



Environmental Management Program

Introduction

The Cameco Corporation (Cameco) Cigar Lake Operation (Cigar Lake) is located approximately 660 kilometers (km) north of Saskatoon, Saskatchewan. Cigar Lake holds a Uranium Mine Licence (Licence) from the Canadian Nuclear Safety Commission (CNSC) to prepare a site for, construct, operate, modify and decommission a nuclear facility for mining uranium ore, as well as an Approval to Operate Pollutant Control Facilities (Approval to Operate) from the Saskatchewan Ministry of Environment (SMOE).

The CNSC require operators of licensed nuclear facilities to prepare an Environmental Management Program (EMP) 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 Cigar Lake EMP provides a summary of the environmental protection and reporting activities for Cigar Lake. The Cigar Lake EMP 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 Cigar Lake EMP outlines the environmental management activities at Cigar Lake, including environmental

site characterization, general environmental protection measures, environmental monitoring, decommissioning and reclamation, training, stakeholder communication, audits and quality assurance. The program applies to all Cameco site employees and others working at the site. The Cigar Lake EMP requires acceptance by the CNSC prior to being revised and finalized.

Environmental Protection

The Cigar Lake EMP discusses environmental protection measures employed at Cigar Lake. At a high level, the environmental protection measures are as follows:

Containment Systems:

- Cigar Lake uses engineered containment structures for storage of materials that could potentially have an influence on the environment;

Water Treatment:

- Potentially contaminated water generated from facilities and processes at Cigar Lake is treated in the mine water treatment plant at site;
- The treated water is then sampled and analyzed. The results of the analysis are compared to regulatory criteria prior to release to the environment;
- Sewage generated at Cigar Lake is collected and pumped to a two-cell lined lagoon system. Release of sewage lagoon system is completed twice per year;

Environmental Action Levels:

- Action levels for releases of treated water to the environment at Cigar Lake are detailed in an environmental code of practice (ECOP) within the Cigar Lake EMP;
- These Cigar Lake ECOP describe the specific actions to be taken in response to measured results outside of the historical operating range;

Groundwater Protection:

- Groundwater protection at Cigar Lake is achieved by employing engineered and operational controls such as routine inspection and maintenance of containment structures and regular groundwater monitoring;

Air Protection:

- Air protection at Cigar Lake is achieved by utilizing air dispersion modelling and engineered and operational controls such as regular air quality monitoring;

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 the Cigar Lake facility;
- The latest Cigar Lake ERA was completed in 2017 and an addendum to the ERA was completed in 2019.

Environmental Monitoring and Measurement

The Cigar Lake EMP describes the environmental monitoring and measurement methods employed at Cigar Lake.

Environmental monitoring and measurement is completed to confirm that environmental protection activities are meeting expectations and regulatory requirements. 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 water quality, terrestrial ecology and aquatic ecology. Additionally, monitoring and measurement of the general condition of the surrounding environment and overall facility performance is regularly conducted at Cigar Lake.

Monitoring results may be assessed against historical trends, benchmarks (e.g.: regulatory guidelines or limits), reference data, background conditions or predictions (e.g.: environmental risk assessment or environmental assessments).

Reports including environmental monitoring and measurement results are submitted to and reviewed by regulatory agencies quarterly, annually and every five years. Quarterly and annual reports summarize environmental monitoring activities that were conducted during the applicable quarter or year. The Cigar Lake environmental performance report (EPR) is completed every five years. The EPR provides a five-year review of the results of environmental monitoring programs. Requirements of the quarterly reports, annual reports and EPRs are detailed in the Cigar Lake Approval to Operate.

Conclusion

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