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Regulatory Oversight Report for Uranium Mines and Mills in Canada: 2024

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CMD 26-M3

Regulatory Oversight Report for Uranium Mines and Mills in Canada: 2024

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Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

Canada

Regulatory Oversight Report for Uranium Mines and Mills in Canada: 2024

Canadian Nuclear Safety Commission

Regulatory Oversight Report for Uranium Mines and Mills in Canada: 2024

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Table of contents

Changes since last review **1**

Land acknowledgement **2**

Plain language summary **2**

1 Introduction **4**

1.1 Background 4

1.2 Scope of report 4

2 Overview **5**

2.1 Regulatory Oversight 5

2.2 Overview Dashboard 8

3 Operating Uranium Mines and Mills in Canada: 2024 ..... **10**

3.1 Cigar Lake 10

3.2 Key Lake 17

3.3 McArthur River 23

3.4 McClean Lake 30

3.5 Rabbit Lake 36

4 Assessment of Safety and Control Areas **41**

4.1 Management system 41

4.2 Human performance management 42

4.3 Operating performance 43

4.4 Safety analysis 44

4.5 Physical design 45

4.6 Fitness for service 45

4.7 Radiation protection 46

4.8 Conventional health and safety 50

4.9 Environmental protection 51

4.10 Emergency management and fire protection 61

4.11 Waste management 62

4.12 Security 63

4.13 Safeguards and non-proliferation 63
4.14 Packaging and transport 64
5 Consultation and engagement 65
5.1 Indigenous consultation and engagement 65
5.2 Public consultation and engagement 69
5.3 Licensee public information and engagement 70
5.4 Participant Funding Program 70
6 Events and other matters of regulatory interest 71
6.1 Public information and disclosure program 71
7 Conclusions 73
8 Glossary 74
Appendix A : List of Inspections 75
Appendix B Safety performance rating levels 81
Satisfactory (SA) 81
Below expectations (BE) 81
Unacceptable (UA) 81
Appendix C : Safety and Control Area Framework 82
Appendix D : List of Indigenous Nations, communities and organizations that have traditional and/or treaty territories and/or interests within proximity to the licensed facilities 85
Appendix E : Summary Table of the Status of Issues, Concerns and Requests from Indigenous Intervenors in the 2023 UMM ROR 86
Appendix F : Summary of Engagement in Relation to CNSC's Terms of Reference for Long-Term Engagement and Associated Workplans In 2024 94
Appendix G : Links to Websites 101
Appendix H : Acronyms 102

Changes since last review

Change	Rationale
Dashboards moved to the body of the report from the appendices	Allows the reader to see relevant data at a glance and reduces duplication of information.

Land acknowledgement

CNSC staff would like to acknowledge that the uranium mine and mill (UMM) facilities discussed in the report are located on Treaty 10 territory, the Homeland of the Métis, and are within the traditional territories of the Dene, Cree and Métis peoples.

Plain language summary

The Regulatory Oversight Report (ROR) for Uranium Mines and Mills in Canada: 2024 provides information about the work carried out by the CNSC to verify the safety of people and the environment around all operating uranium mines and mills in Canada. The 5 operating mines and mills, all located in northern Saskatchewan, continued to operate safely in 2024. Monitoring continues to show that the country foods and water surrounding the mines and mills remain safe to eat and drink. There were no releases that could have harmed human health or the environment.

This report provides information on the 5 uranium mines and mills licensed to operate in 2024:

- Cameco's Cigar Lake – uranium mine
- Cameco's Key Lake – uranium mill
- Cameco's McArthur River – uranium mine
- Orano's McClean Lake – uranium mine and mill
- Cameco's Rabbit Lake – uranium mine and mill (in care and maintenance since 2016)

Each year, CNSC inspectors conduct inspections at uranium mines and mills. The number and focus of inspections depends on the performance and operating status of the mine or mill.

In 2024, CNSC staff performed a total of 27 inspections across the 5 operating mines and mills and found 114 non-compliances. All of these were of low safety significance. While the number of non-compliances is higher than some past years, this is largely due to changes to the CNSC's inspection practices, for instance, larger inspection teams. The licensees are required to fix these non-compliances and address all the concerns raised during the inspections. CNSC staff track these items to completion.

Although the CNSC evaluates operating nuclear facilities, including uranium mines and mills, across all 14 safety and control areas (SCAs), this report focuses on the following 4 areas:

- **Radiation protection:** Uranium mine and mill operations are required to implement and maintain radiation protection programs that ensure radiation doses are monitored, controlled and below regulatory limits. In 2024, the maximum individual radiation dose to a worker at any of the 5 uranium mine and mill facilities was 18 % of the annual regulatory limit. Worker doses were kept below the CNSC regulatory dose limits.

- **Environmental protection:** All water used by uranium mine and mill facilities must be treated before being discharged back into the environment. In 2024, all discharged water met the discharge requirements, ensuring that people and the environment near the facilities are safe. Licensees also conduct air sampling and vegetation sampling around their sites. All results for 2024 were well below the limits set by the environmental quality guidelines. In addition, CNSC licensees are required to report any unauthorized releases of hazardous substances or nuclear substances to the environment, such as spills. In 2024, 11 unauthorized releases ("spills") were reported. This number is within the normal range for uranium mines and mills. All releases were remediated by the licensees and there were no lasting impacts to the environment.
- **Conventional health and safety:** Licensees of all mining and milling facilities must report any lost-time, workplace-related injuries to the CNSC and provincial agencies. In 2024, 7 injuries required reporting as lost time. This number is consistent with previous years, and most injuries were minor. Two injuries, an injury to a worker involved in an emergency drill at McArthur River and an injury to a worker operating a lathe at McClean Lake, were more significant. The licensee responses to all injuries were appropriate and so CNSC staff did not conclude that there were wider issues with conventional health and safety programs at uranium mines and mills.
- **Consultation and engagement:** As an agent of the Crown, the CNSC recognizes and understands the importance of building relationships with Indigenous peoples. In 2024, CNSC staff continued to work in support of the organization's ongoing commitment to Indigenous consultation and engagement with Indigenous peoples with interests in Canada's uranium mines and mills. CNSC staff continued to meet with Indigenous Nations and communities to provide information on and seek opportunities for improvement of the ROR.

Referenced documents in this CMD are available to the public upon request, subject to confidentiality considerations.

1 Introduction

1.1 Background

Each year, the CNSC publishes Regulatory Oversight Reports (RORs), which offer information on the safety performance of Canadian licensees who are authorized to use nuclear substances. The reports evaluate licensees based on their safety procedures and adherence to regulatory policy. Key issues and emerging changes in regulation are also highlighted.

Learn more about regulatory oversight reports

1.2 Scope of report

The ROR describes the regulatory oversight and safety performance of operating uranium mines and mills for the 2024 calendar year.

1.2.1 Nuclear facilities covered by this report

- Cigar Lake Operation, a uranium mine
- Key Lake Operation, a uranium mill
- McArthur River Operation, a uranium mine
- McClean Lake Operation, a uranium mine and mill
- Rabbit Lake Operation, a uranium mine and mill

2 Overview

This section focuses on the regulatory performance of the 5 operating uranium mines and mills in Canada in 2024. These facilities are located within the Athabasca Basin of northern Saskatchewan.

The Cigar Lake, Key Lake, McArthur River, and Rabbit Lake facilities are operated by Cameco Corporation (Cameco), while the McClean Lake facility is operated by Orano Canada Inc (Orano).

In 2024, CNSC inspectors continued to verify the mining and milling activities at the Cigar Lake Operation, Key Lake Operation, McArthur River Operation, and McClean Lake Operation. In 2016, Cameco entered the Rabbit Lake mine and mill into a state of care and maintenance and that facility has remained so since that time. CNSC staff continue to verify the safety of that site during this care and maintenance phase. While Rabbit Lake remains licensed to operate, a licence condition requires Cameco to provide the CNSC 9 months notice of an intention to restart the mine or the mill.

2.1 Regulatory Oversight

The CNSC regulates the nuclear sector in Canada through:

- licensing
- reporting
- compliance verification
- enforcement

The CNSC uses a risk-informed regulatory approach to these activities, applying resources and regulatory oversight commensurate with the risk associated with the facility's activity.

2.1.1 Licensing

Each facility has a licence issued by the Commission, which defines the licence period, activities, and conditions. All licensees are required to operate in accordance with applicable requirements. When a licence is issued, CNSC staff develop a licence conditions handbook (LCH) to identify the specific requirements that apply to that licence. As a condition of their licence, licensees are required to provide various reports and notices to the CNSC as well as reports required in accordance with the regulations made under the *Nuclear Safety and Control Act*.

2.1.2 Compliance Effort

Regular inspections and evaluations verify that licensees are complying with requirements of the regulations, as well as the conditions of their licence. In this way, the CNSC can assure licensees are operating safely and adhering to their licence conditions.

Learn more about the CNSC's approach to compliance verification and enforcement

CNSC staff determine whether licensees are in compliance with requirements through compliance verification and reporting activities. CNSC staff develop compliance plans for each facility commensurate with their associated risk and implement these plans by conducting regulatory activities which include onsite inspections, remote inspections, and technical assessments of licensee programs, processes, and reports. Adjustments to compliance plans are made as needed in response to operational status, events, facility modifications and changes in licensee performance.

Table 2.1.1 presents data on CNSC staff inspections conducted at operating uranium mines and mills between 2020-2024. Non-compliance noted during the inspections were provided to the licensees in detailed inspection reports and recorded in the CNSC Regulatory Information Bank (RIB) to ensure that corrective actions were tracked to completion. Examples of non-compliances can be found in section 4 of this report.

Table 2.1.1: 5-year inspection information

	2020	2021	2022	2023	2024
Number of inspections	17	18	25	22	27
Number of non-compliances	11	19	79 + 1 order[1]	93 + 1 order[2]	114

[1] In 2022, an Inspector's Order was issued to the Cigar Lake Operation for exceeding the volume of potentially acid generating waste rock on Stockpile C as specified in the operation's waste management program. The Order was confirmed by a CNSC Designated Officer on November 23, 2022. Cameco responded to all of the requirements specified in the Order in accordance with a CNSC staff-accepted schedule, and committed to draw down the stockpile volume to below the limit by August 2024. Cameco provided written confirmation that the volume of the pile was below the limit on June 22, 2024. This order was closed on May 5, 2023 due to the licensee having fulfilled the actions on them.

For additional Details see: Order issued to Cameco Corporation, Cigar Lake, Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on December 13 and 14, 2023

[2] In 2023, an Inspector's Order was issued to the Rabbit Lake Operation after an inspection team found expired personal protective equipment (PPE) for the emergency response team (ERT). The Order was confirmed by a CNSC Designated Officer on November 15, 2023. The order required the Rabbit Lake Operation to immediately suspend non-essential activities that may have posed an increased fire risk, obtain non-expired ERT PPE, and perform an investigation into why expired PPE was not identified by the licensee. Rabbit Lake was able to source sufficient PPE to allow resumption of normal ERT operation within days of the order being issued. CNSC staff determined that all conditions of the order were met. This order was closed on August 2, 2024, due to the licensee having fulfilled the actions on them.

For additional Details see: Regulatory Action - Cameco Corporation, Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on January 29, 2025

Inspection details can be found in section 3 of this report, the facility section relevant to each site.

The number of inspections and non-compliances change each year. The number of inspections is determined by CNSC staff's 10-year plan, taking into consideration the risk levels for each facility and the planned actions for each facility. It is important to remember that the number of notices of non-compliance (NNCs) issued does not provide a direct indicator of licensee performance. CNSC staff did not identify any concerning trends in terms of the cause or severity of these non-compliances between 2024 and previous years. The number of NNCs issued can vary depending on the inspection criteria selected for the inspection and type of inspection. In this 5-year data set, it is evident that the number of NNCs has increased over time. CNSC staff attribute this to various factors, including:

- Inspections in 2020 and 2021 were impacted by COVID restrictions. Most inspections in this time were fully virtual, and some inspections were deferred or cancelled. The use of the new virtual inspection format, and a reduced number of inspections, led to fewer NNCs in those years.
- Inspection teams are larger. Prior to 2020, some inspection teams consisted only of the lead inspector. Post-COVID, CNSC inspection teams at UMMs have consisted of at least 2 people, a model adopted so that the lead inspector always has in-person support from other CNSC staff. Including inspectors-in-training and subject-matter experts in training, an inspection team may include up to 4-5 people, and up to 2 inspectors. A larger team allows for more thorough observation of areas included in the inspection and may allow the team to split up in the field, which can cover more areas of interest.
- Inspections are more efficient in using time on-site. Prior to COVID, hardcopy documents were reviewed on-site during the inspection. During the COVID years, CNSC staff transitioned to requesting electronic documentation in advance of an inspection, which allows reviews to be carried out before the start of the inspection. This practice has continued since the ending of COVID restrictions, and allows for more thorough document reviews, and more focused use of time on site.
- Inspection teams have easier access to subject-matter experts. The widespread use of videoconference software allows for inspection teams to easily consult with colleagues in the office, who may be able to bring additional expertise to bear on the scope of the inspection, which can result in additional NNCs being issued.

Other regulatory bodies that conduct inspections at uranium mine and mill facilities include the Saskatchewan Ministry of Environment, the Saskatchewan Ministry of Labour Relations and Workplace Safety, and Environment and Climate Change Canada. These regulatory bodies focus primarily on the areas of conventional health and safety and environmental protection. CNSC staff consider the findings from these regulatory bodies when assessing licensees' performance. When justified and logistically reasonable, joint inspections are conducted with other federal or

provincial regulatory agencies. Two joint inspections occurred in 2024, at the McClean Lake Operation and the Rabbit Lake Operation, with the Saskatchewan Ministry of Environment.

To modernize the way CNSC staff work with the Saskatchewan Ministry of Environment, an updated memorandum of understanding (MoU) was signed in May 2024. The MoU fosters collaboration on the implementation, application and administration of regulations and requirements related to the decommissioning and reclamation, including the provision of financial assurances, for uranium mining and milling facilities in Saskatchewan. This updated MoU replaces the 1996 version. CNSC staff and the Saskatchewan Ministry of Environment will continue to work together to review, revise and add to MoUs where needed.

2.2 Overview Dashboard

The dashboard below shows an overview of the 2024 events, compliance verification activities, Indigenous engagement, results from the independent environmental monitoring program (IEMP), as well as detailed information on the protection of persons and of the environment.

Purpose of the ROR

The uranium mines and mills regulatory oversight report (ROR) provides detailed information on the regulation of operating uranium mine and mill (UMM) facilities in 2024. The ROR provides an opportunity to share information with Indigenous Nations and communities impacted by the facilities, and provides an opportunity to present concerns to the Canadian Nuclear Safety Commission. For more information, the QR code on the right will take you to visit our website.

Site Status

In 2024, Cigar Lake, Key Lake, McArthur River, and McClean Lake were all actively operating, while Rabbit Lake remained in a state of care and maintenance. Facilities in a state of care and maintenance still hold a licence to operate a mine or mill while not producing uranium products. Sufficient staff maintain safety and security at facilities during this time.

9 CNSC Inspectors
Dedicated to UMM sites

23 CNSC Subject Matter Experts
With direct regulatory effort at UMM sites

CNSC Staff Conclusions

All UMM sites operated safely in 2024

Events

2024 values (2023 values)

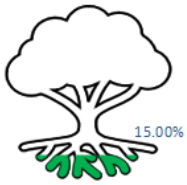
Lost-Time Injuries: 7 ↓ (12)	Radiation Action Level Exceedances: 7 ↓ (11)
Environmental Action Level Exceedances: 1 ↓ (3)	Reportable Releases to the Environment: 11 ↓ (13)

Compliance Activities

- **27** CNSC compliance Inspections
- **114** CNSC Notices of Non-Compliance (NNCs)
- **1** Administrative Monetary Penalty Issued

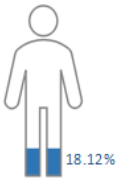
NNCs and events did not have an impact on safety at UMM sites

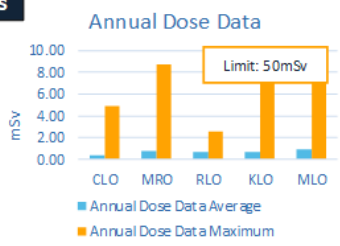
Environmental Releases



Releases to the environment have been remediated with low impacts to the environment. CNSC staff are satisfied with corrective actions performed by licensees.

Radiation Doses





Doses to nuclear energy workers remained low, with the highest dose recorded in 2024 9.06 mSv, or 18.12% of the regulatory limit of 50 mSv in a calendar year.

Indigenous Engagement

CNSC staff worked with Indigenous Nations and communities to identify opportunities for formalized and regular engagement throughout the lifecycle of UMM sites. In 2024 CNSC staff:

- Met with nations and communities who had concerns from the 2024 ROR.
- Participated in the Northern Saskatchewan Environmental Quality Committee meeting in Prince Albert and La Ronge.
- Conducted outreach at communities near UMM sites.

Independent Environmental Monitoring Program (IEMP)

An IEMP sampling campaign was conducted at 1 UMM site in 2024: Cigar Lake.

Analysis of samples indicate that the environment is protected. Scan the QR code to the right see all of the IEMP data to date.

