Cameco

Energizing a clean-air world

Environmental Protection Program - Public Summary

Introduction

The Cameco Corporation (Cameco) Rabbit Lake Operation (Rabbit Lake) is located approximately 750 kilometers north of Saskatoon, Saskatchewan. Rabbit Lake holds a Uranium Mine and Mill Licence (Licence) from the Canadian Nuclear Safety Commission (CNSC) to prepare a site for, construct, operate, modify and decommission a nuclear facility for mining and milling of uranium ore, as well as an Approval to Operate Pollutant Control Facilities (Approval to Operate) from the Saskatchewan Ministry of Environment (SMOE).

The CNSC maintains Safety Control Areas (SCAs) through which they assess, evaluate, review and verify the compliance of their licensees. The Environmental Protection SCA requires operators of licensed nuclear facilities to prepare an Environmental Protection Program (EPP) to ensure that matters pertaining to the environment are identified, monitored, interpreted and acted upon in a way that demonstrates protection of the environment.

The Rabbit Lake EPP provides a summary of the environmental protection and reporting activities for Rabbit Lake. The Rabbit Lake EPP was developed in consideration of applicable regulatory requirements, industry standards, Cameco requirements and Cameco's Safety, Health, Environment and Quality (SHEQ) Policy. Cameco's SHEQ Policy recognizes the safety and health of its workers and the public, protection of the environment and quality of its processes as the highest corporate priorities during all stages of its activities.

The Rabbit Lake EPP outlines the environmental management activities at Rabbit Lake, including:

- Environmental site characterization;
- Environmental risk identification and assessment;
- Environmental contingency plans;
- General environmental protection measures;
- Environmental monitoring;
- Decommissioning and reclamation
- Training;
- Stakeholder communication;
- Audits; and
- Quality assurance.

The program applies to all personnel working at Rabbit Lake. The Rabbit Lake EPP requires acceptance by the CNSC prior to being revised and finalized.

Environmental Protection

The Rabbit Lake EPP outlines the environmental protection measures employed at Rabbit Lake. At a high level, the environmental protection measures are as follows:

- Tailings Management:
    - Rabbit Lake maintains an Above Ground Tailings Management Facility (AGTMF). Tailings placement no longer occurs at the AGTMF. The AGTMF is actively used as a disposal area for contaminated and potentially contaminated waste; and
    - Mill tailings are deposited and managed in the Rabbit Lake In-Pit Tailings Management Facility (RLITMF). Water from the RLITMF is collected and treated.
- Containment Systems:
    - Rabbit Lake uses engineered and routinely inspected containment structures for storage and conveyance of materials that could potentially have an influence on the environment.
- Water Treatment:
    - Contaminated and potentially contaminated water generated at Rabbit Lake treated in the mill water treatment circuit at site; and
    - The treated water is sampled and analyzed to ensure regulatory criteria are met.
- Environmental Action Levels:
    - Environmental action levels define a specific concentration of a parameter in treated effluent which, if exceeded, may indicate a potential loss of control of the EPP. Action levels are developed in accordance with CSA standard N288.8. Action levels for releases of treated water to the environment at Rabbit Lake are detailed in an environmental code of practice (ECOP) within the Rabbit Lake EPP;
    - The Rabbit Lake ECOP describe the specific actions to be taken in response to measured results outside of the historical operating range; and
    - The ECOP is required to meet certain regulatory requirements and is then approved by the CNSC.
- Groundwater Protection:
    - Cameco protects groundwater at Rabbit Lake by employing engineered and operational controls such as routine inspection and maintenance of containment structures as well as regular groundwater monitoring.
- Air Protection:
    - Cameco protects air quality at Rabbit Lake by identifying point sources of emissions and utilizing air dispersion modelling and engineered and operational controls such as regular air quality monitoring.
- Reclamation:
    - Rabbit Lake facilities that are no longer required for future milling or mining activities may be reclaimed, on a progressive basis, with the intent of returning the site to a condition that is as similar as reasonably achievable to the surrounding environment and is suitable for traditional land use; and
    - Cameco's reclamation efforts at Rabbit Lake to-date have focused on reclaiming former mine and waste rock areas. Significant reclamation has been completed in relation to the following:
        - A-Zone Pit;
        - D-Zone Pit; and,
        - A-Zone, D-Zone, North, East #5, and B-Zone waste rock piles.
- Environmental Risk Assessments (ERAs):
    - An ERA is a systematic process to identify and assess any potential risk posed to human health and the environment by operations at Rabbit Lake;

- ERAs are reviewed or updated every five years in accordance with the Canadian Standards Association (CSA) N288.6 standard for conducting ERAs at Class I nuclear facilities and uranium mines and mills;
- The most recently approved Rabbit Lake ERA was completed in 2020; and
- The ERA is required to meet certain regulatory requirements and is then approved by the regulatory agencies.

Environmental Monitoring and Measurement

The Rabbit Lake EPP describes the environmental monitoring and measurement methods Cameco has implemented at Rabbit Lake. Cameco completes environmental monitoring and measurement to confirm that environmental protection activities are meeting regulatory and program requirements. Monitoring programs are conducted in accordance with CSA standards N288.4, N288.5, and N288.7, specific to the effluent and environmental monitoring programs, respectively. This includes monitoring, measuring and evaluating key environmental characteristics at specific frequencies. These key environmental characteristics include climate and air quality, surface hydrology, surface water quality, groundwater quality, treated effluent quality, site water balance and aquatic and terrestrial ecology. Additionally, Cameco regularly monitors and measures the general condition of the surrounding environment and overall facility performance at Rabbit Lake. Monitoring results may be assessed against historical trends, benchmarks (e.g., regulatory guidelines or limits), reference data, background conditions or predictions (e.g., ERA or environmental assessments (EA)).

Cameco prepares and submits reports, including environmental monitoring and measurement results for review by regulatory agencies on a quarterly, annual and five-year frequency. Quarterly and annual reports summarize the results of environmental monitoring activities that Cameco conducted during the applicable timeframe. Cameco conducts a management review annually to assess the overall performance of the Rabbit Lake EPP. The Rabbit Lake Environmental Performance Report (EPR) is completed every five years. The EPR provides a review of the results from the previous five years of environmental monitoring and compares monitoring results to ERA or EA predictions. Requirements of the quarterly reports, annual reports and EPRs are detailed in the Rabbit Lake Approval to Operate.

The CNSC completes a Regulatory Oversight Report (ROR) for Rabbit Lake every year. The ROR provides an annual review of safety control areas and regulatory compliance at Rabbit Lake. This review is also the subject of a formal CNSC proceedings where intervenor funding is provided.

Conclusion

The EPP that is currently implemented at Rabbit Lake, which has been approved by the CNSC, ensures that human health and the environment in the vicinity of Rabbit Lake remain protected.