

# Program Summary – Key Lake Operation

## Radiation Protection Program

### Introduction

The Cameco Corporation (Cameco) Key Lake Operation (Key Lake) is located approximately 570 kilometers north of Saskatoon, Saskatchewan. Key Lake holds a Uranium Mill Licence (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 (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 Radiation Protection SCA requires operators of licensed nuclear facilities to prepare a Radiation Protection Program (RPP) to manage workplace radiation protection issues and keep radiation exposures as low as reasonably achievable.

The Key Lake RPP provides a summary of the radiation protection activities for Key Lake. Cameco developed the Key Lake RPP taking into account 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 program applies to all personnel working at Key Lake. The Key Lake RPP requires acceptance by the CNSC prior to being revised and finalized.

### Radiation Protection

The Key Lake RPP discusses radiation protection measures employed at Key Lake. At a high level, the radiation protection measures are as follows:

- Radiation Exposure Control:
  - Controls such as radiation monitoring, personal dosimetry, radiation work permits, personal protective equipment (e.g.: respiratory protection), and radiation safety training are used to keep radiation exposures at Key Lake as low as reasonably achievable, social and economic factors taken into account (ALARA).
- Radiation Code of Practice:
  - Cameco has detailed the action levels for unplanned radiation exposures at Key Lake in a radiation code of practice (RCOP) within the Key Lake RPP. These action levels are effective worker radiation doses which may indicate a potential loss of control of the Key Lake RPP;
  - The Key Lake RCOP describes the specific actions to be taken in response to measured radiation exposures above the defined action level.
- Radiation Zone Control:
  - Key Lake is divided into zones based on the potential for radiological contamination;
  - Classifying the site into these zones helps to prevent the potential spread of radiological contamination.
- Nuclear Substance Control:
  - Key Lake is licensed by the CNSC to possess, transfer, import and use nuclear substances or devices that contain nuclear substances;

- Key Lake complies with all regulatory requirements that apply to the possession, transport, import and use of nuclear substances.

### Radiation Monitoring and Measurement

The Key Lake RPP describes the radiation monitoring and measurement methods employed at Key Lake. Radiation monitoring and measurement is completed to confirm that radiation protection activities are meeting expectations and regulatory requirements. Radiation monitoring and measurement conducted at Key Lake includes:

- Radiation dose monitoring;
- Exposure control monitoring;
- Radiological contamination monitoring;
- Radiation equipment calibration;
- Radiation inspections;
- Radiation audits; and
- Radiation incident investigations.

Additionally, monitoring and measurement of the overall facility performance is regularly conducted at Key Lake.

Cameco submits reports, including radiation monitoring and measurement results to the applicable regulatory agencies monthly, quarterly and annually for their review. These reports summarize radiation monitoring activities that were conducted during the applicable time period. Cameco provides or makes available individual dose records to nuclear energy workers at the site on a quarterly basis. Cameco conducts a management review annually to assess the overall performance of the Key Lake RPP. The CNSC completes a Regulatory Oversight Report (ROR) for Key Lake every year. The ROR provides an annual review of safety programs and regulatory compliance at Key Lake. This review is also the subject of a formal CNSC proceeding that includes intervenor funding.

### Conclusion

The RPP that is currently implemented at Key Lake, which has been approved by the CNSC, ensures that radiation exposures at Key Lake are kept ALARA.