3 Operating Uranium Mines and Mills in Canada: 2024

3.1 Cigar Lake

Cameco is the licence holder and operator of the Cigar Lake Operation, which is located approximately 660 kilometers north of Saskatoon, Saskatchewan. The Cigar Lake Operation consists of an underground uranium mine with surface facilities for loading ore slurry into trucks, waste management facilities, a water treatment plant, surface freeze plants, administration offices and warehouses.

3.1.1 Performance

There were 15 non-compliances identified through 6 onsite CNSC inspections at the Cigar Lake Operation in 2024. The non-compliances were of low safety significance and related to the following SCAs:

- management system
- human performance management
- operating performance
- radiation protection
- environmental protection
- emergency management and fire protection

CNSC staff conducted a reactive human performance management focused inspection covering all of Cameco's uranium mines and mills, that is, Cigar Lake, Key Lake, McArthur River and Rabbit Lake Operations in 2024. This inspection did not involve accessing the sites, but rather involved reviews of programmatic documentation. CNSC staff identified 8 NNCs during the inspection.

Section 4 of this report provides more information on the non-compliances by SCA.

3.1.2 Cigar Lake Operation Dashboards

The dashboards below detail the regulatory performance of the Cigar Lake Operation, as well as detailed information for the protection of people, and protection of the environment, including 5-year data trends.

3.1.2.1 Licensing and Compliance

Licence Term	Financial Guarantee	Licence:
July 1, 2021 to June 30, 2031	$ 61,791,233.00	UML-MINE-CIGAR.01/2031

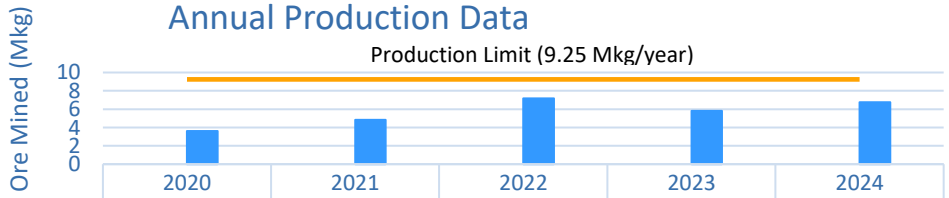
Figure 3.1: Cigar Lake Operation – aerial view looking north

Cigar Lake Operation Facilities that CNSC Staff Inspects:
Underground mine
Slurry load-out building
Waste management facilities
Water treatment plant
Surface freeze plants
Ancillary buildings
Warehouses

Safety and Control Area Rating	
Safety and Control Area	**Rating**
Management Systems	Satisfactory
Human Performance Management	Satisfactory
Operating Performance	Satisfactory
Safety Analysis	Satisfactory
Physical Design	Satisfactory
Fitness for Service	Satisfactory
Radiation Protection	Satisfactory
Conventional Health and Safety	Satisfactory
Environmental Protection	Satisfactory
Emergency Management and Fire Protection	Satisfactory
Waste Management	Satisfactory
Security	Satisfactory
Safeguards and Non-Proliferation	Satisfactory
Packaging and Transport	Satisfactory

Cigar Lake Operation is situated within historic Treaty 10 (1906) and Homeland of the Métis and is within the traditional territories of the Dene, Cree, and Métis peoples.

Inspection Data	
Number of Inspections:	6
Number of NNCs:	15
Safety Significance	
Low:	15
Medium:	0
High:	0

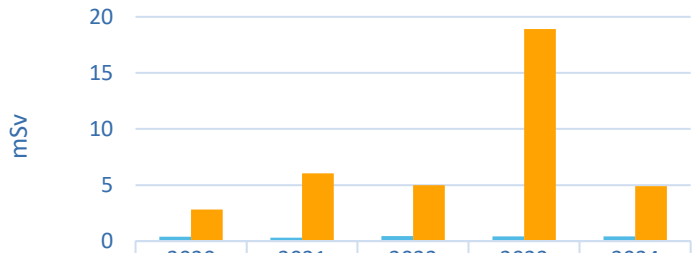


	2020	2021	2022	2023	2024
Ore Mined (Mkg)	24.6	34.3	53.7	48.78	55.2
Ore Grade (%)	17.3%	16.6%	15.8%	14.1%	14.4%
Uranium Mined (Mkg)	3.61	4.83	7.17	5.8	6.74
Annual Production Limit (Mkg)	9.25	9.25	9.25	9.25	9.25

3.1.2.2 Protection of People

The CNSC has a mandate for the protection of people, both nuclear energy workers (NEWs) as well as the public. This dashboard provides information on Cigar Lake Operation's efforts on radiation protection and conventional health and safety.

Effective Dose Data Trends

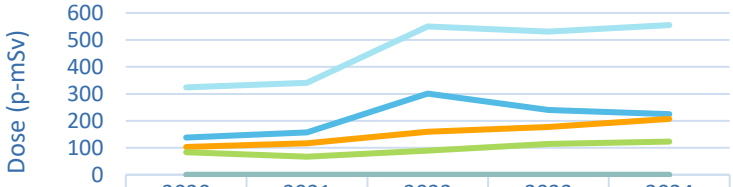


	2020	2021	2022	2023	2024
Average Effective Dose	0.38	0.32	0.46	0.42	0.43
Maximum Individual Dose	2.82	6.03	5	18.92	4.89

Maximum Annual Dose

mSv
(maximum 50 mSv/year)

5-Year Annual Collective Dose

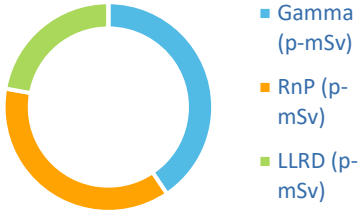


	2020	2021	2022	2023	2024
Gamma (p-mSv)	138	157	301	240	225
RnP (p-mSv)	103	117	160	177	207
LLRD (p-mSv)	83	67	89	114	123
RnG (p-mSv)	0	0	0	0	0
Total (p-mSv)	324	341	550	531	555

Total number of NEWs:

1293

Collective Dose for Report Year



Total Lost Time Injuries

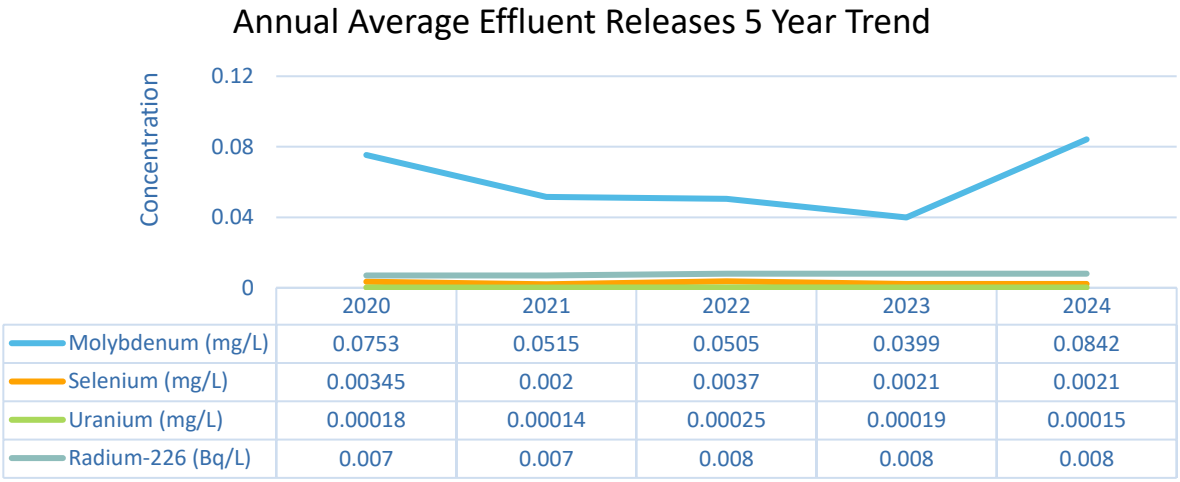
	2020	2021	2022	2023	2024
Lost Time Injuries	0	2	0	3*	0
Severity Rate	0	3.31	4.18	6.29	36.73
Frequency Rate	0	0.37	0	0.29	0
Total Recordable Incident Rate	2.08	2.6	2.69	2.78	2.54

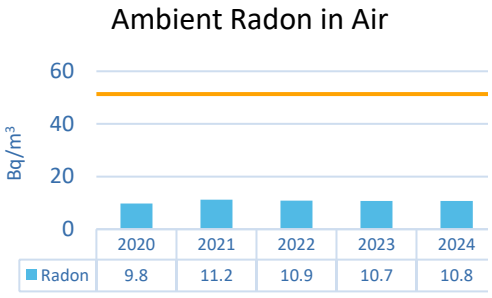
*An injury that occurred in 2023 was reclassified as a Lost Time Injury in 2024.

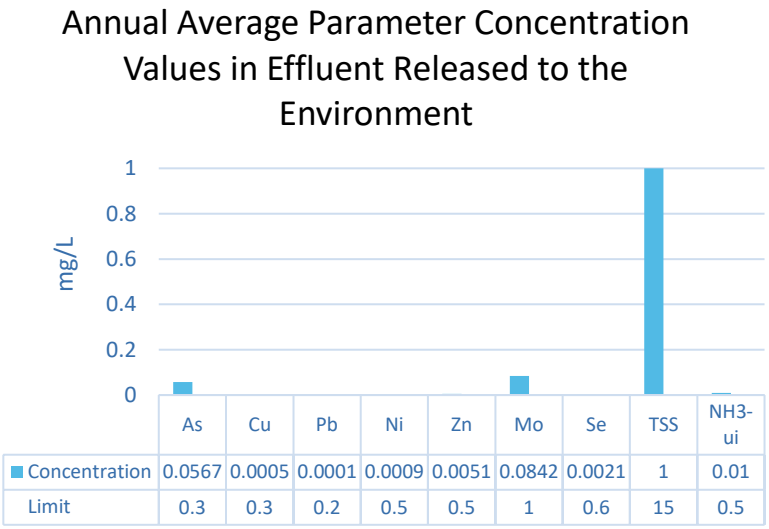
The data along with compliance activities give CNSC staff confidence that people are protected.

3.1.2.3 Protection of Environment

The CNSC has a mandate for the protection of the environment, and CNSC staff ensure that all licensees maintain effective environmental protection programs. This dashboard provides information on Cigar Lake Operation's efforts on environmental protection.







Metal and Radionuclides in Air

Analyte	Unit	Limit	Measured
TSP	µg/m^3	60	24.0
As	µg/m^3	0.06	0.00086
Cu	µg/m^3	9.6	0.002
Mo	µg/m^3	23	0.00023
Ni	µg/m^3	0.04	0.00088
Pb	µg/m^3	0.1	0.00055
Se	µg/m^3	1.9	0.00003
Zn	µg/m^3	23	0.005
Pb-210	Bq/m^3	0.021	0.00032
Po-210	Bq/m^3	0.028	0.00012
Ra-226	Bq/m^3	0.013	0.000032
Th-230	Bq/m^3	0.0085	0.000028
U	µg/m^3	0.06	0.0014

The data along with compliance activities give CNSC staff confidence that the environment is protected.

3.1.3 Events

The Cigar Lake Operation is required to report to the CNSC on events such as action level exceedances, regulatory exceedances and unplanned releases to the environment (e.g. spills). CNSC staff reviewed the reports, investigations and corrective actions for each event reported in 2024 and determined that the licensee acted appropriately. CNSC staff are satisfied with the corrective actions taken by Cameco.

Radiological Action Level Exceedances

In 2024, Cigar Lake reported 2 exceedances of the weekly radiological action level of 1 millisievert (mSv).

- On September 19, 2024, CNSC staff received a notification regarding an exceedance of the weekly action level. Urine sample results indicated that a worker had evidence of multiple intakes of long-lived radioactive dust (LLRD) over a 2-day period (September 6-7, 2024), resulting in the worker being assigned a committed effective dose of 4.41 mSv. The worker was working inside a clarifier tank during this period, using a powered air-purifying respirator (PAPR). Cameco's investigation determined that the worker was following an incorrect procedure for removing the respirator and personal protective equipment after performing LLRD generating work inside the tank. The procedure being followed was documented on the job hazard analysis (JHA) that was conducted prior to the work commencing, but no member of the radiation department was present at the JHA to recognize the procedural mistake. Cameco completed an apparent cause investigation and implemented several corrective actions, including coaching workers on the proper decontamination procedures to be followed, and emphasizing the importance of including subject matter experts in all JHA activities. A training program focused on donning, doffing, and decontamination procedures was also implemented in November 2024 to reduce the risk of reoccurrence. The implementation of corrective actions was verified by CNSC staff during compliance inspections in 2025.
- On September 17, 2024, CNSC staff received a notification regarding an exceedance of the weekly action level. Based on analyses of LLRD samples in a work area, it was determined that a worker was supplied contaminated breathing air while working inside a recycle water tank while using a welding PAPR on September 13, 2024. The worker was subsequently assigned a committed effective dose of 3.01 mSv. Cameco's investigation determined that during a break from the work, the worker removed the filter housing from the PAPR blower to inspect it for contaminant load. When reassembling the blower, the worker failed to properly reattach the filter housing, resulting in a gap which allowed for unfiltered air to bypass the filter and be blown into the breathing zone of the worker. Cameco completed an apparent cause investigation. As this incident occurred at a similar timeframe to the 1 noted above, the 2 events were combined in terms of the corrective

actions, with an additional activity of ensuring the training program includes information on proper checks and assembly of the PAPR's blower/filter assembly. The implementation of corrective actions was also verified by CNSC staff during compliance inspections in 2025.

Reportable Releases to the Environment

In 2024, Cigar Lake reported 2 releases to the environment.

- On May 24, 2024, a compressor for the process water cooling loop refrigerant system was observed not running. Upon further investigation, it became evident that the condenser had lost its entire 310-pound charge of R134A refrigerant some time between commissioning the equipment in 2023 and May 2024. A pin hole leak in a 3-way valve was identified and this leak allowed the contents to be discharged to the atmosphere. The entire system was inspected for leaks or faulty parts. The valve was replaced, and the system was pressure tested with nitrogen prior to being recharged and brought back into service.
- On October 25, 2024, a worker was moving 6 totes of MasterRoc SA 160 (corrosive material) out of the reagent building using a forklift and then intended to move the material with a loader. When the operator went to pick up a tote with the loader, the forks punctured 1 container resulting in a spill of approximately 50 (Ls) onto the ground. The worker immediately moved the tote into the reagent building and the tote was placed on its side to reduce the volume released. An additional 50 Ls leaked from the tote into secondary containment. The contaminated soil was collected for disposal and the procedure for moving reagents from the warehouse to the underground mine was reviewed with both shifts.

Environmental Action Level and Regulatory Limit Exceedances

In 2024, Cigar Lake reported 1 action limit exceedance to the CNSC and 0 regulatory limit exceedances.

- On March 4, 2024, a pond of treated effluent with a total volume of 3,931 m^3 was released to the environment at Seru Bay within Waterbury Lake. The molybdenum concentration of the pond fill composite sample was reported as 0.06 mg/L. As the pond fill composite sample results were reported as being below the action level, the pond was authorized for release. During the release, the pond release composite sample was collected, and a molybdenum concentration of 1.36 mg/L was measured by Saskatchewan Research Council (SRC), which exceeded the action level of 1.1 mg/L. The elevated molybdenum concentration was due to a process upset in the treatment plant. Immediate action included adjusting the minimum ferric sulphate addition rate to improve pH control.

  Corrective actions included completed training analysis to identify if improvements can be implemented within the training process and developing a data entry checklist that includes worker verification of data entry and upload of analytical results which was

incorporated into the existing data upload work instructions. The data entry checklist includes worker and supervisor verification that records have been entered accurately and a requirement to report adverse trends for in-process mine water treatment samples. CNSC staff reviewed the updated Cameco documentation and data entry/review process in a follow-up inspection to verify the implementation of these corrective actions and their adequacy.

Lost-Time Injuries

In 2024, Cigar Lake reported 0 lost-time injuries (LTIs) to the CNSC.

- There was 1 injury which occurred on December 21, 2023, which was reclassified as a lost-time injury on July 6, 2024. The worker injured their right bicep while attempting to remove a seized pin on a piece of equipment. The worker was placed on restricted work duties, however the employee followed up with further medical attention off-site and Cameco was informed on July 6, 2024, the employee would be scheduled for surgery for the injury, thereby requiring the re-classification of the injury.

3.2 Key Lake

Cameco is the licence holder and operator of the Key Lake Operation which is located approximately 570 kilometers north of Saskatoon. The operation began with 2 open-pit mines and a mill complex. The Gaertner open pit was mined from 1983 to 1987, followed by the Deilmann open pit until 1997. Uranium mining is no longer carried out at Key Lake and mined-out pits are now used to manage tailings from the mill, and water from the site. The Key Lake Operation consists of a mill facility, water treatment plant, waste management facilities, effluent storage ponds, administration offices and warehouses.

3.2.1 Performance

There were 31 non-compliances identified through 6 onsite CNSC inspections at the Key Lake Operation in 2024. The non-compliances were of low safety significance and related to the following SCAs:

- fitness for service
- radiation protection
- conventional health and safety
- environmental protection
- emergency management and fire safety
- waste management
- packaging and transport

CNSC staff conducted a reactive human performance management focused inspection covering all of Cameco's uranium mines and mills, that is, Cigar Lake, Key Lake, McArthur River and Rabbit Lake Operations in 2024. This inspection did not involve accessing the sites, but rather involved reviews of programmatic documentation. CNSC staff identified 8 NNCs during the inspection.

