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Preliminary Decommissioning Plan and Cost Estimate - Public Summary


# Preliminary Decommissioning Plan and Cost Estimate

The Cameco Corporation (Cameco) Key Lake Operation (Key Lake) is located approximately 570 kilometers (kms) north of Saskatoon, Saskatchewan. Key Lake holds a Uranium Mill Licence from the Canadian Nuclear Safety Commission (CNSC) to prepare a site for, construct, operate, modify and decommission a nuclear facility for milling uranium ore, as well as an Approval to Operate Pollutant Control Facilities from the Saskatchewan Ministry of Environment (SMOE).

The CNSC and the SMOE require operators of licensed nuclear facilities to prepare a Preliminary Decommissioning Plan (PDP) and associated Preliminary Decommissioning Cost Estimate (PDCE) in order to ensure that taxpayers are not left responsible for cleaning up a facility if the owner/operator were to become insolvent. The PDP provides a high-level concept of how the facility would be decommissioned. The PDCE provides an estimate of the expected cost of decommissioning the facility, based on the concepts within the PDP. Cameco is required to provide a financial guarantee, such as letters of credit or surety bonds, with the Government of Saskatchewan as the beneficiary that cover the estimated cost of decommissioning activities described in the PDP for Key Lake.

The cost estimates and schedule within the PDP and PDCE are based upon a conceptual decommissioning plan for the site. The financial guarantee reflects the current estimated cost of decommissioning. As the site approaches or goes into decommissioning, regulators review the detailed decommissioning plans, which can result in further regulatory process, as well as additional requirements and costs and a revised financial guarantee.

The concepts outlined in the PDP are based upon the findings of previous approved studies, including environmental assessments and environmental risk assessments, which have been completed at Key Lake. It is important to note that the PDP is a planning tool, as it forms the basis for establishing a financial guarantee to support future decommissioning activities. The PDP also provides the structural outline of a subsequent Detailed Decommissioning Plan (DDP). Decommissioning of the facility requires the development of a DDP and submission of this document to the CNSC and SMOE for review and approval.

## Cameco PDP Review Process

Cameco is required to update the PDP and PDCE every five years to account for changes at the facility, potential changes to the technical decommissioning options and other factors that may impact the cost estimate used to derive the financial guarantee for decommissioning of the facility. The revised PDP and PDCE are then submitted to the CNSC and SMOE for review and acceptance. Upon acceptance by the SMOE and CNSC staff, a formal CNSC Commission hearing is required for final approval of the PDP and PDCE by the CNSC. Once approved, Cameco adjusts the value of the financial guarantee to reflect the revised decommissioning cost estimate. The Government of Saskatchewan is the beneficiary of the financial guarantee.

## Basic Decommissioning Process

The planning for the decommissioning of Key Lake is an ongoing process. The broad scope of the proposed decommissioning process is described in the PDP. The process includes a description of the physical properties of the site, summary of previous environmental site characterization, a description of the areas and buildings to be decommissioned and the general structure and sequence of the main decommissioning work packages. At a high level, the decommissioning process requires the following activities:

- Decommissioning Approvals:
  - Development of DDP;
  - Application for required regulatory approvals;
- Active Decommissioning:
  - Ceasing production and transitioning the site to a safe state for decommissioning;
  - Decommissioning of surface infrastructure, including waste management facilities and systems;
  - Collection and treatment of the water from the tailings management facilities and the ore and waste rock storage areas;
  - Contouring, grading and re-vegetation of the site;
- Environmental Monitoring:
  - Monitoring conducted during active decommissioning;
  - Monitoring conducted following active decommissioning to confirm that the site is in safe and stable condition; and
- Transfer of the property to the Government of Saskatchewan's Institutional Control Program (ICP).

The DDP would be developed with consideration of feedback provided by relevant stakeholders gathered through community outreach and stakeholder engagement.

## Basic Decommissioning Strategy

The objective of the PDP is to have a plan in place to decommission Key Lake such that all structures and disturbed areas be reclaimed to an ecological and radiological condition that is as similar to the surrounding environment as is reasonably achievable. An additional objective is that the site will be suitable for traditional land use with no access restrictions following decommissioning and acceptance into the ICP.

The Key Lake PDP addresses decommissioning activities that will be required after cessation of milling activities. The PDP currently includes the following strategies for decommissioning of infrastructure at Key Lake:

- Above-Ground Tailings Management Facility (AGTMF):
  - Frozen tailings will be allowed to thaw and consolidate;
  - The AGTMF will be covered with an engineered cover system and seeded to promote development of vegetation;
- Deilmann In-Pit Tailings Management Facility (DTMF):
  - Tailings and any other contaminated material placed within DTMF will be capped with an engineered cover system;
  - The water level will be allowed to naturally return to pre-mining levels, establishing a water cover over the sand cap;

- Ore and waste rock storage areas:
    - The Deilmann north waste rock pile (DNWRP) will be covered with an engineered cover system and seeded to promote the development of vegetation;
    - The Deilmann south waste rock pile (DSWRP) and the Gaertner waste rock pile (GWRP) will be flattened, graded and contoured to promote drainage and re-vegetation;
    - Material on the special waste pads, special waste pads construction materials and contaminated material from beneath the liners of the special waste pads will be transported to the DTMF for disposal;
    - Material on the ore storage pads and material used to construct the ore storage pads will be moved to the DTMF;
- Surface buildings and facilities:
    - Contaminated surface infrastructure will be dismantled and disposed of within the AGTMF, DTMF or DNWRP;
    - Non-contaminated surface infrastructure will be disassembled and placed in the Key Lake landfill within the GWRP;
    - Hazardous substances will be used in the decommissioning process or transported off-site for recycling or disposal in accordance with applicable regulations;
- Site roads and surface water diversion system:
    - Site roads will be decommissioned, contoured and seeded with native vegetation; and
    - Upon completion of water treatment, the surface water diversion system will be decommissioned and disposed of in the Key Lake landfill within the GWRP.

## Financial Guarantee

The above information was used to develop the PDCE and associated financial guarantee for Key Lake. The most recent PDCE for Key Lake is $222.5 million, which represents an increase of $4.2 million from the previous PDP and PDCE, which was initially submitted in 2013. The current PDP and PDCE received final regulatory approval in July 2020. Key Lake submitted updated PDP and PDCE documents in December 2022 for regulatory review in accordance with the required five-year review cycle.