information about the health, safety and security of persons and the environment and other issues related to the KLO. The Commission finds that:

- Cameco's PIDP meets the requirements of REGDOC-3.2.1
- Cameco met its public disclosure and reporting obligations throughout the current licence period

Notwithstanding the above, and in the spirit of continuous improvement, the Commission expects Cameco to periodically update its website in a timely manner and provide an open and transparent means and access for the public to obtain desired operational, environmental and safety information about the licensed facility or activities. The Commission strongly encourages Cameco – and all licensees – to pursue how to make its reporting data readily available and machine readable, including redacted versions of documents, where possible.

4.4.2 *Decommissioning Plans and Financial Guarantee*

203. The NSCA and its Regulations require licensees to make adequate provision for the safe decommissioning of their facilities and for the long-term management of waste produced during the lifespan of a facility. In order to ensure that adequate resources are available for the safe and secure future decommissioning of the KLO, the Commission requires that an adequate financial guarantee for the realization of planned activities be put in place and maintained in a form acceptable to the Commission throughout the licence period.

204. In sections 4.6 of CMD 23-H6.1, Cameco reported that its PDP was created under a hypothetical “decommission tomorrow” scenario. Cameco noted that its PDP describes the methodology that would be undertaken to decommission the operations in the event that Cameco becomes insolvent and cannot fulfill its decommissioning obligations. Cameco reported that its PDP is reviewed and revised on a five-year basis.

205. Cameco noted that the Commission [accepted KLO's most recent financial guarantee, which was revised in 2018](#), in July 2020.⁷³ Cameco also noted that its PDP and the accompanying Preliminary Decommissioning Cost Estimate (PDCE) was prepared in accordance with:

- CSA N294-19, *Decommissioning of Facilities Containing Nuclear Substances*⁷⁴
- [REGDOC-2.11.2, Decommissioning](#)⁷⁵

⁷³ Record of Decision, [DEC 20-H101](#), *Application for Acceptance of a Revised Financial Guarantee and Licence Amendment for Cameco's Key Lake Operation*, CNSC, July 29, 2020.

⁷⁴ CSA N294-19, *Decommissioning of Facilities Containing Nuclear Substances*, CSA Group, 2019.

⁷⁵ REGDOC-2.11.2, *Decommissioning*, CNSC, January 2021.

- [REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities.](#)⁷⁶

The updated preliminary decommissioning plan and costs estimate documents are inclusive of anticipated activities at the KLO to the end of 2028.

206. In sections 3.11.2 and 5.2 of CMD 23-H6, CNSC staff reported that Cameco had submitted an updated PDP and PDCE on December 5, 2022. CNSC staff noted that it was assessing the documents, and that the Commission would consider any proposed revision of the existing financial guarantee for the KLO in a separate Commission hearing.
207. Noting requests for information on the PDP from CELA, the Commission enquired about the process by which decommissioning documents are shared and evaluated. CNSC staff reported that licensees are not required to publicly post their PDPs, and that Cameco's posting of summary PDPs was considered to be a best practice. CNSC staff explained the difference between PDPs and detailed decommissioning plans (DDP), stating that PDPs are conceptual plans for decommissioning that are regularly updated as technology evolves and regulatory requirements change. CNSC staff added that the development of DDPs⁷⁷, which are required for an application for a licence to decommission, includes public and Indigenous consultations, as the information gained from consultations can be used to determine the end state for a facility.
208. The Commission is satisfied that the PDP and related financial guarantee for decommissioning Cameco's facility are in place and are acceptable to the Commission.

4.4.3 Cost Recovery

209. The Commission examined Cameco's standing under the [Canadian Nuclear Safety Commission Cost Recovery Fees Regulations](#) (CRFR).⁷⁸ Paragraph 24(2)(c) of the NSCA requires that a licence application be accompanied by the prescribed fee, as set out by the CRFR and based on the activities to be licensed.
210. In section 4.5 of CMD H23-6.1, Cameco submitted that it remained in good standing with respect to the payment of all CNSC cost recovery fees during the licence period. In section 5.1 of CMD H23-6, CNSC staff reported that Cameco is in good standing with the CRFR requirements.
211. Based on the information submitted by Cameco and CNSC staff, the Commission is satisfied that Cameco has complied with the requirements of the CRFR and the NSCA for the purpose of this licence renewal application.

⁷⁶ REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*, CNSC, January 2021.

⁷⁷ Refer to [section 7.1.1 of REGDOC-2.11.2](#).