Section 4 of this report provides more information on the non-compliances by SCA.

3.2.2 Key Lake Operation Dashboards

The dashboards below detail the regulatory performance of the Key Lake Operation, as well as detailed information for the protection of people, and protection of the environment, including 5-year data trends.

3.2.2.1 Licensing and Compliance

Licence Term	Financial Guarantee	Licence:
November 1, 2023 to October 31, 2043	$ 222,500,000.00	UML-MILL-KEY.00/2043

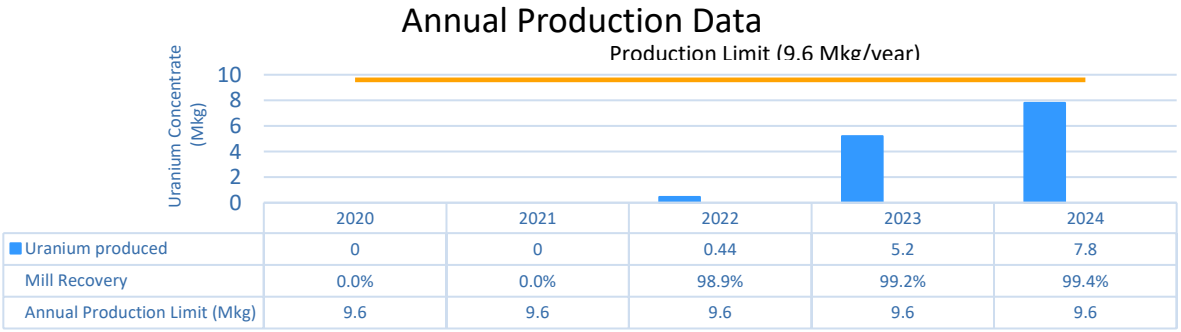
Figure 3.2 Key Lake Operation – aerial view

Key Lake Operation Facilities that CNSC Staff Inspects:
Mill facility
Deilmann tailings facility
Gaertner tailings facility
Waste management facilities
Water treatment plant
Effluent storage ponds
Warehouses
Ancillary buildings

Safety and Control Area Rating	
Safety and Control Area	**Rating**
Management Systems	Satisfactory
Human Performance Management	Satisfactory
Operating Performance	Satisfactory
Safety Analysis	Satisfactory
Physical Design	Satisfactory
Fitness for Service	Satisfactory
Radiation Protection	Satisfactory
Conventional Health and Safety	Satisfactory
Environmental Protection	Satisfactory
Emergency Management and Fire Protection	Satisfactory
Waste Management	Satisfactory
Security	Satisfactory
Safeguards and Non-Proliferation	Satisfactory
Packaging and Transport	Satisfactory

Key Lake Operation is situated within historic Treaty 10 (1906) and Homeland of the Métis and is within the traditional territories of the Dene, Cree, and Métis peoples.

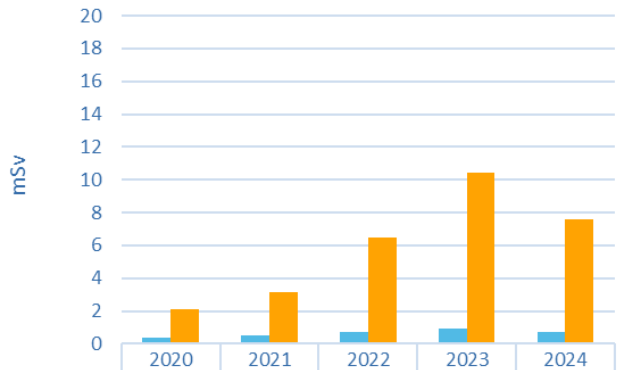
Inspection Data	
Number of Inspections:	6
Number of NNCs:	31
Safety Significance	
Low:	31
Medium:	0



3.2.2.2 Protection of People

The CNSC has a mandate for the protection of people, both nuclear energy workers (NEWs) as well as the public. This dashboard provides information on Key Lake Operation's efforts on radiation protection and conventional health and safety.

Effective Dose Data Trends



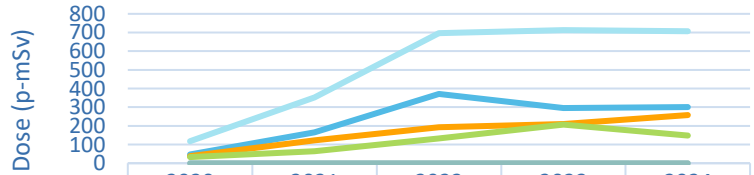
	2020	2021	2022	2023	2024
Average Effective Dose	0.35	0.52	0.74	0.91	0.71
Maximum Individual Dose	2.11	3.13	6.46	10.44	7.58

Maximum Annual Dose

(maximum 50 mSv/year)

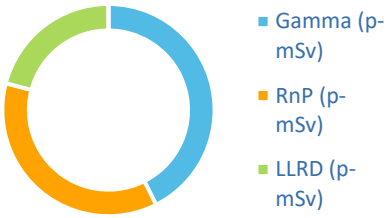
1002

5-Year Annual Collective Dose



	2020	2021	2022	2023	2024
Gamma (p-mSv)	47	165	371	296	301
RnP (p-mSv)	38	123	193	210	258
LLRD (p-mSv)	33	65	133	207	148
RnG (p-mSv)	0	0	0	0	0
Total (p-mSv)	118	353	697	713	707

Collective Dose for Report Year



Total Lost Time Injuries

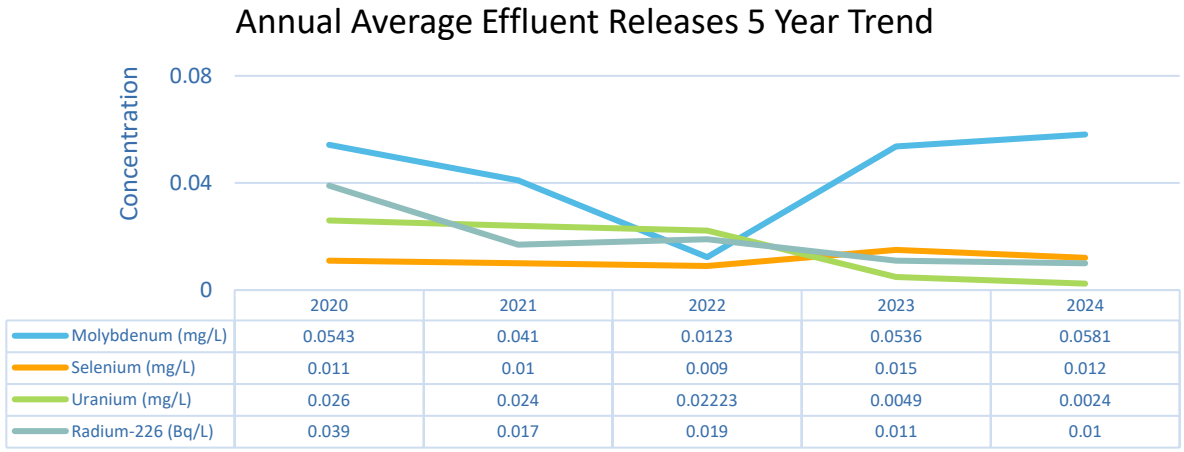
	2020	2021	2022	2023	2024
Lost Time Injuries	0	0	1	5 *	2
Severity Rate	0	0	0	7.26	60.66
Frequency Rate	0	0	0.2	1.1	0.39
Total Recordable Incident Rate	2.04	1.99	1.76	4.84	3.14

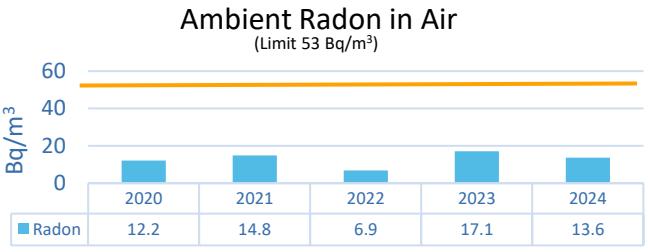
*Two injuries that occurred in 2023 was reclassified as a Lost Time Injury in 2024.

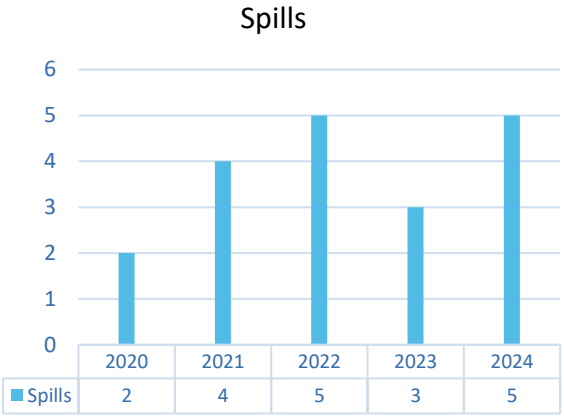
The data along with compliance activities give CNSC staff confidence that people are protected.

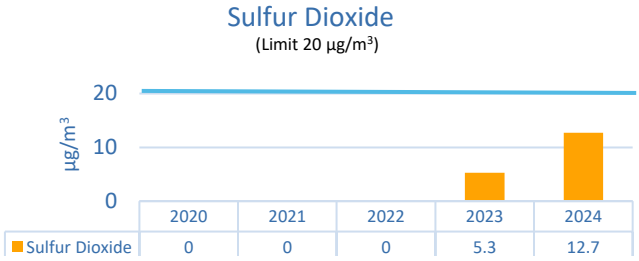
3.2.2.3 Protection of Environment

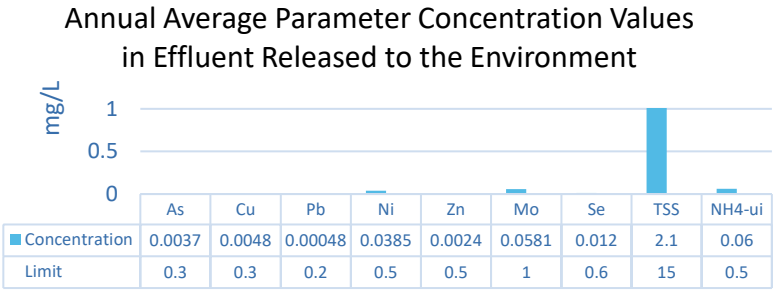
The CNSC has a mandate for the protection of the environment, and CNSC staff ensure that all licensees maintain effective environmental protection programs. This dashboard provides information on Key Lake Operation's efforts on environmental protection.











Metal and Radionuclides in Air			
Analyte	**Unit**	**Limit**	**Measured**
TSP	µg/m^3	60	7.1
As	µg/m^3	0.06	0.001138
Ni	µg/m^3	0.04	0.000632
Pb-210	Bq/m^3	0.021	0.000196
Ra-226	Bq/m^3	0.013	0.000122
Th-230	Bq/m^3	0.0085	0.000116
U	µg/m^3	0.06	0.002096

The data along with compliance activities give CNSC staff confidence that the environment is protected.

3.2.3 Events

The Key Lake Operation is required to report to the CNSC on events such as action level exceedances, regulatory exceedances, and releases to the environment (e.g. spills). CNSC staff reviewed the reports, investigations and corrective actions for each event reported in 2024 and determined that the licensee acted appropriately, and CNSC staff are satisfied with the remedial actions taken.

Radiological Action Level Exceedances

In 2024, Key Lake reported 3 radiological action level exceedances. In accordance with Cameco's corrective action process, investigations were performed for the events that resulted in the exceedances.

- In January 2024, 2 workers were involved in building and hauling scaffolding inside the horizontal calciner room wearing passive air purifying respiratory protection. Post work urine samples were elevated which indicated that the workers had an intake of LLRD. The final dose assessments determined effective doses of 1.21 mSv and 1.76 mSv, which exceeded the weekly action level of 1 mSv. These exceedances were considered as separate radiological action level exceedances. CNSC staff reviewed and accepted Cameco's corrective actions.
- In September 2024, 4 employees were performing repairs in the calciner requiring powered air purifying respirator. The task required pre-work and post-work uranium in urine samples. One worker failed to provide a post-work entry urine sample within the required 4–6-hour window. Subsequent urine samples from that worker indicated that the worker had an intake of LLRD. The final dose assessment resulted in a weekly effective dose of 1.44 mSv, above the weekly action level of 1 mSv. CNSC staff reviewed and accepted Cameco's corrective actions.

Reportable Releases to the Environment

In 2024, Cameco reported 5 releases.

- On March 12, approximately 100 m^3 of treated effluent was released from the industrial water pipeline underground. Soil and water samples were collected and analyzed. Contaminated materials were deposited in the Key Lake Operation Above Ground Tailing Management Facility (AGTMF). Corrective actions are still being implemented and reviewed by CNSC staff.
- On April 27, a drain hose ruptured while draining water containing residual ammonia resulting in ammonia vapor being released to the Vaporizer Building then vented to the atmosphere. The investigation determined an ice blockage was likely the cause of the rupture. Corrective actions included replacing the ruptured hose with a specialized hose designed for this task. CNSC staff reviewed and accepted Cameco's corrective actions.

- On May 3, approximately 150 m^3 of treated industrial water was released to the ground from the industrial water pipeline. A valve cracked inside an access hole which resulted in the release. The leaking valve was isolated to stop the leak and will remain isolated until repairs can be completed. Water and soil samples were collected from the discharge area. CNSC staff reviewed and accepted Cameco's corrective actions.
- On November 26, approximately 8 m^3 of contaminated water overflowed from the crushing and grinding facility sump to the ground following a power outage. Laboratory analysis completed of liquid samples and soil samples from the discharge area had elevated levels of uranium and radium-226. Contaminated materials were removed and disposed of in the Key Lake Operation AGTMF. CNSC staff reviewed and accepted Cameco's corrective actions.
- On December 27, Cameco reported an increase in seepage flow rates from reservoirs #1 and #2 to the underdrain system. This event was reclassified as a reportable discharge due to the potential impacts to surrounding groundwater. Laboratory analysis completed on groundwater samples did not indicate a change in historical water quality. Corrective actions are still underway including ongoing monitoring and a geotechnical review of the reservoir facility.

Environmental Action Level and Regulatory Limit Exceedances

Key Lake had no environmental action level and no regulatory limit exceedances in 2024.

Lost-Time Injuries

In 2024, Key Lake reported 2 LTIs, as follows.

- On February 27, 2024, a worker in the carpenter shop was drilling holes, with a hand drill. The drill bit caught their glove and resulted in a cut to their left index finger. The worker then reported the injury to their supervisor and was assessed at the site Health Center. The injury was initially classified as a restricted work event. The injury was later reclassified as an LTI following an additional off-site medical assessment.
- On November 25, 2024, a worker was driving a snowmobile when it tipped onto its side on a slope on the trail. The worker felt pain in their knee but was able to get off the snowmobile unassisted. The worker's supervisor travelling ahead on their own snowmobile machine turned back to check on the worker, then transported them to the Health Centre for assessment. The injury was initially classified as a restricted work event. A subsequent off-site medical assessment noted the worker had a small fracture on their lower leg and the injury was reclassified as an LTI.

3.3 McArthur River

Cameco is the licence holder and operator of the McArthur River mine, which is located approximately 620 kilometers north of Saskatoon, Saskatchewan. The McArthur River Operation consists of an underground uranium mine, primary ore processing, ore slurry loading, waste management facilities, a water treatment plant, effluent storage ponds, surface freeze plants, administration offices and warehouses.

3.3.1 Performance

There were 18 non-compliances identified through 4 onsite CNSC inspections at the McArthur River Operation in 2024. The non-compliances were of low safety significance and related to the following SCAs:

- management system
- operating performance
- radiation protection
- conventional health and safety
- emergency management and fire protection
- waste management
- packaging and transport

CNSC staff conducted a reactive human performance management focused inspection covering all of Cameco's uranium mines and mills, that is, Cigar Lake, Key Lake, McArthur River and Rabbit Lake Operations in 2024. This inspection did not involve accessing the sites, but rather involved reviews of programmatic documentation. CNSC staff identified 8 NNCs during the inspection.

Section 4 of this report provides more information on the non-compliances by SCA.

3.3.2 McArthur River Operation Dashboards

The below dashboards detail the regulatory performance of the McArthur River Operation, as well as detailed information for the protection of people, and protection of the environment, including 5-year data trends.

