



## **Oral presentation**

## **Exposé oral**

### **Written submission from the Canadian Nuclear Association**

### **Mémoire de l'Association nucléaire canadienne**

In the Matter of the

À l'égard de

#### **Cameco Corporation, McArthur River Operation and Key Lake Operation**

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#### **Cameco Corporation, établissements de McArthur River et de Key Lake**

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Application for the renewal of uranium  
mine/mill licences for McArthur River  
Operation and Key Lake Operation

Demande visant le renouvellement des permis  
d'exploitation de mines et d'usines de  
concentration d'uranium pour les  
établissements de McArthur River et de  
Key Lake

**Commission Public Hearing**

**Audience publique de la Commission**

**June 7-8, 2023**

**7-8 juin 2023**

April 24, 2023

Canadian Nuclear Safety Commission  
c/o Louise Levert, Secretariat  
280 Slater St. PO Box 1046  
Ottawa, Ontario K1P 5S9

**Re: Canadian Nuclear Association Intervention Regarding Cameco Corporation's application to renew its licences for the Key Lake and McArthur River Operations.**

The Canadian Nuclear Association (CNA) has approximately 100 members, representing over 76,000 Canadians employed directly or indirectly in exploring and mining, uranium, generating electricity, advancing nuclear medicine, and promoting Canada's worldwide leadership in science and technology innovation. Our members are committed to safety throughout the entire life cycle of the nuclear industry, and as such CNA is supportive of Cameco Corporation's request for a 20-year renewal of its uranium mill licence for its Key Lake Operation and its uranium mine licence for its McArthur River Operation.

Nuclear energy is a safe, reliable, non-emitting source of energy that not only helps Canada and indeed, the world meet its electricity needs, but it is also a critical element in the world's fight against climate change. It is increasingly acknowledged that without a significant increase in the use of nuclear energy the world cannot meet the Paris agreement targets. Uranium mining and milling is the first step in the nuclear fuel cycle and not only is Canada blessed with an abundance of uranium, but Canada has decades of experience safely mining and processing uranium.

Key Lake and McArthur River are two separate operations, each with an individual licence from the CNSC. Cameco is the majority owner (Orano Canada is a minority owner) and the licensed operator of both sites. As all the ore mined at McArthur River is processed at Key Lake mill, it makes sense to reduce overlap and repetition by renewing the licences for the same length of time at a single hearing.

Together, McArthur River and Key Lake are the world's largest uranium mine and mill with licensed production of 9.6 million kilograms uranium (kg U) per year. McArthur River is a high-grade uranium mine with grades that are 100 times the world's average. Since the milling of McArthur River ore began in 2000, Key Lake has produced 126 million kg U to the end of 2022. Upgrades to mine and mill operations made during the current licence term have positioned these operations for many more years of production. Based on current mining rate and reserve estimates, Cameco has disclosed a projected mine/mill life for McArthur River and Key Lake to 2044. The CNA sees the Key Lake and McArthur River operations as essential elements in Canada's drive to Net Zero.

Key Lake and McArthur River safely produced uranium during the initial part of the current licence, however due to ongoing uranium market conditions, Cameco announced a 10-month shut down of production in late 2017. This was followed by the announcement that both operations would be put into a state of safe care and maintenance for an indefinite period in July 2018. In February 2022, Cameco announced its intent to begin the transition of both operations back to production and the first product from operations occurred in November 2022.

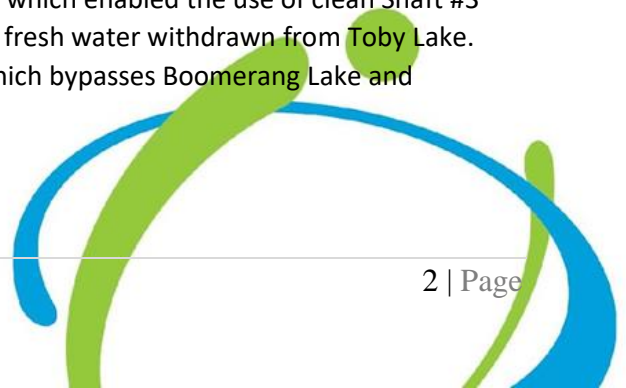
CNA would like to highlight that during the care and maintenance period, Cameco took the opportunity to undertake improvements at both sites to improve both safety and production. These improvements focused on digitization and automation of existing processes. At Key Lake these improvements included:

- Automation of the yellowcake packaging area, resulting in a system for yellowcake drums to automatically de-stack, fill, lid and clean, and weigh and label them.
- Additional recycle lines, pumps and chemical addition within the bulk neutralization circuit to mitigate gypsum scaling.
- Automation of discharge/recycle piping and valving within the treated water release pumphouses.
- Replacement of the tailings splitter box with a distribution header.
- Improvements to the crystallization and calciner scrubber systems at Key Lake and McArthur River Operations.
- Installation of additional nuclear densometers to better analyze and monitor uranium grades within the mill process streams.
- Replacement of existing aspirators in lime handling with wet scrubbers.

At McArthur River, the most significant project during the care and maintenance period were the upgrades to the surface batch plant used to produce concrete for underground activities. The upgraded facility was commissioned in 2022 and the goal is to produce a lower cost and more consistent product through increased process control, automation, and concrete recipe optimization.

It is important to note that in addition to the upgrade mentioned above, the following improvements were made to the McArthur River site during current licence term:

- Approval for production increase to 8.1 million kg U per year received in April 2014 with an additional production increase to 9.6 million kg U per year received in April 2015.
- Construction and modification of facility components to support the increased production capacity, such as:
  - Upgrades to Shaft 2 ventilation to increase the total mine ventilation capacity by optimizing existing infrastructure.
  - Increases in ground freeze capabilities, including expansion to the existing main freeze plant on surface and construction of a new south freeze plant and underground distribution system.
- Decommissioning of four bridges and five culverts along the Fox Lake road, which was used as the initial access road from Key Lake to McArthur River prior to construction of the current haul road. One bridge was removed and upgraded at the request of ERFN, which then assumed ownership of the new bridge.
- Further, during the licence term, McArthur River undertook additional projects to improve water use and management at the operations. These included:
  - Completion of the Shaft #3 industrial water use project, which enabled the use of clean Shaft #3 water for industrial use on site, reducing the amount of fresh water withdrawn from Toby Lake.
  - Construction of the Read Creek conveyance channel, which bypasses Boomerang Lake and redirects treated water discharge to Read Creek.



Like all members of the CNA, Cameco's highest priority during all stages of its business is the safety and health of their workers and the public, and the protection of the environment. Both McArthur River and Key Lake achieved strong performance in these areas during the current licence term. Key measures from the current licence term include:

- No lost-time injuries (LTIs) recorded at Key Lake since 2016 and at McArthur River since 2017.
- Successful activation of Cameco's Corporate Crisis Management Plan during the COVID19 pandemic, including implementation of proactive measures to ensure a safe working environment for all our workers.
- Keeping radiation exposures to workers at both operations well below regulatory limits, with average effective doses at or below 1 mSv per year and maximum effective annual doses consistently below 10 mSv.
- Reductions in annual loadings of constituents of potential concern to the environment at both Key Lake and McArthur River.

Cameco has a longstanding history of collaboration, building relationships and maintaining commercial relationships with First Nation and Métis communities with a specific goal of providing benefits from resource development including workforce and business development opportunities, community investment initiatives, community engagement and environmental stewardship. Approximately 160 specific engagement events were held in the current licence term with northern communities in relation to Key Lake and McArthur River and specific to this relicensing application outreach began in 2021. Cameco clearly heard Indigenous concerns with respect to the original proposed indefinite term and have responded by proposing a 20-year licence term.

The proposed 20-year licence period would provide Cameco with an increased level of regulatory certainty and predictability and facilitate Cameco's ability to make longer term plans and budgeting decisions for investments in operations. This in turn provides Cameco the ability to sustain its investments in local communities.

CNA believes that the best indicator of future performance is past performance and Cameco has proven itself to be a reliable, safe operator in northern Saskatchewan for over 35 years. CNA agrees with CNSC staff's view that Key Lake and McArthur River have demonstrated strong health and safety measures that protect workers, the public and the environment and that Cameco is qualified to carry out all licensed activities. The CNA is pleased to strongly support Cameco's application to renew its operating licence for a 20-year term.

If you have any questions or require additional information, please contact Steve Coupland at [scoupland.sgcresearch@gmail.com](mailto:scoupland.sgcresearch@gmail.com)

Regards,



Jill Baker, VP Operations