⁷⁸ SOR/2003-212.

4.4.4 Nuclear Liability Insurance

212. The KLO is not designated as a nuclear installation under the [*Nuclear Liability and Compensation Act*](#) (NLCA).⁷⁹ Cameco only processes natural uranium ore which is excluded from the definition of nuclear material under the NLCA.
213. Based on the information provided on the record for this hearing, the Commission is satisfied that Cameco is not required to maintain nuclear liability insurance under the NLCA.

4.5 Licence period and Conditions

214. The Commission considered Cameco's application to renew its Uranium Mill Licence for the KLO, UML-MILL-KEY.01/2023, for a 20-year licence period. Cameco's current licence, UML-MILL-KEY.01/2023, expires on October 31, 2023. Cameco did not request any changes to the licence conditions or format. Cameco noted that it revised its original application for an indefinite operational period in response to the questions and concerns raised by Indigenous Nations and communities during its early engagement activities conducted in support of the licence renewal.

4.5.1 Licence Period

215. In section 5 of CMD 23-H6.1, Cameco submitted that, based on its performance and continuous improvements at the KLO, it is qualified to carry on the licensed activities planned for the proposed 20-year licence period. Cameco further submitted that it would continue to make the necessary provision for protecting the health and safety of workers and the public as well as the environment.
216. In section 5.5 of CMD 23-H6, CNSC staff recommended that the Commission renew the licence for a period of 20 years, until October 31, 2043. CNSC staff's assessment is that Cameco is qualified to carry on the activities authorized by the licence. CNSC staff noted that Cameco's performance was adequate over the current licence period. CNSC staff reported that its regulatory approach can be adapted to address any future changes during a 20-year licence period as it is using a risk-informed approach to compliance verification that is not dependent on licence period, but rather on nature of licensee activity.
217. In CMD 23-H6, CNSC staff reported that it reviewed Cameco's licence period request against the criteria from CMD 02-M12 *New Staff Approach to Recommending Licence Periods*⁸⁰ and found that a 20-year licence period is reasonable based on those criteria. In Table 5.1 of CMD 23-H6, CNSC staff reported that Cameco met the criteria because:

⁷⁹ S.C. 2015, c. 4, s. 120.

⁸⁰ CNSC, CMD 02-M12 *New Staff Approach to Recommending Licence Periods*, March 2002.

- the recommended duration of the licence was commensurate with the licensed activity
 - the hazards associated with the licensed activity are well characterized and their impacts well predicted, and they are within the scope considered in the environmental safety case
 - Cameco has a management system in place to provide assurance that its safety-related activities are effective and maintained
 - effective compliance programs are in place
 - Cameco has shown a consistent and good history of operating experience and compliance in carrying out the licensed activity
 - Cameco's good standing under the *CNSC Cost Recovery Fees Regulations*
 - the planning cycle of the facility and the licensee's plans for any significant change in licensed activity
218. CNSC staff reported that it also reviewed other considerations before recommending a 20-year licence period such as:
- considerations of the international approach to fuel cycle facility licensing where licences of 20 years or longer are common
 - CNSC's regulatory oversight framework
 - ongoing communication and engagement during the licence period
 - ongoing Commission engagement opportunities
219. CNSC staff further recommended that the Commission require Cameco to complete a mid-term review and provide an associated update to the Commission at the midpoint of the licence period. CNSC staff explained that this update would provide an opportunity for the public and Indigenous Nations and communities to express their views on the KLO directly to the Commission.
220. In its interventions, [CMD 23-H6.24](#), the Nuclear Transparency Project raised concerns regarding the requested licence period. The Nuclear Transparency Project submitted that, with longer licence periods, civil society organizations would have fewer supported opportunities to engage with licensees or CNSC staff on matters of regulatory oversight. The Nuclear Transparency Project also expressed that Commission meetings regarding Regulatory Oversight Reports cannot compare procedurally with facility-specific licensing or relicensing hearings, noting that civil society organizations have generally not been invited or permitted to make oral submissions before the Commission during such meetings. The Commission acknowledges and appreciates the views shared by intervenors regarding the importance of having opportunities to present their views to the Commission.
221. The Commission acknowledges that some Indigenous Nations and communities expressed concerns with Cameco potentially receiving a licence period longer than 10 years. The Commission heard concerns that, from the Indigenous Nations and communities' perspectives, a longer licence period would reduce the number of public hearings and opportunities for meaningful interaction with the Commission. The Commission recognizes the importance of having continuous and meaningful

opportunity to hear and discuss the views of Indigenous Nations and communities during a licence period.