3.3.2.1 Licensing and Compliance

Licence Term	Financial Guarantee	Licence:
November 1, 2023 to October 31, 2043	$ 222,500,000.00	UML-MILL-McARTHUR.00/2043

Figure 3.3: McArthur River Operation – aerial view

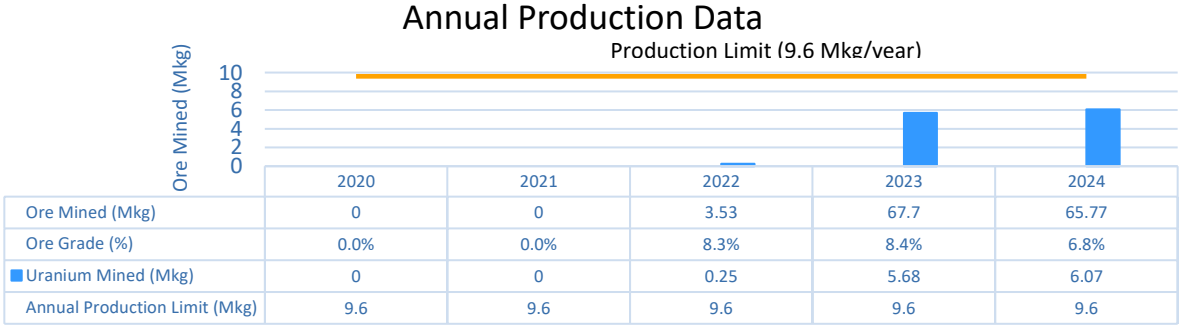
McArthur River Operation Facilities that CNSC Staff Inspects:

Underground mine
Primary ore processing
Ore slurry loading
Waste management facilities
Water treatment plant
Effluent storage ponds
Surface freeze plants
Ancillary buildings
Warehouses

McArthur River Operation is situated within historic Treaty 10 (1906) and Homeland of the Métis and is within the traditional territories of the Dene, Cree, and Métis peoples.

Safety and Control Area Rating	
Safety and Control Area	**Rating**
Management Systems	Satisfactory
Human Performance Management	Satisfactory
Operating Performance	Satisfactory
Safety Analysis	Satisfactory
Physical Design	Satisfactory
Fitness for Service	Satisfactory
Radiation Protection	Satisfactory
Conventional Health and Safety	Satisfactory
Environmental Protection	Satisfactory
Emergency Management and Fire Protection	Satisfactory
Waste Management	Satisfactory
Security	Satisfactory
Safeguards and Non-Proliferation	Satisfactory
Packaging and Transport	Satisfactory

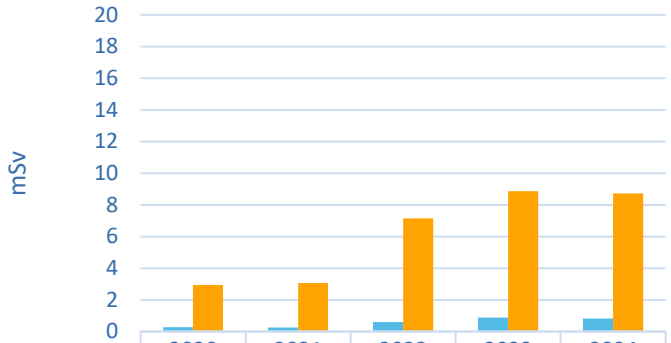
Inspection Data	
Number of Inspections:	4
Number of NNCs:	18
Safety Significance	
Low:	18
Medium:	0
High:	0



3.3.2.2 Protection of People

The CNSC has a mandate for the protection of people, both nuclear energy workers (NEWs) as well as the public. This dashboard provides information on McArthur River Operation's efforts on radiation protection and conventional health and safety.

Effective Dose Data Trends

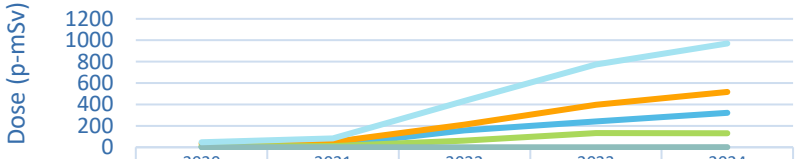


	2020	2021	2022	2023	2024
Average Effective Dose	0.27	0.25	0.59	0.87	0.81
Maximum Individual Dose	2.94	3.06	7.14	8.87	8.73

Maximum Annual Dose

mSv
(maximum 50 mSv/year)

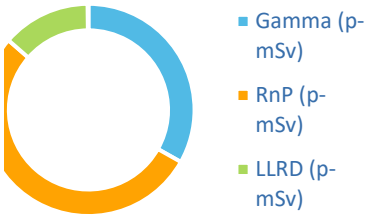
5-Year Annual Collective Dose



	2020	2021	2022	2023	2024
Gamma (p-mSv)	5	21	158	243	322
RnP (p-mSv)	34	49	213	398	517
LLRD (p-mSv)	8	12	62	133	131
RnG (p-mSv)	0	0	0	0	1
Total (p-mSv)	47	82	433	774	970

1197

Collective Dose for Report Year



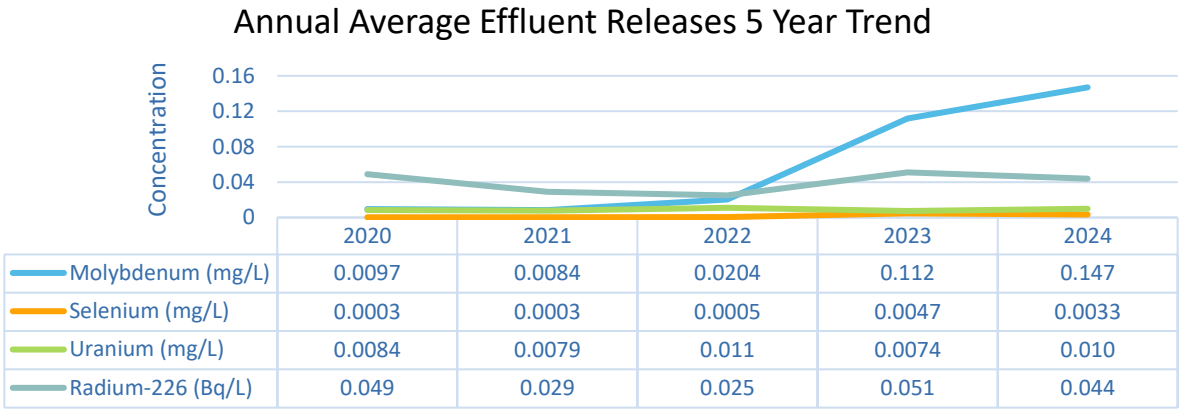
Total Lost Time Injuries

	2020	2021	2022	2023	2024
Lost Time Injuries	0	0	0	1	2
Severity Rate	0	0	0	0.75	6.61
Frequency Rate	0	0	0	0.19	0.29
Total Recordable Incident Rate	1.97	2.12	5.02	1.88	3.67

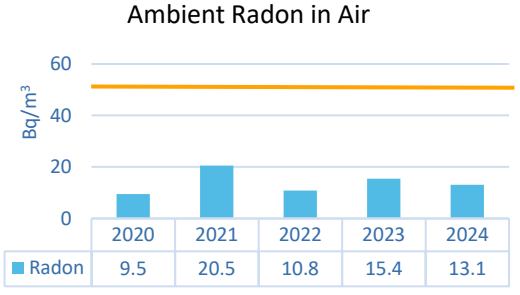
The data along with compliance activities give CNSC staff confidence that people are protected.

3.3.2.3 Protection of Environment

The CNSC has a mandate for the protection of the environment, and CNSC staff ensure that all licensees maintain effective environmental protection programs. This dashboard provides information on McArthur River Operation's efforts on environmental protection.

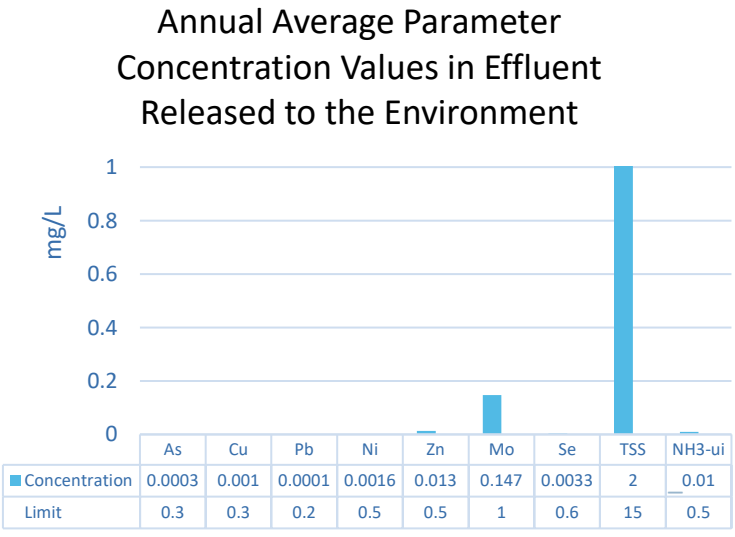


	2020	2021	2022	2023	2024
Molybdenum (mg/L)	0.0097	0.0084	0.0204	0.112	0.147
Selenium (mg/L)	0.0003	0.0003	0.0005	0.0047	0.0033
Uranium (mg/L)	0.0084	0.0079	0.011	0.0074	0.010
Radium-226 (Bq/L)	0.049	0.029	0.025	0.051	0.044



	2020	2021	2022	2023	2024
Radon	9.5	20.5	10.8	15.4	13.1

	2020	2021	2022	2023	2024
Spills	0	0	0	1	2



	As	Cu	Pb	Ni	Zn	Mo	Se	TSS	NH3-ui
Concentration	0.0003	0.001	0.0001	0.0016	0.013	0.147	0.0033	2	0.01
Limit	0.3	0.3	0.2	0.5	0.5	1	0.6	15	0.5

Metal and Radionuclides in Air			
Analyte	**Unit**	**Limit**	**Measured**
TSP	µg/m^3	60	13.8
As	µg/m^3	0.06	0.0000505
Cu	µg/m^3	9.6	0.0175
Ni	µg/m^3	0.04	0.000360
Pb	µg/m^3	0.1	0.00025
Se	µg/m^3	1.9	0.0000300
Zn	µg/m^3	23	0.00590
Pb-210	Bq/m^3	0.021	0.000350
Po-210	Bq/m^3	0.028	0.000135
Ra-226	Bq/m^3	0.013	0.0000070
Th-230	Bq/m^3	0.0085	0.0000075
U	µg/m^3	0.06	0.000325

The data along with compliance activities give CNSC staff confidence that the environment is protected.

3.3.3 Events

The McArthur River Operation is required to report on events such as action level exceedances, regulatory exceedances, and releases to the environment (e.g. spills). CNSC staff reviewed the reports, investigations and corrective actions for each event reported in 2024 and determined that the licensee acted appropriately, and CNSC staff are satisfied with the remedial actions taken.

Radiological Action Level Exceedances

In 2024, McArthur River reported 2 radiological action level exceedances.

- In January 2024, 2 workers were involved with backfilling a mined-out stope during different shifts. One individual was on night shift and 1 on day shift. One individual was tasked with watching the concrete transfer line (i.e. the slick line) while they were cleaning it out after the second pour, to ensure the line was clear. The second individual was observing the final pour, measuring the height of the concrete being poured to know when to tell the batch plant to stop creating more concrete. During both sets of activities, the workers removed some ventilation equipment (the negative point source capture) to do their tasks. Poor control of this point source capture and resulting buildup of radon and radon progeny is the most likely cause of both elevated levels captured on their personal alpha dosimeter (PAD). Quarter 1 dosimetry results for the 2 workers were 5.1 and 5.8 mSv. The corrective actions included the redesign of the standpipe used for backfilling to allow for ventilation to remain in place during manual checks, revision of the standard for acute radon progeny (RnP) exposure risk and clarification and signage for prism placement, revision of training materials for backfill and related processes involving point source RnP source capture with specific ventilation control requirements and the revision of existing work instruction. CNSC staff reviewed and accepted Cameco's corrective actions. These exceedances were considered as separate radiological action level exceedances.

Reportable Releases to the Environment

In 2024, McArthur River reported 2 releases to the environment.

- On June 20, 2024, approximately 170 m^3 of industrial water was released to ground from the industrial water tanks. A faulty actuator valve on the discharge line to the environment at Shaft #3 was set to manual and was closed, causing water to continue to flow to the industrial tanks and overfill. Industrial water is supplied by the Shaft 3 freshwater dam. Laboratory analysis completed on a composite water sample from the dam on June 20, 2024, was of good quality and met the Saskatchewan Environmental Quality Guidelines (SEQG). The automatic valve on the discharge to environment line was switched to open and the water was diverted to the environment at the approved discharge point.

The corrective actions included the creation of new logic in the Distributed Control System for when the valve is closed or in an alarm state and the industrial water tank levels are above 96%, the pumps will shut down automatically to prevent overfilling. CNSC staff reviewed and accepted Cameco's corrective actions.

- The second reportable release to the environment occurred on November 4, 2024. A worker walking across the mine terrace heard whistling coming from the Air Liquide Argon Tank outside of the Chem Lab area. Upon investigation, the Argon Tank was found to be venting. Venting of the tank was caused by a failed diverter valve on the safety release assembly. The vendor was brought to site and the issue was rectified.

Environmental Action Level and Regulatory Limit Exceedances

McArthur River had no environmental action level and no regulatory limit exceedances in 2024.

Lost-Time Injuries

In 2024, Cameco reported 2 loss-time injuries to the CNSC.

- On October 26 while conducting NFPA 1081 incipient fire training, emergency response team members and 2 contract instructors were setting up a ground monitor. While in use, the monitor lost grip, moving the monitor and the two 2.5-inch connected supply lines. The trainees attempted to gain control, and 1 trainee took the full water stream to the face, knocking off their helmet with face shield and safety glasses. The worker suffered trauma to 1 of their eyes. An assessment off-site indicated that the worker suffered an orbital fracture. The worker was on restricted work for 2 days and lost 3 days of work prior to returning to full duties on the subsequent shift. The corrective actions included creation of a work instruction that outlines the requirements for fireground operations, posting of visual aids, ground monitors equipped with safety shutoff/flow regulation valves, hard pipe the existing monitor in a fixed position, develop and deliver pump operator training that meets the requirements of NFPA 1002, and implementing a risk-based pre-job brief for emergency response training activities. CNSC staff reviewed and accepted Cameco's corrective actions.
- On October 26, 2 contracted pipefitters were installing a 4-inch drainpipe in a vertical position, passing through a hole in the floor grating. The pipe was estimated to weigh 140 pounds and was 166 inches long. One worker was on the grating level while the second worker was on the level below the grating level. The pipe was lifted into position and then held in place by tightening a riser clamp resting on top of the metal toe-guard. The worker on the grating level attempted to further tighten the riser clamp, however the impact driver was on reverse. This loosened the clamp, and the pipe dropped 9-inches and the worker's left pinky finger was pinched between the red Victaulic clamp and the riser clamp. The worker returned to full duties February 1, 2025. Corrective actions included ensuring contractors complete Field Level Hazard Assessment cards. The incident was included as

part of a monthly safety meeting, the verification of the stability of single riser clamps, and review of the incident with process crews. CNSC staff reviewed and accepted Cameco's corrective actions.

3.4 McClean Lake

Orano is the licence holder and operator of the McClean Lake Operation. The McClean Lake Operation is a uranium mine and mill facility located approximately 750 kilometers north of Saskatoon in the Athabasca Basin of northern Saskatchewan. The McClean Lake Operation includes the John Everett Bates (JEB) milling area, Sue mining area, JEB tailings management facility (TMF) and the undeveloped McClean, Midwest and Caribou ore deposits.

Cigar Lake Mine ore slurry was the only ore processed at the McClean Lake Mill in 2024. In 2024, there was no mining occurring at the McClean Lake Operation. The Surface Access Borehole Resource Extraction (SABRE) Project Site, where Orano mined a limited amount of uranium in 2021, remained in a state of care and maintenance in 2024.

3.4.1 Performance

There were 32 non-compliances identified through 6 onsite CNSC inspections at the McClean Lake Operation in 2024. The non-compliances were of low safety significance and were related to the following SCAs:

- management system
- operating performance
- physical design
- fitness for service
- radiation protection
- conventional health and safety
- environmental protection
- emergency management and fire safety

CNSC staff further identified 1 NNC related to public information and disclosure during a general inspection at the McClean Lake Operation in 2024.

Section 4 of this report provides more information on the non-compliances by SCA.

3.4.2 McClean Lake Operation Dashboards

The dashboards below detail the regulatory performance of the McClean Lake Operation, as well as detailed information for the protection of people, and protection of the environment, including 5-year data trends.

3.4.2.1 Licensing and Compliance

Licence Term	Financial Guarantee	Licence:
July 1, 2017 to June 20, 2027	$ 102,098,000.00	UML-MINEMILL-McCLEAN.02/2027

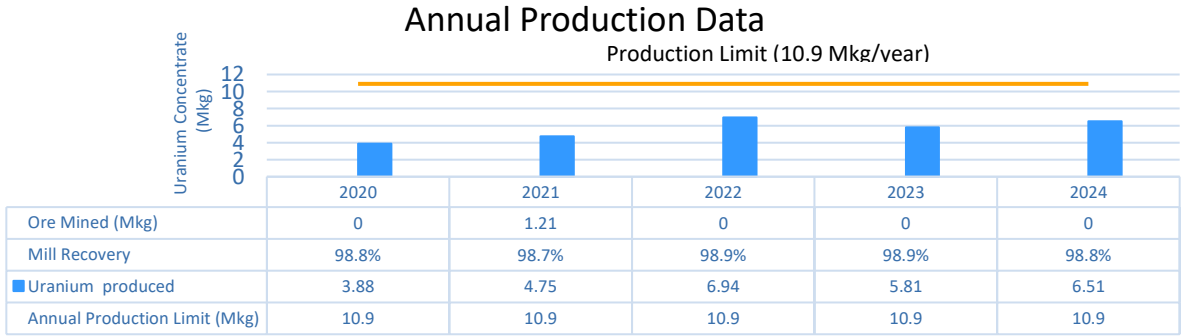
Figure 3.4 McClean Lake Operation

McClean Lake Operation Facilities that CNSC Staff Inspects:

John Everett Bates milling area
Sue mining area
JEB tailings management facility
Undeveloped ore deposits
Water treatment plant
Effluent storage ponds
Warehouses
Ancillary buildings

Safety and Control Area Rating	
Safety and Control Area	**Rating**
Management Systems	Satisfactory
Human Performance Management	Satisfactory
Operating Performance	Satisfactory
Safety Analysis	Satisfactory
Physical Design	Satisfactory
Fitness for Service	Satisfactory
Radiation Protection	Satisfactory
Conventional Health and Safety	Satisfactory
Environmental Protection	Satisfactory
Emergency Management and Fire Protection	Satisfactory
Waste Management	Satisfactory
Security	Satisfactory
Safeguards and Non-Proliferation	Satisfactory
Packaging and Transport	Satisfactory

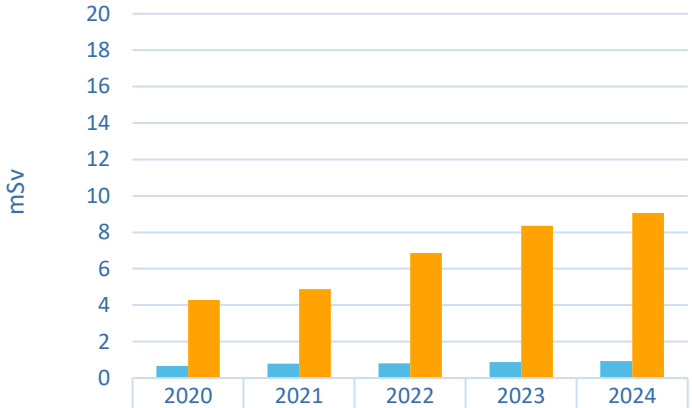
Inspection Data	
Number of Inspections:	6
Number of NNCs:	32
Safety Significance	
Low:	32
Medium:	0
High:	0



3.4.2.2 Protection of People

The CNSC has a mandate for the protection of people, both nuclear energy workers (NEWs) as well as the public. This dashboard provides information on McClean Lake Operation's efforts on radiation protection and conventional health and safety.

Effective Dose Data Trends



	2020	2021	2022	2023	2024
Average Effective Dose	0.67	0.79	0.81	0.87	0.93
Maximum Individual Dose	4.28	4.89	6.86	8.37	9.06

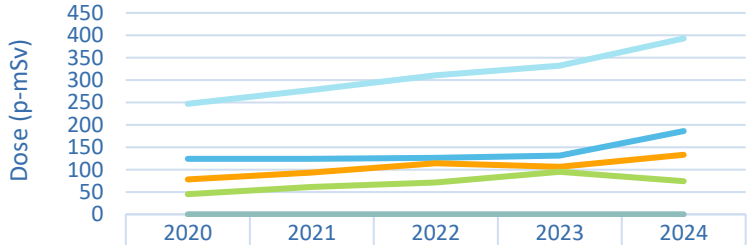
Maximum Annual Dose

mSv
(maximum 50 mSv/year)

Total Number of NEWs:

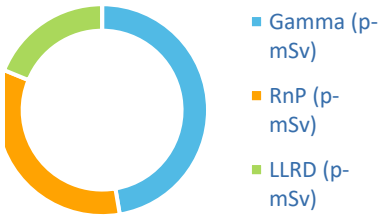
423

5-Year Annual Collective Dose

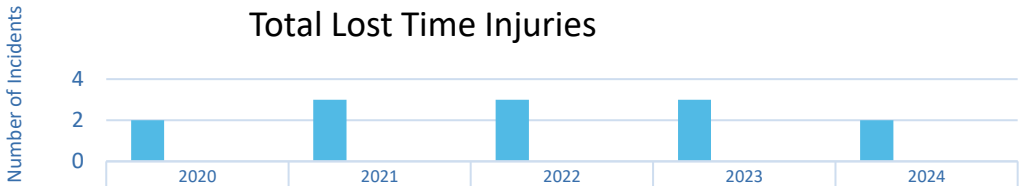


	2020	2021	2022	2023	2024
Gamma (p-mSv)	124	124	126	131	186
RnP (p-mSv)	78	93	114	106	133
LLRD (p-mSv)	45	61	71	95	74
RnG (p-mSv)	0	0	0	0	0
Total (p-mSv)	247	278	311	332	393

Collective Dose for Report Year



Total Lost Time Injuries

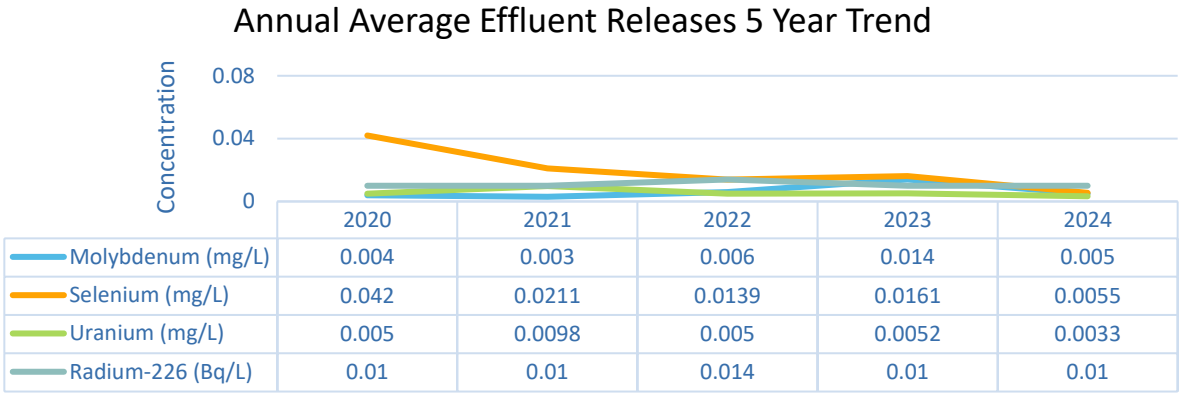


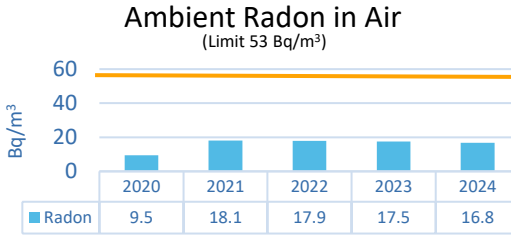
	2020	2021	2022	2023	2024
Lost Time Injuries	2	3	3	3	2
Severity Rate	42.8	49.8	28.6	64.8	48.6
Frequency Rate	0.7	0.9	0.8	0.7	0.5
Total Recordable Incident Rate	2.7	5.6	2.9	2.7	2

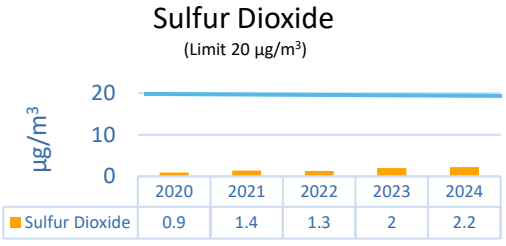
The data along with compliance activities give CNSC staff confidence that people are protected.

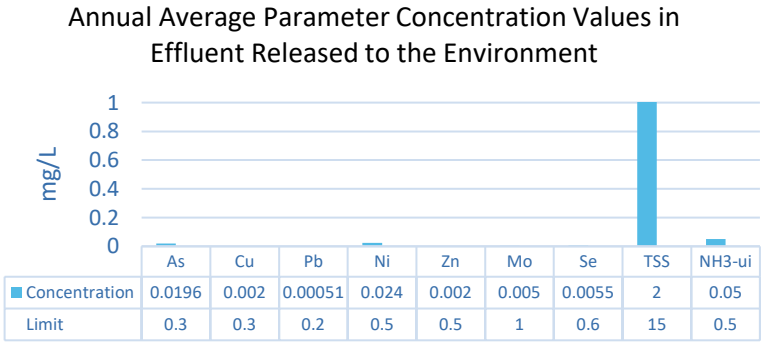
3.4.2.3 Protection of Environment

The CNSC has a mandate for the protection of the environment, and CNSC staff ensure that all licensees maintain effective environmental protection programs. This dashboard provides information on McClean Lake Operation's efforts on environmental protection.









Metal and Radionuclides in Air			
Analyte	**Unit**	**Limit**	**Measured**
TSP	µg/m^3	60	0.0
As	µg/m^3	0.06	0.00023
Cu	µg/m^3	9.6	0.17178
Mo	µg/m^3	23	0.00852
Ni	µg/m^3	0.04	0.000285
Pb	µg/m^3	0.1	0.000086
Zn	µg/m^3	23	0.00214
Pb-210	Bq/m^3	0.021	0.000374
Po-210	Bq/m^3	0.028	0.000113
Ra-226	Bq/m^3	0.013	0.0000050
Th-230	Bq/m^3	0.0085	0.000006
U	µg/m^3	0.06	0.00187

The data along with compliance activities give CNSC staff confidence that the environment is protected.

3.4.3 Events

The McClean Lake Operation is required to report to the CNSC on events such as action level exceedances, regulatory exceedances, releases to the environment (e.g. spills) and lost time injuries (LTIs). CNSC staff reviewed event notifications, 21-days follow up investigation reports, preventive and corrective actions identified for each event reported in 2024 and determined that the licensee acted appropriately. CNSC staff are satisfied with the corrective actions taken.

Radiological Action Level Exceedances

In 2024, there were no radiological action level exceedances at Orano's McClean Lake Operation.

Reportable Releases to the Environment

In 2024, Orano reported 1 release to the environment.

- On February 13, 2024, approximately 3 m^3 of yellowcake slurry solution was spilled into an excavation area by the sand filter berm in the Precipitation circuit of the mill (the whole mill is considered secondary containment). This was due to a leak in the cone valve at the base of the yellowcake thickener. Orano implemented the following corrective actions that included pumping the yellowcake solution back into the Precipitation circuit, removing contaminated solution/soil for disposal into the Sue C contaminated landfill, and the cover for the excavated area was improved and redesigned to keep liquids out of the excavation area in the event of another spill. CNSC staff reviewed Orano's 21-days follow up report and are satisfied with corrective actions implemented.

Environmental Action Level and Regulatory Limit Exceedances

McClean Lake had no environmental action level or regulatory limit exceedances in 2024.

Lost-Time Injuries

In 2024, Orano reported 2 LTIs to the CNSC.

- On July 12, 2024, a journeyperson (Millwright) was using the lathe machine to sand epoxy on a cooling water shaft for a pump with emery cloth. While performing the task, the worker's right arm was pulled into the rotating shaft. The Millwright applied the emergency stop, which was within their direct view and reach, and a nearby employee called the Central Control Room (CCR) and Emergency Response Team (ERT). Orano implemented corrective actions including installing a universal polishing attachment on the lathe to minimize the likelihood of a reoccurrence, developed a written procedure to document the previously unwritten procedure and outline safe operation practices, developed a hazard assessment form specifically designed to outline the hazards and controls associated with the safe operation of the lathe, and put materials required in the pump manual back in stock to minimize the need to use the lathe and eliminate the urgency to conduct lathe

tasks. CNSC staff reviewed Orano's 21-days follow up report and are satisfied with corrective actions implemented.

- On September 19, 2024, a worker was cleaning up hoses that had been used to pump water over the TMF berm. While climbing the berm to access the connection point, the worker stepped on a rock causing them to fall. The worker was placed on a stretcher, the safety handlebar on the stretcher did not catch on the safety hook in the emergency vehicle. The unsecured stretcher slipped, and the worker rolled out of the stretcher. Orano implemented corrective actions including sharing a Lessons learns with site personnel focused on working on slopes and hazard identification, Work Instruction 796-07 Emergency Vehicle Operation was revised to update stretcher operation, the ERT was retrained on stretcher use, the tie down hook on the floor of the Ambulance was removed to prevent the safety handlebar from lifting before catching on the safety hook. CNSC staff reviewed Orano's 21-day follow up report and are satisfied with corrective actions implemented.

3.5 Rabbit Lake

Cameco is the licence holder and operator of the Rabbit Lake Operation, which is located 750 kilometers north of Saskatoon, Saskatchewan. Operated by Cameco, the facility stretches across approximately 20 kilometers. It consists of an underground mine; 4 mined-out pits, of which 2 are reclaimed and 1 has been converted into an in-pit TMF; a mill; and supporting infrastructure.

Rabbit Lake has been in care and maintenance since 2016. At the time of the June 2023 licence renewal, hold points were added to the Rabbit Lake licence to ensure that sufficient notification will be given of any restart of production at Rabbit Lake.

3.5.1 Performance

There were 10 non-compliances identified through 4 onsite CNSC inspections at the Rabbit Lake Operation in 2024. The non-compliances were of low safety significance and related to the following SCAs:

- management system
- human performance management
- operating performance
- radiation protection
- conventional health and safety
- emergency management and fire protection

CNSC staff conducted a reactive human performance management focused inspection covering all of Cameco's uranium mines and mills, that is, Cigar Lake, Key Lake, McArthur River and Rabbit Lake Operations in 2024. This inspection did not involve accessing the sites, but rather involved reviews of programmatic documentation. CNSC staff identified 8 NNCs during the inspection.

Section 4 of this report provides more information on the non-compliances by the SCA.

3.5.2 Rabbit Lake Operation Dashboards

The dashboards below detail the regulatory performance of the Rabbit Lake Operation, as well as detailed information for the protection of people, and protection of the environment, including 5-year data trends.

3.5.2.1 Licensing and Compliance

Licence Term	Financial Guarantee	Licence:
November 1, 2023 to October 31, 2038	$ 213,400,000.00	UML-MINEMILL-RABBIT.00/2038

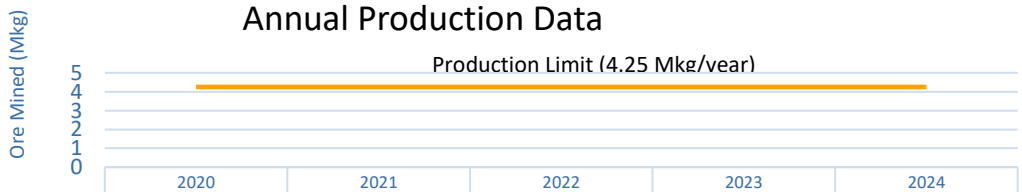
Figure 3.3: McArthur River Operation – aerial view

Rabbit Lake Operation Facilities that CNSC Staff Inspects:
Underground mine
3 mined-out pits
In-pit tailings management facility
Mill
Water treatment plant
Supporting infrastructure
Ancillary buildings

Safety and Control Area Rating	
Safety and Control Area	**Rating**
Management Systems	Satisfactory
Human Performance Management	Satisfactory
Operating Performance	Satisfactory
Safety Analysis	Satisfactory
Physical Design	Satisfactory
Fitness for Service	Satisfactory
Radiation Protection	Satisfactory
Conventional Health and Safety	Satisfactory
Environmental Protection	Satisfactory
Emergency Management and Fire Protection	Satisfactory
Waste Management	Satisfactory
Security	Satisfactory
Safeguards and Non-Proliferation	Satisfactory
Packaging and Transport	Satisfactory

McArthur River Operation is situated within historic Treaty 10 (1906) and Homeland of the Métis and is within the traditional territories of the Dene, Cree, and Métis peoples.

Inspection Data	
Number of Inspections:	4
Number of NNCs:	10
Safety Significance	
Low:	10
Medium:	0
High:	0

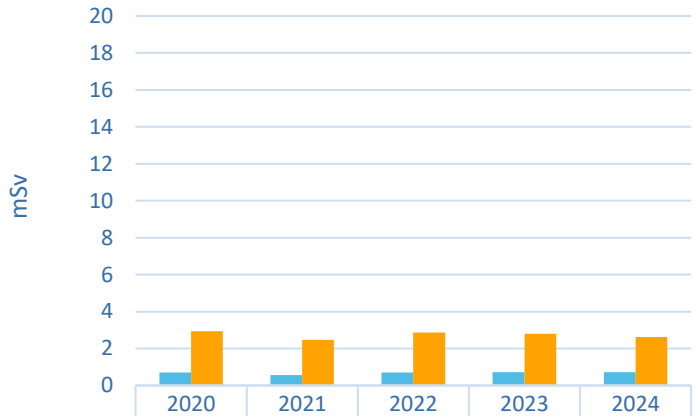


	2020	2021	2022	2023	2024
Ore Mined (Mkg)	0	0	0	0	0
Ore Grade (%)	0.0%	0.0%	0.0%	0.0%	0.0%
Uranium Mined (Mkg)	0	0	0	0	0
Annual Production Limit (Mkg)	4.25	4.25	4.25	4.25	4.25

3.5.2.2 Protection of People

The CNSC has a mandate for the protection of people, both nuclear energy workers (NEWs) as well as the public. This dashboard provides information on Rabbit Lake Operation's efforts on radiation protection and conventional health and safety.