222. Based on the information examined by the Commission, the Commission concludes that a 20-year licence period is appropriate. The Commission's decision is based on the following:
- the Commission agrees with the information submitted by CNSC staff which demonstrates that Cameco is qualified to carry on the licensed activities
 - the Commission is satisfied that the information on record demonstrates that Cameco has mature programs in place, with adequate performance and oversight
 - the public will have adequate opportunity to provide feedback to the Commission on Cameco's operations periodically during the renewed 20-year licence period, as part of the *Regulatory Oversight Report for Uranium Mines and Mills*
223. With this decision, the Commission directs CNSC staff to report on the performance of Cameco and the KLO as part of the periodic Regulatory Oversight Report for uranium mines and mills. CNSC staff shall present these reports at public proceedings of the Commission, where members of the public will be able to participate. The Commission directs CNSC staff to inform the Commission, as part of the Regulatory Oversight Report, of any changes made to the Licence Conditions Handbook. CNSC staff may bring any matter to the Commission's attention, at any time, as required.
224. The Commission further directs that Cameco provide a comprehensive review and update to the Commission on the conduct of its licensed activities at the KLO every 7 years of licence period, i.e., in 2030 and 2037. These updates will be made at public proceedings to be conducted in the community in proximity of the KLO and will allow for the participation, both orally and in writing, of members of the public and Indigenous Nations and communities. For these updates, CNSC staff will provide information respecting Cameco's performance during the licence period across all SCAs, consolidating relevant information from the Regulatory Oversight Reports, as well as a status update on matters of regulatory importance to the Commission and to the community. The Commission intends that these public meetings will allow a meaningful opportunity to hear and discuss the views of members of the public and Indigenous Nations and communities. The Commission is satisfied that these proceedings will adequately address the interest for the public, civil society organizations and Indigenous Nations and communities in this regard.

4.5.2 Licence Conditions

225. In Part 2 of CMD 23-H6, CNSC staff includes a proposed licence applicable to the KLO, which incorporates the CNSC's standardized licence conditions. CNSC staff specified that Cameco did not request any changes to the licensed activities. CNSC staff further noted that the proposed licence for the KLO captures all applicable licence

conditions for the facility and does not contain any changes to the licence conditions or format.

226. The Commission accepts the proposed licence conditions, as submitted by CNSC staff in Part 2 of CMD 23-H6. The Commission is satisfied that the proposed licence is consistent with the activities to be licensed as well as the current licence for the KLO.

4.5.3 Delegation of Authority

227. To provide adequate regulatory oversight of changes that are administrative in nature, and do not require a licence amendment nor Commission approval, CNSC staff recommended, in section 5.6 of CMD 23-H6, that the Commission delegate authority for certain approval or consent, as contemplated in licence conditions that contain the phrase “a person authorized by the Commission” to the following CNSC 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

228. As set out in section 5.6 of CMD 23-H6, CNSC staff recommended that the Commission delegate authority for licence condition 3.2 Reporting Requirements. CNSC staff specified that this licence condition is in the existing licence and noted that the delegation of authority for this condition has previously been authorized.

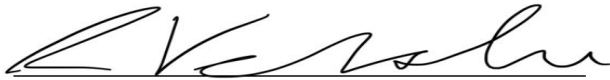
229. The Commission agrees with the proposed delegation for the purposes of licence condition 3.2 Reporting Requirements to the above CNSC staff as recommended. The Commission notes that the delegation of authority of the identified licence conditions is for the purpose of the administration of this licence condition. In delegating authority for licence condition 3.2 Reporting Requirements, the Commission is authorizing CNSC staff to provide adequate regulatory oversight. The delegation of authority does not extend to authorizations beyond the established licensing basis; such decisions remain solely within the purview of the Commission. The Commission is satisfied that this approach is reasonable.

4.5.4 Conclusion on Licence Period and Conditions

230. Based on the information examined by the Commission, the Commission is satisfied that a 20-year licence is appropriate. The Commission accepts the proposed standardized licence with licence conditions handbook, and the licence conditions as recommended by CNSC staff in CMD 23-H6. The Commission also accepts CNSC staff’s recommendation regarding the delegation of authority for the purpose of licence condition 3.2 Reporting Requirements. The Commission notes that CNSC staff can bring any matter to the Commission as required.