Effective Dose Data Trends



	2020	2021	2022	2023	2024
Average Effective Dose	0.7	0.57	0.7	0.71	0.71
Maximum Individual Dose	2.93	2.47	2.86	2.8	2.62

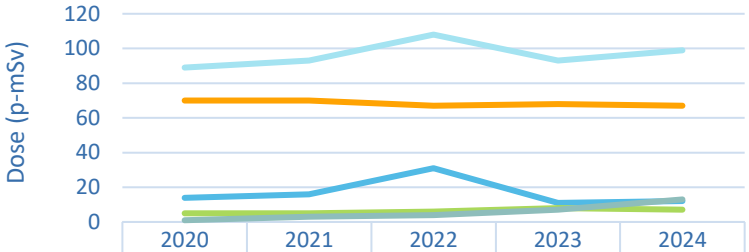
Maximum Annual Dose

(maximum 50 mSv/year)

Total Number of NEWs:

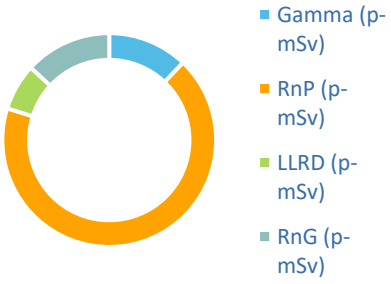
140

5-Year Annual Collective Dose

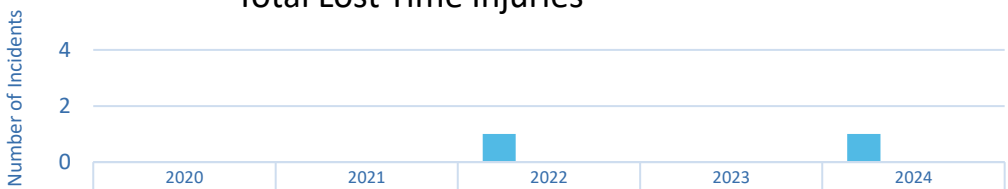


	2020	2021	2022	2023	2024
Gamma (p-mSv)	14	16	31	11	12
RnP (p-mSv)	70	70	67	68	67
LLRD (p-mSv)	5	5	6	8	7
RnG (p-mSv)	1	3	4	7	13
Total (p-mSv)	89	93	108	93	99

Collective Dose for Report Year



Total Lost Time Injuries

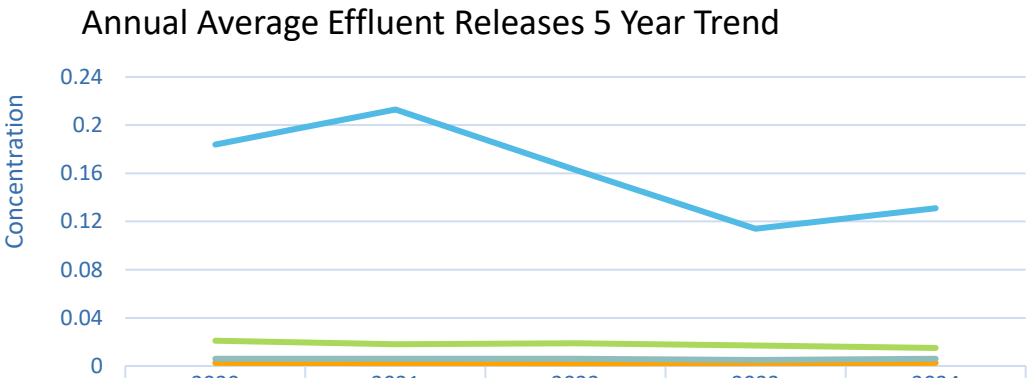


	2020	2021	2022	2023	2024
Lost Time Injuries	0	0	1	0	1
Severity Rate	40.86	0	0	0	81.21
Frequency Rate	0	0	0	0	1.08
Total Recordable Incident Rate	1.13	1.04	3.47	1.12	1.08

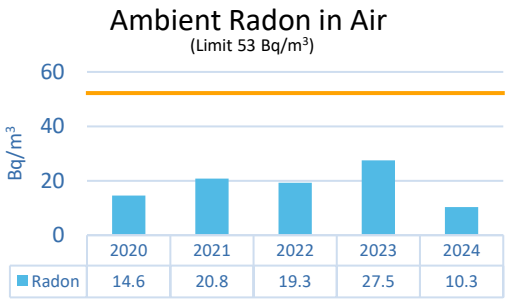
The data along with compliance activities give CNSC staff confidence that people are protected.

3.5.2.3 Protection of Environment

The CNSC has a mandate for the protection of the environment, and CNSC staff ensure that all licensees maintain effective environmental protection programs. This dashboard provides information on Rabbit Lake Operation's efforts on environmental protection.

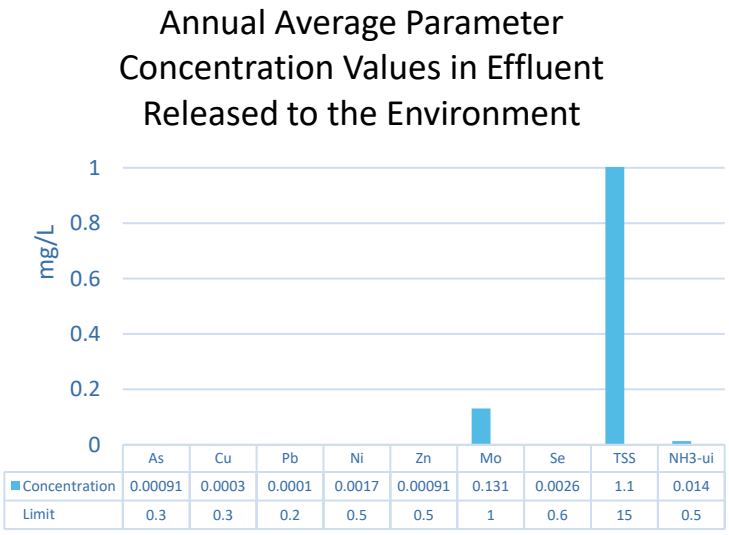


	2020	2021	2022	2023	2024
Molybdenum (mg/L)	0.184	0.213	0.163	0.114	0.131
Selenium (mg/L)	0.0026	0.0025	0.00224	0.0023	0.0026
Uranium (mg/L)	0.021	0.018	0.019	0.017	0.015
Radium-226 (Bq/L)	0.006	0.006	0.006	0.005	0.006



	2020	2021	2022	2023	2024
Radon	14.6	20.8	19.3	27.5	10.3

	2020	2021	2022	2023	2024
Spills	0	4	0	0	1



	As	Cu	Pb	Ni	Zn	Mo	Se	TSS	NH3-ui
Concentration	0.00091	0.0003	0.0001	0.0017	0.00091	0.131	0.0026	1.1	0.014
Limit	0.3	0.3	0.2	0.5	0.5	1	0.6	15	0.5

Metal and Radionuclides in Air			
Analyte	**Unit**	**Limit**	**Measured**
TSP	µg/m^3	60	4.0
As	µg/m^3	0.06	0.000125
Ni	µg/m^3	0.04	0.000125
Pb-210	Bq/m^3	0.021	0.00000575
Ra-226	Bq/m^3	0.013	0.0000051
Th-230	Bq/m^3	0.0085	0.0000001
U	µg/m^3	0.06	0.000085

The data along with compliance activities give CNSC staff confidence that the environment is protected.

3.5.3 Events

The Rabbit Lake Operation is required to report to the CNSC on events such as action level exceedances, regulatory exceedances and releases to the environment (e.g. spills). CNSC staff reviewed the reports, investigations and corrective actions for each event reported in 2024 and determined that the Rabbit Lake Operation acted appropriately, and CNSC staff are satisfied with the remedial actions taken.

Radiological Action Level Exceedances

There were no radiological action level exceedances in 2024.

Reportable Releases to the Environment

In 2024, Cameco reported 1 release to the environment.

- On September 25, workers were clearing vegetation and sediment around the perimeter of the lined mine water pond by pulling a cable to avoid damage to the liner. Sediment and vegetation were strongly affixed to the liner resulting in the liner lifting at 1 point and a welded seam separated creating an exit for water in the liner. The mine water pond water levels were drawn down to expose the damaged seam. The damaged area was isolated from the rest of the pond and released water was recovered. Repairs to the liner were completed by a qualified third party prior to the mine water pond returning to service. The corrective actions were reviewed and accepted by CNSC staff.

Environmental Action Level and Regulatory Limit Exceedances

There were no environmental action level or regulatory limit exceedances in 2024.

Lost-Time Injuries

In 2024, Cameco reported 1 LTI to the CNSC.

- On May 12, a worker was walking along the utilidor to complete repairs to a broken water line, when the ground gave way beneath their foot and the worker fell approximately 1 metre. The fall resulted in the worker suffering a fracture that required surgery. CNSC staff reviewed the 21-day follow up report and are satisfied with corrective actions implemented.

4 Assessment of Safety and Control Areas

CNSC staff concluded that operating uranium mines and mills in Canada were operated safely in 2024. This assessment was based on CNSC staff's verification of licensee activities, including inspections, reviews of reports submitted by licensees, and reviews of events supported by follow-up and general communication with the licensees. A list of all the inspections completed at uranium mines and mills in Canada is provided in Appendix A.

For 2024, the performance safety ratings for all operating uranium mines and mills in all 14 SCAs were rated as "satisfactory". Definitions of safety performance rating levels are provided in Appendix B. Appendix C provides a high-level definition of each SCA.

4.1 Management system

The management system SCA covers the framework that establishes the processes and programs required to ensure that an organization achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture.

CNSC staff assess performance in the management system SCA by verifying the compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. The specific areas assessed within the management system include organization; planning and controlling business activities; resource management; communication; safety culture; change management; information management; work management; problem identification and resolution; performance assessment, improvement, and management review.

Licensees include program documentation for the management system SCA as part of their overall management system documents; these constitute part of the licensing basis for their facility.

CNSC staff rated the 2024 performance of the uranium mine and mill licensees for the management system SCA as satisfactory.

Table 4.1.1: Management systems ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff performed 2 management system focused inspections, at the Cigar Lake and Rabbit Lake Operations. However, each operation had elements of the management system SCA reviewed and inspected as part of general inspections and other types of inspections.

Nine NNCs related to the management system SCA were identified during inspections in 2024.

- 2 at the Cigar Lake Operation
- 1 at the McArthur River Operation
- 5 at the McClean Lake Operation
- 1 at the Rabbit Lake Operation

The NNCs identified at these sites were in relation to:

- change management
- change control
- information management

To address these NNCs, the licensees submitted corrective action plans (CAPs) that were reviewed and accepted by CNSC staff. These NNCs were of low safety significance and have since been closed by CNSC staff.

CNSC staff concluded that the overall performance of the management system SCA at the operating facilities was satisfactory.

4.2 Human performance management

The human performance management SCA covers activities that enable effective human performance through the development and implementation of processes that ensure there are a sufficient number of licensee personnel in all relevant job areas with the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.

Licensees include program documentation for the human performance management SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Table 4.2.1: Human performance management ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff performed a human performance management focused inspection at each of the 4 Cameco uranium mine and mill sites (Cigar Lake, Key Lake, McArthur River, and Rabbit Lake operations). This activity counted as 4 inspections as it covered 4 licences, and the activity was carried out remotely. These 4 inspections were triggered due to inconsistencies noted during a general inspection at Key Lake, and all four Cameco operations were included as Cameco had recently transitioned training programs from site-specific documents to a common program applicable to all four sites. The activity resulted in 8 NCCs. These NNCs remain open, and the implementation of corrective actions continue to be assessed by CNSC staff. CNSC staff also reviewed elements of the human performance management SCA during general inspections in 2024. In total, 11 human performance management NNCs were identified in 2024.

- 1 at the Cigar Lake Operation
- 2 at the Rabbit Like Operation
- 8 that applied to each of the Cigar Lake, Key Lake, McArthur River, and Rabbit Lake operations

The NNCs identified in 2024 were all classified as low safety significance. The NNCs identified at these sites were in relation to:

- training qualification records
- sufficient number of qualified workers to safely perform duties
- clear training instructions
- applying a systematic approach to training

CNSC staff concluded that the overall performance of the human performance management SCA at the operating facilities was satisfactory.

4.3 Operating performance

The operating performance SCA includes an overall review of the conduct of the licensed activities and the activities that enable effective performance.

Licensees include program documentation for the operating performance SCA as part of the overall management system documents; these form part of the licensing basis for these facilities in their LCH's.

Table 4.3.1: Operating performance ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

Each facility had operating performance elements reviewed and inspected as part of general inspections. In 2024, CNSC staff also performed an inspection focused on operating performance at the Cigar Lake Operation. Eight NNCs were identified at the following facilities:

- 2 at the Cigar Lake Operation
- 1 at the McArthur River Operation
- 3 at the McClean Lake Operation
- 2 at the Rabbit Lake Operation

The NNCs identified in 2024 were all classified as low safety significance. The NNCs identified at these sites were in relation to:

- inspections of operating equipment
- posting the current CNSC licence
- regulatory agency notifications

CNSC staff concluded that the overall performance of the operating performance SCA at the operating facilities was satisfactory.

4.4 Safety analysis

The safety analysis SCA covers maintenance of the safety analysis that supports the overall safety case for the facility. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventative measures and strategies in reducing the effects of such hazards.

Licensees include program documentation for the safety analysis SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Table 4.4.1: Safety analysis ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

Each facility also had elements of the safety analysis SCA reviewed and inspected as part of general inspections. CNSC staff completed 1 safety analysis focused inspection at the Key Lake Operation in 2024. No NNCs were identified for the safety analysis SCA in 2024.

CNSC staff concluded that the overall performance of the safety analysis SCA at the operating facilities was satisfactory.

4.5 Physical design

The physical design SCA relates to activities that impact the ability of structures, systems and components to meet and maintain their design basis given new information arising over time and taking changes in the external environment into account.

Licensees include program documentation for the physical design SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Table 4.1.4: Physical design ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff did not perform any focused inspections on physical design, however, each facility had elements reviewed and inspected as part of the general inspections. One NNC was identified at the McClean Lake Operation in 2024.

The NNC identified in 2024 was classified as low safety significance. The NNC identified at this site was in relation to:

- change control process for Design Review and Risk Assessment

CNSC staff concluded that the overall performance of the physical design SCA at the operating facilities was satisfactory.

4.6 Fitness for service

The fitness for service SCA covers activities that impact the physical condition of structures, systems and components to ensure that they remain effective over time. This area includes programs that ensure all equipment is available to perform its intended design function when called upon to do so.

Licensees include program documentation for the fitness for service SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Table 4.6.1: Fitness for service ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff performed an inspection focused on fitness for service at the McClean Lake Operation and each facility had elements reviewed and inspected as part of the general inspections. In total, 4 NNCs were identified at the following facility:

- 1 at the Key Lake Operation
- 3 at the McClean Lake Operation

The NNCs identified at these sites were in relation to:

- critical equipment inspections and testing
- preventative and corrective maintenance

These NNCs were of low safety significance and have since been closed by CNSC staff.

CNSC staff concluded that the overall performance of the fitness for service SCA at the operating facilities was satisfactory.

4.7 Radiation protection

Uranium mine and mill licensees in Canada are required to implement and maintain radiation protection (RP) programs in accordance with the *Radiation Protection Regulations*. Each program must ensure that contamination levels and radiation doses received by individuals are monitored, controlled, maintained below regulatory limits and are kept consistent with the as low as reasonably achievable (ALARA) principle, considering economic and social factors.

CNSC staff rated the 2024 performance of the uranium mine and mill licensees for the radiation protection SCA as satisfactory.

Table 4.7.1: Radiation protection ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

Radiological hazard control

Sources of radiation exposure at uranium mines and mills include:

- gamma radiation
- long-lived radioactive dust (LLRD)
- radon progeny (RnP)
- radon gas (RnG)

CNSC staff's compliance verification activities confirmed these hazards were sufficiently controlled by the licensees' RP programs, including practices such as the effective use of time,

distance and shielding, source control, ventilation, contamination control and personal protective equipment.

Radiation Protection Program Performance

During 2024, CNSC staff conducted regulatory oversight activities for the radiation protection SCA for all 5 uranium mine and mill facilities. These activities were carried out to verify that licensees were complying with regulatory requirements for the implementation of RP programs.

One radiation protection focused compliance inspection of the radiation protection SCA was completed at Cigar Lake in 2024. General inspections at all the facilities included aspects of radiation protection. CNSC staff identified 30 NNCs for the radiation protection SCA at the following facilities:

- 3 at the Cigar Lake Operation
- 12 at the Key Lake Operation
- 7 at the McArthur River Operation
- 7 at the McClean Lake Operation
- 1 at the Rabbit Lake Operation

The NNCs identified at these sites were in relation to:

- radiation warning signs
- dosimetry
- radiation protection instrumentation and equipment
- ventilation systems
- contamination control

The NNCs were classified as low safety significance, and the licensees have established and implemented corrective actions to the satisfaction of CNSC staff.

Licensee RP programs include codes of practice that outline administrative levels and action levels for exposures and doses of radiation. Action levels and administrative levels are identified for all radiological hazard types, applied to normal operating conditions, and are followed to ensure optimal conditions for workers. Licensees are responsible for identifying the parameters for their programs that represent timely indicators of potential losses of control. For this reason, action and administrative levels are licensee-specific and may change over time, depending on operational and radiological conditions. If an action level is reached, it may indicate the loss of control of part of a licensee's RP program. The licensee is then required to establish the cause, notify the CNSC and, if applicable, restore the effectiveness of the radiation protection program.

Administrative levels include a list of specific actions to be taken by the licensee based on radiological monitoring in the workplace. Exceedances of administrative levels are not reportable to the CNSC, unless required by each licensee's Radiation Code of Practice.

The RP programs include actions to be taken under specific conditions, for example:

- continue to work while monitoring or investigating a parameter
- leave the area and initiate an investigation
- report to regulatory authority

The 5 uranium mines and mill licensees have the same effective dose action levels of 1 millisievert (mSv) per week and 5 mSv per quarter for nuclear energy workers (NEWs). In 2024, licensees reported to the CNSC a total of 7 instances where an action level was reached:

- 2 at the Cigar Lake Operation
- 3 at the Key Lake Operation
- 2 at the McArthur River Operation

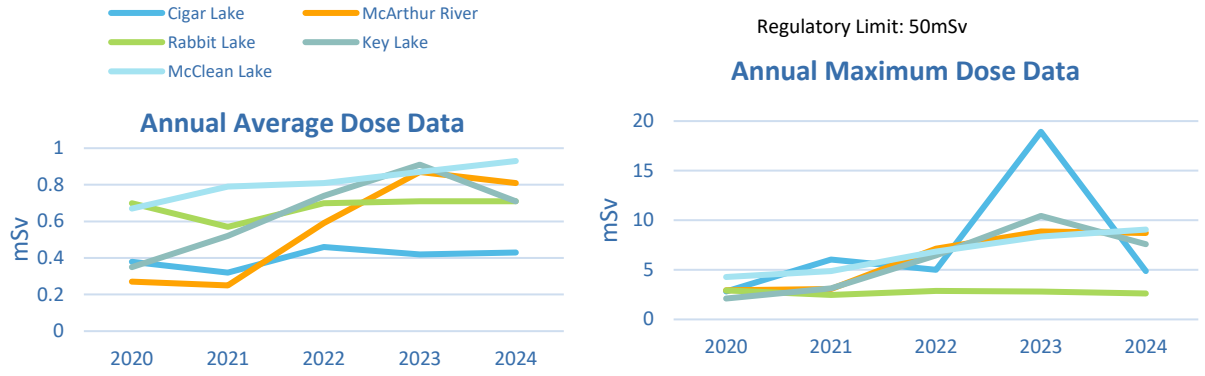
Additional discussions on the action level exceedances are found in sections 3.1.3, 3.2.3, and 3.3.3 and the safety rating definitions are found in Appendix B.

Application of ALARA

RP programs implemented by uranium mine and mill licensees include responsibilities and processes for ensuring that exposures to workers are consistent with the ALARA principle.

Through compliance verification activities and desktop reviews, CNSC staff verified that key elements of these ALARA programs (e.g., management control over work practices, personnel qualification and training, control of occupational and public exposure to radiation planning for unusual situations) were effectively implemented by the licensees in 2024.

Figure 4.7.1: Uranium mines and mills, average and maximum individual effective dose for nuclear energy workers, 2020-2024



This report includes the reporting of annual collective dose values for NEWs for each licensee (see Sections 3.1, 3.2, 3.3, 3.4 and 3.5). The collective dose value is the sum of the effective doses received by all NEWs at a given site over a calendar year. Collective dose is a RP performance indicator that provides the total exposures associated with each facility. It supplements other performance statistics, like average dose, which have been affected by factors including changes in the number of workers or workers who receive radiation exposures over very short periods of time.

Worker Dose Control

In accordance with the *Radiation Protection Regulations*, uranium mine and mill licensees' RP programs include processes and criteria to provide assurance that all individuals identified as NEWs under section 2 of the NSCA are appropriately designated and trained. This includes licensees' employees and contractors. Radiation exposures are ascertained through approved dosimetry methods and workers are notified of the results.

At all operating uranium mine and mill facilities, NEWs are issued optically stimulated luminescence dosimeters (OSLD) that measure external gamma radiation exposure. Where required, workers also wear PADs to measure internal alpha radiation exposure from radon progeny and LLRD. OSLD and PAD readings are measured by CNSC-licensed dosimetry service providers. Where direct monitoring through dosimeters is not warranted or practical, dose estimation methods authorized under the *Radiation Protection Regulations* (such as area/group monitoring and timecards) are used in keeping with CNSC regulatory guidance. CNSC staff confirmed that all licensees met the regulatory requirements for the use of dosimetry during the reporting period.

Figure 4.7.1 shows the average individual NEW effective dose and maximum individual NEW effective dose during the 5-year period from 2020 to 2024 for the 5 uranium mine and mill

facilities. In 2024, no NEW at any facility exceeded the individual effective dose limit of 50 mSv in 1 year, or 100 mSv in a 5-year dosimetry period. CNSC staff note that maximum effective doses show a slight increase in 2024 from the previous year at McClean Lake. The maximum effective doses at McArthur River, Key Lake and Rabbit Lake are comparable to the previous years. The maximum effective dose at Cigar Lake is also comparable to previous years, with the exception of 2023 where the maximum effective dose was due to an unplanned exposure.

The highest maximum individual effective dose to a NEW at a uranium mine or mill in 2024 occurred at the McClean Lake Operation. The NEW was assigned an effective dose of 9.06 mSv; a value that is 18.1% of the annual effective dose limit of 50 mSv for NEWs. The maximum total effective dose for this worker is related to having increased overtime hours and working in a higher ambient radiation area, due to qualified staffing shortages.

The site dashboards found in Sections 3.1.2., 3.2.2., 3.3.2., 3.4.2 and 3.5.2 display the number of NEWs with the corresponding average individual effective dose and maximum individual effective dose for each uranium mine and mill facility from 2020 to 2024.

In 2024, CNSC staff concluded that the overall performance of the radiation protection SCA at the uranium mine and mill facilities was satisfactory. CNSC staff will continue to monitor performance across all facilities in the radiation protection SCA.

4.8 Conventional health and safety

The conventional health and safety SCA covers the implementation of a program to manage workplace safety hazards and to protect workers.

Licensees are required to include program documentation for the conventional health and safety SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

For 2024, CNSC staff rated the conventional health and safety SCA at uranium mine and mill facilities as satisfactory, following acceptable performance in health and safety practices, awareness and performance.

Table 4.8.1 Conventional health and safety ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff performed 2 inspections focused on conventional health and safety, at the Key Lake and Rabbit Lake Operations. General inspections conducted by CNSC staff also

reviewed and inspected elements of the conventional health and safety SCA. In total, 20 NNCs were identified at the following facilities:

- 12 at the Key Lake Operation
- 1 at the McArthur River Operation
- 4 at the McClean Lake Operation
- 3 at the Rabbit Lake Operation

The NNCs identified at these sites were in relation to:

- safety shower inspections
- emergency equipment inspections
- housekeeping and access
- labeling
- WHIMIS compliance

One NNC issued at the Rabbit Lake Operation related to WHIMIS compliance remains open and the other 19 NNCs were closed by CNSC staff following the review of the corrective actions. The NNCs identified in 2024 were all of low safety significance.

CNSC staff concluded that the overall performance of the conventional health and safety SCA at the operating facilities was satisfactory.

4.9 Environmental protection

The environmental protection SCA covers programs that identify, control and monitor all releases of radioactive and hazardous substances and effects on the environment from facilities or as the result of licensed activities.

Licensees include program documentation for the environmental protection SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Further to this, the CNSC requires that each nuclear facility licensee develops, implements, and maintains an environmental monitoring program to demonstrate that persons and the environment are protected from any releases to the environment related to the facility's licensed activities. CNSC staff evaluate and assess the results of these monitoring programs to determine compliance with the applicable requirements and limits, as set out in the regulations that govern Canada's nuclear industry.

Based on regulatory oversight activities, CNSC staff rated the 2024 performance of all 5 operating uranium mine and mill facilities for the environmental protection SCA as satisfactory. CNSC staff concluded the licensees' environmental protection programs were effectively implemented and are protective of the environment and people.

Table 4.9.1: Environmental protection ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff performed an inspection focused on environmental protection at the McClean Lake Operation, and each facility had elements reviewed and inspected as part of the general inspections. Four NNCs were identified at the following facilities:

- 1 at the Cigar Lake Operation
- 1 at the Key Lake Operation
- 2 at the McClean Lake Operation

The NNCs identified at these sites were in relation to:

- pond liner maintenance
- corrective actions implementation related to environmental protection

These NNCs were of low safety significance and have since been closed by CNSC staff.

CNSC staff concluded that the overall performance of the environmental protection SCA at the operating facilities was satisfactory.

Environmental Management System

As part of an effective environmental protection program, the CNSC requires licensees to develop and maintain an environmental management system that provide a framework for integrated activities related to environmental protection at their facility. Environmental management systems include activities such as establishing annual environmental objectives, goals and targets. The licensees conduct internal audits of their programs as identified in their CNSC-accepted management system program. CNSC staff confirmed the licensees' objectives, goals and targets through regular compliance verification activities. Facility-specific details are provided in Sections 3.1., 3.2, 3.3, 3.4 and 3.5 of this report.

Effluent and Emissions Control

Effluent and emissions control programs are associated with an environmental code of practice that sets out action levels for select contaminants of potential concern (COPC) with the potential for adverse environmental effects. Licensees also have administrative levels in their internal procedures and programs. An administrative level represents the upper range of design specifications for a specific parameter. Reaching an administrative level is not reportable to the CNSC but triggers an internal review of the controls in place by the licensee. Exceedance of an action level indicates a potential loss of control of the environmental protection program, which is based on the approved facility design envelope. Such an exceedance triggers

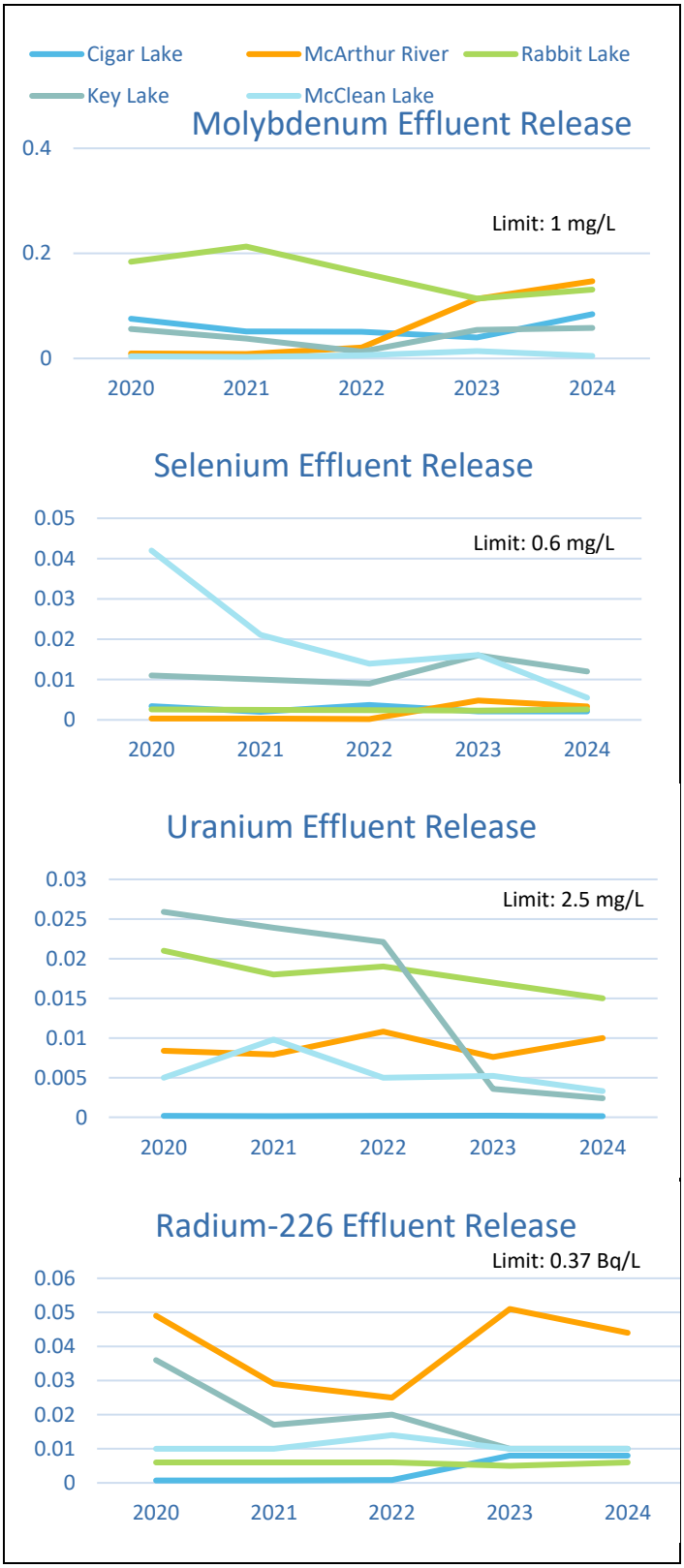
notification to the CNSC, an immediate investigation by the licensee, and subsequent corrective actions and preventive measures taken to restore the effectiveness of the environmental protection program. It is important to recognize that an exceedance of an action level does not imply a potential risk to the environment but is an early warning signal that identifies that the operating parameter may be outside the facility design envelope. Facility action levels are determined using actual operating data and by following the methodology described in Canadian Standards Association (CSA) Group standard CSA N288.8-17, *Establishing and Implementing Action Levels for Releases to the Environment from Nuclear Facilities*.

Assessment and Monitoring

In accordance with the *Uranium Mines and Mills Regulations* each uranium mine and mill licensee has an environmental monitoring program that monitors concentrations of nuclear and hazardous substances in the environment and characterizes and monitors effects to the environment associated with the licensed facility. Nuclear and hazardous substances associated with monitoring programs are selected based on COPCs identified through the licensee's ERA. COPCs identified through the ERA that have the potential for adverse environmental effects are managed through increased monitoring, inclusion in the environmental code of practice and further study or implementation of additional controls by licensees. CNSC staff review and evaluate environmental monitoring programs as criteria for assessing environmental performance.

The results of the licensee's environmental monitoring programs are provided in their annual compliance report and in their quarterly environment reports. CNSC staff reviewed the environmental monitoring data for 2024 and concluded that the results are consistent with results from recent years and that the environment is protected. Every 5 years, each licensee prepares an environmental performance report, which contains an analysis and an assessment of the environmental monitoring data from the previous 5 years. CNSC staff and the Saskatchewan Ministry of Environment staff review these performance reports to confirm that the public and the environment are protected.

Figure 4.9.1: Annual average concentrations for molybdenum, selenium, uranium and radium-226



Treated Effluent Released to the Environment

Environmental risk assessments (ERAs) identified releases of molybdenum, selenium, and uranium as having the potential for adverse environmental effects at uranium mines and mills. As a result, improved engineering controls and treatment technologies to reduce effluent releases of these contaminants were implemented where required. In 2024, the treatment technologies implemented continued to keep these contaminant concentrations stable at levels below regulatory limits. Figure 4.9.1 and Section 3.1.2.3, 3.2.2.3, 3.3.2.3, 3.4.2.3, and 3.5.2.3 show the 2024 average annual effluent concentrations for molybdenum, selenium and uranium at the 5 mine and mill facilities. In the absence of federal or provincial effluent discharge limits for molybdenum, the CNSC required licensees to develop facility-specific effluent controls within the codes of practice of their environmental protection programs. The 2020 to 2024 average concentrations of molybdenum in effluent for the 5 facilities were each below the most stringent action level used across the 5 operating facilities. This level (1mg/L) is shown in the graphs found in the site-specific dashboards in Section 3.

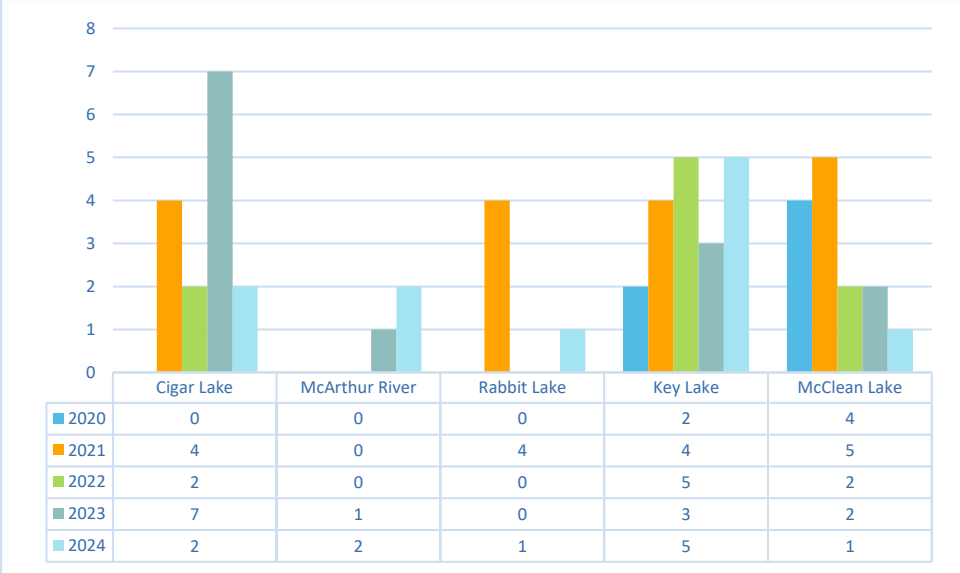
The CNSC identified an interim objective for uranium of 0.1 mg/L. This was derived from the treatment

technologies in place at the uranium mines and mills and based on what would be both protective of the environment, and achievable by the uranium metal mining sector. The interim objective was applied to all uranium mine and mill facilities and has been consistently met during the reporting period.