5.0 CONCLUSION

231. The Commission has considered Cameco's application for the renewal of its licence for the KLO for a 20-year period. The Commission has considered the information and submissions of Cameco, CNSC staff, and all intervenors, as set out in the material available for reference on the record, as well as the oral submissions made by the participants at the hearing.
232. Based on its consideration of the information on the record of this hearing, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Uranium Mill licence issued to Cameco Corporation for the KLO located in Northern Saskatchewan. The renewed licence, UML-MILL-KEY.00/2043, is valid from November 1, 2023 to October 31, 2043, unless suspended, amended, revoked or replaced.
233. Cameco shall provide a comprehensive review and update to the Commission on the conduct of its licensed activities at the KLO every 7 years of licence period, i.e., in 2030 and 2037. These updates will be made at a public proceeding to be conducted in the community in proximity of the KLO and will allow for the participation, both orally and in writing, of members of the public and Indigenous Nations and communities. The Commission intends that these public meetings will allow a meaningful opportunity to hear and discuss the views of members of the public and Indigenous Nations and communities.



Rumina Velshi
Presiding Member
Canadian Nuclear Safety Commission

October 24, 2023

Date

Appendix A – Intervenors

| Intervenors – Oral Presentations | Document Number |
|--|-------------------------------|
| Saskatchewan Mining Association, represented by B. Sigurdson | CMD 23-H6.7 CMD 23-H6.7A |
| Athabasca Basin Development, represented by G. Gay | CMD 23-H6.9 |
| Orano Canada Inc., represented by C. Braithwaite and T. Searcy | CMD 23-H6.10 CMD 23-H6.10A |
| Lac la Ronge Indian Band and the Kitsaki Management Limited Partnership, represented by Chief T. Cook-Searson and A. Sklapsky | CMD 23-H6.13 CMD 23-H6.14 |
| Canadian Nuclear Association, represented by S. Mirmiran and S. Coupland | CMD 23-H6.15 |
| Athabasca Joint Engagement and Environmental Subcommittee, represented by G. McDonald and L. Bougie Still | CMD 23-H6.16 |
| Kineepik Metis Local #9, represented by M. Natomagan and W. Smith | CMD 23-H6.17 CMD 23-H6.17A |
| Canada North Environmental Services, represented by C. Rees | CMD 23-H6.18 CMD 23-H6.18A |
| PBN Construction, represented by B. Thoudsanikone | CMD 23-H6.19 |
| Candyce Paul | CMD 23-H6.20 |
| English River First Nation, represented by Elder F. Campbell and C. Hunt | CMD 23-H6.21 |
| Rick Robillard | CMD 23-H6.22 CMD 23-H6.22A |
| Harry Lariviere | CMD 23-H6.25 |
| Victor Fern Sr., Victor Fern Jr. and Marty Fern | CMD 23-H6.26 CMD 23-H6.26A |
| Jennifer Parada | CMD 23-H6.27 |
| Chelsea Iron, Darlene Gazandlare and Brenda McDonald | CMD 23-H6.28 CMD 23-H6.28A |
| Ya'thi Néné Land and Resource Office, represented by Elder G. St. Pierre, A. Disan, F. Throassie, M. Denechezhe and G. Schmidt | CMD 23-H6.30 CMD 23-H6.30A |
| Canadian Environmental Law Association, represented by S. Libman | CMD 23-H6.31 CMD 23-H6.31A |
| Maria Santos | CMD 23-H6.33 |
| Métis Nation-Saskatchewan, represented by B. Laroque, L. Burnouf and H. Klein | CMD 23-H6.32 CMD 23-H6.32A |

| Intervenors – Written Submissions | |
|---|--------------|
| Canada-India Business Council | CMD 23-H6.2 |
| Greater Saskatchewan Chamber of Commerce | CMD 23-H6.3 |
| Northern Village of Beauval | CMD 23-H6.4 |
| Northern Village of Ile-a-la-Crosse | CMD 23-H6.5 |
| Saskatoon Regional Economic Development Authority | CMD 23-H6.6 |
| Ken Coates | CMD 23-H6.8 |
| Saskatchewan Chamber of Commerce | CMD 23-H6.11 |
| NSBA-Saskatoon’s Business Association | CMD 23-H6.12 |
| Men of the North Inc. | CMD 23-H6.23 |
| Nuclear Transparency Project | CMD 23-H6.24 |
| Birch Narrows Dene Nation | CMD 23-H6.29 |
| Canadian Nuclear Workers’ Council | CMD 23-H6.34 |
| Des Nedhe Group | CMD 23-H6.35 |
| Karen Weingeist | CMD 23-H6.36 |