The interim objective for uranium in effluent will be re-evaluated once CNSC's Regulatory Document (REGDOC)-2.9.2. *Environmental Protection: Controlling Releases to the Environment*, is implemented by licensees. CNSC'S REGDOC-2.9.2 contains requirements and guidance for establishing and implementing licensed release limits. In 2024, CNSC staff sent implementation letters asking for a gap analysis and an implementation plan to the uranium mines and mills licensees.

Sections 3.1, 3.2, 3.3, 3.4 and 3.5 include information on the total annual release of relevant radionuclides to the environment from these facilities from 2020 to 2024.

Figure 4.9.2: Uranium mines and mills reportable environmental spills, 2020 – 2024



	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClean Lake
2020	0	0	0	2	4
2021	4	0	4	4	5
2022	2	0	0	5	2
2023	7	1	0	3	2
2024	2	2	1	5	1

Licensees are required to report to regulatory authorities, including the CNSC, any uncontrolled releases (e.g. spills) of hazardous or radioactive substances to the environment.

Figure 4.9.2 shows the number of reportable spills for uranium mine and mill facilities during the 2020 to 2024 reporting period. In each case, CNSC staff reviewed and evaluated the licensee's actions to verify effective remediation and prevention and were satisfied with actions taken by the licensee. CNSC staff rated all 2024 spills as low safety significance resulting in no residual impact on the environment.

The facility-specific sections 3.1, 3.2, 3.3, 3.4, and 3.5 describe each reportable spill and the licensee's corrective actions response.

The CNSC provides data on annual total loadings of radionuclides released to the environment from nuclear facilities in downloadable Excel spreadsheets on the CNSC Open Government Portal to increase public access to data.

In addition to the above COPCs with the potential for adverse environmental effects, a graph showing concentrations of radium-226 is also provided in Figure 4.9.1. From 2020 to 2024, the annual average effluent concentrations of radium-226 for the 5 facilities were well below the CNSC's licence-authorized monthly mean effluent discharge limit of 0.37 Bq/L.

Uranium mine and mill facilities also analyze treated effluent for concentrations of other regulated contaminants and COPCs such as arsenic, copper, lead, nickel, zinc, total suspended solids (TSS), un-ionized ammonia and pH. Table 4.9.2 shows the annual average parameter concentration values in effluent for these substances released in 2024, as well as the discharge limits described in the *Metal and Diamond Mining Effluent Regulations* (MDMER) made under the *Fisheries Act*. All metal and diamond mines and mills in Canada are subject to the MDMER. The CNSC cites the effluent limit requirements of the MDMER in uranium mine and mill facility LCHs. In 2024, all treated effluent released to the environment from licensed uranium mining and milling activities for the above substances met the effluent discharge limits.

Table 4.9.2: Annual average parameter concentration values in effluent released to the environment, 2024

Parameter	Discharge Limit	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClean Lake
Arsenic (mg/L)	**0.3***	0.0567	0.0003	0.00091	0.0037	0.0177
Copper (mg/L)	**0.3***	0.0005	0.001	0.0003	0.0048	0.002
Lead (mg/L)	**0.2***	0.0001	0.0001	0.0001	0.00048	0.0005
Nickel (mg/L)	**0.5***	0.00085	0.0016	0.0017	0.0385	0.0292
Zinc (mg/L)	**0.5***	0.051	0.013	0.00091	0.0024	0.002
Molybdenum (mg/L)	**1****	0.0842	0.147	0.131	0.0581	0.005

Parameter	Discharge Limit	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClean Lake
Selenium (mg/L)	**0.6*** **	0.0021	0.0033	0.0026	0.012	0.01
Uranium (mg/L)	**2.5*** **	0.00015	0.01	0.015	0.0024	0.0034
TSS (mg/L)	**15***	1	2	1.1	2.1	3
Un-ionized ammonia – N (mg/L)	**0.5***	0.01	0.01	0.014	0.06	0.05
pH annual mean value	**6.0–9.5***	6.94	6.71	6.63	6.64	7.2
Radium-226 (Bq/L)	**0.37***	0.008	0.044	0.006	0.01	0.012

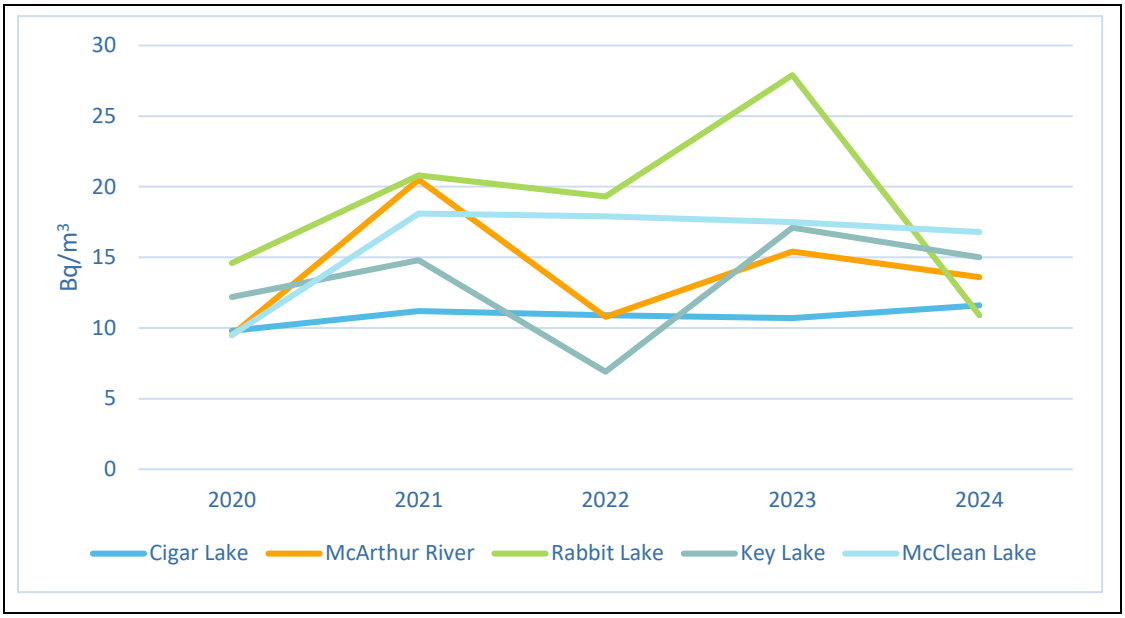
*MDMER discharge limit
**Key Lake action level, the most stringent across the 5 facilities
***Saskatchewan's provincial limit

CNSC staff will continue to review effluent quality results to verify that effluent treatment performance remains effective.

Air Emissions Released to the Environment

Environmental protection programs at uranium mines and mills include monitoring the effects of operations on the surrounding air and soil. Licensees measure airborne particulate levels and concentrations of regulated contaminants and COPC, as well as the concentration of radon gas in ambient air. Soil and vegetation may be affected by atmospheric deposition of particulate containing adsorbed metals and radionuclides associated with onsite activities. Licensees monitor contaminant concentrations in soil and terrestrial vegetation to verify that operational impacts are below regulatory limits.

Figure 4.9.3: Average concentration of radon in ambient air, 2020–2024



Facilities with milling operations monitor atmospheric emissions from acid plants, yellowcake dryers, calciner operations, packaging, grinding and ammonium sulphate operations. Other measured parameters (e.g., ambient radon and stack testing for sulphur dioxide, uranium and heavy metals) verify facility design and evaluate the operation's performance against predictions made in ERAs.

CNSC staff verified that the uranium mines and mills demonstrated satisfactory performance in monitoring and mitigating the effects of their operations on the surrounding air and soil. Figure 4.9.3 provides data for the average concentration of radon in ambient air, with values well below the concentrations which would lead to incremental dose of 1 mSv/year (53 Bq/m^3) and below Health Canada's guideline for radon in air in homes (200 Bq/m^3). Soil monitoring results around the facilities indicated that all measured parameters are within background levels. As would be expected, air monitoring for radon gas near TMFs and waste rock piles shows results higher than the regional background level of 25 Bq/m^3. However, the concentrations fall to background levels within a short distance of the facility boundary – less than 2 kms from the facility. The monitoring results indicate negligible impacts to the environment from atmospheric releases and confirm that all uranium mines and mills are in compliance with their environmental programs and provincial standards.

Environmental Risk Assessment

An ERA of a nuclear facility is a systematic process used by licensees to identify, quantify, and characterize the risk posed by releases of radiological and hazardous substances and physical stressors on representative human and non-human biota receptors, including the magnitude and extent of the potential effects associated with a facility. The ERA serves as the basis for the

development of site-specific environmental protection measures, including the Environmental Monitoring Program (EMP). The results of these programs, in turn, inform and refine future revisions of the ERA.

REGDOC 2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* includes a requirement for an ERA in accordance with CSA N288.6, *Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills*. The ERA document must detail the facility's interactions with the environment along with any potential impacts. Facility ERAs are to be reviewed on a 5-year cycle, or more frequently if major facility changes are proposed that would trigger a predictive assessment.

Table 4.9.3 shows the year of the most recent ERA submitted for each uranium mine and mill and the year the next ERA updates will be submitted to the CNSC for review. CNSC staff review ERAs to assess the potential risks to human health and the environment and to verify that mitigation measures are adequate.

Table 4.9.3: ERAs – current and upcoming submissions

ERA	Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Current ERA	2021	2020	2020	2016	2020
Upcoming ERA	2026	2025	2026	2025*	2026

*Deferred to align environmental monitoring and reporting frequencies, subject to annual adequacy reviews, as approved by the CNSC on August 12, 2020.

Protection of People

Each licensee must demonstrate that persons are protected from exposures to radiological and hazardous substances released from a facility. Protection of people is assessed in the human health risk assessment (HHRA) of an ERA. The HHRA assesses hazardous and radiological releases from facilities, and it models the resultant concentrations of contaminants of potential concern in air, water, soil and traditional foods (such as fish, waterfowl and moose). Exposure dose concentrations of contaminants for a typical land user are calculated based on the highest possible exposure using conservative assumptions. These doses are assessed against human health benchmarks in the HHRA. For all facilities, the HHRAs confirmed that the concentrations of contaminants remained within those predicted in the previous HHRAs and that the health of persons in areas surrounding the facilities remained protected.

CNSC staff reviewed the HHRAs submitted by the uranium mines and mills and concluded that the estimated radiological doses to persons as a result of licensed operations are a small fraction of the regulatory public dose limit of 1 mSv/year.

In 2024, CNSC staff were satisfied that uranium mine and mill licensees controlled radiation doses to persons at levels well below the regulatory limits and are ALARA. This conclusion was based on the outcome of inspections, as well as reviews of licensees' environmental protection programs.

Eastern Athabasca Regional Monitoring Program

The Eastern Athabasca Regional Monitoring Program (EARMP) is a well-recognized environmental monitoring program designed to gather data on long-range environmental information and potential cumulative impacts downstream from uranium mining and milling facilities. The program was initiated in 2011 with funding from the Saskatchewan government and the uranium mining industry (Cameco and Orano) as a sub-element of the Province of Saskatchewan's Boreal Watershed Initiative, which ended in 2017. The CNSC became a funding partner in 2017 to support the publication of an EARMP final report (2011 to 2017) with a 5-year long-term funding agreement (2018–2019 to 2022–2023) signed in 2018 between the Saskatchewan Government, the CNSC and industry, and extended in 2023 for 3 additional years ending 2025/2026. The community program monitors the safety of traditionally harvested country foods by analyzing water, fish, berries and wild meat (e.g., grouse, rabbit, caribou and moose) from representative northern Saskatchewan communities.

The program contractor is an Indigenous-owned business in northern Saskatchewan. Samples are collected from areas identified by community members, with members either assisting in sample collection or providing samples from their own harvesting activities.

Harvesting and consuming traditional country foods are an important part of the culture in northern Saskatchewan. The intent of EARMP is to provide confidence and transparent communication with community members that traditional country foods remain safe to eat today and for future generations. The program has demonstrated that concentrations of COPC have been relatively consistent over time and are within the regional reference range, which indicates no evidence of long-range transport of contaminants associated with uranium mining.

Evaluation of country food data from previous years confirms uranium mines and mills are not affecting the safety of country foods at nearby communities. The results indicated that radiological and non-radiological exposures to residents consuming country foods were similar to exposures of the general Canadian population. The EARMP has proven to be a productive means of involving the community in monitoring the health of their local environment and provides them with confidence in the safety of their traditional foods. The conclusion of the EARMP is that water and country foods are considered safe for consumption.

The annual reports and data are available at the EARMP website. The CNSC continues to support the EARMP and CNSC staff are working to further collaborate on this valuable program.

Learn more about the Eastern Athabasca Regional Monitoring Program

Independent Environmental Monitoring Program

In 2024, CNSC staff collected samples at publicly accessible locations in the vicinity of the Cigar Lake Operation as part of the IEMP. Analysis of these samples indicated that concentrations of radioactive and hazardous materials in the environment were within natural background levels. The 2024 IEMP results page is linked below:

> Cigar 2024 Results
>
> Learn more about the IEMP

4.10 Emergency management and fire protection

The emergency management and fire protection SCA covers emergency plans and emergency preparedness programs that exist for emergencies and for non-routine conditions. This area also includes any results of participation in exercises.

Licensees include program documentation for the emergency management and fire protection SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Table 4.10.1: Emergency management and fire protection ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff conducted 3 emergency management and fire protection focused inspections at the Cigar Lake, McArthur River, and Rabbit Lake operations. Elements of the emergency management and fire protection SCA was also reviewed and inspected as part of the general inspections. CNSC staff identified 21 NNCs in 2024:

- 6 at the Cigar Lake Operation
- 1 at the Key Lake Operation
- 6 at the McArthur River Operation
- 6 at the McClean Lake Operation
- 2 at the Rabbit Lake Operation

The NNCs identified in 2024 were all classified as low safety significance. The NNCs identified at these sites were in relation to:

- equipment maintenance and testing records
- training requirements for emergency response team members

- fire door operation
- compressed gas cylinder storage
- ensuring fire extinguishers are checked monthly

One NNC related to an onsite emergency notification system remains open at the Cigar Lake Operation. The remaining 19 NNCs have been closed by CNSC staff following the review of CAPs submitted by the licensees.

One Administrative Monetary Penalty (AMP) was issued to Cameco due to the licensee not having informed the CNSC of missing the agreed deadline for implementing CSA N393-13, *Fire protection for facilities that process, handle, or store nuclear substances* by the deadline. CNSC staff issued a notice of violation related to this finding in March 2024. While Cameco paid the AMP promptly, the action to implement CSA N393-13 remains open and monthly CSA N393-13 implementation updates from the licensee are being reviewed by CNSC staff.

CNSC staff concluded that the overall performance of the emergency management and fire protection SCA at the operating facilities was satisfactory.

4.11 Waste management

The waste management SCA covers internal waste-related programs that form part of the facility's operations up to the point where the waste is removed from the facility to a separate waste management facility. This area also covers the planning for decommissioning.

Licensees include program documentation for the waste management SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Table 4.11.1: Waste management ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff did not perform any inspections focused on waste management however, each facility had elements of the waste management SCA reviewed and inspected during general inspections. Two NNCs were identified in 2024:

- 1 at the Key Lake Operation
- 1 at the McArthur River Operation

The NNCs identified in 2024 were all classified as low safety significance. The NNCs identified at these sites were in relation to:

- contaminated waste management

CNSC staff concluded that the overall performance of the waste management SCA at the operating facilities was satisfactory.

4.12 Security

The security SCA covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, orders, or expectations for the facility of activity.

Licensees include program documentation for the security SCA as part of the overall management system documents; these form part of the licensing basis for these.

Table 4.12.1: Security ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff did not perform any inspections focused on security however, each facility had security elements reviewed and inspected as part of the general inspections. No NNCs were identified in 2024.

CNSC staff concluded that the overall performance of the security SCA at the operating facilities was satisfactory.

4.13 Safeguards and non-proliferation

The safeguards and non-proliferation SCA covers the programs and activities required for the successful implementation of the obligations arising from the Canada/International Atomic Energy Agency safeguards agreements, as well as all other measures arising from the *Treaty on the Non-Proliferation of Nuclear Weapons*.

Licensees include program documentation for the safeguards and non-proliferation SCA as part of the overall management system documents; these form part of the licensing basis for these facilities in their LCH's.

Table 4.13.1: Safeguards and non-proliferation ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake

Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, there were no CNSC inspections focused on the safeguards and non-proliferation SCA, or did the International Atomic Energy Agency did not perform any safeguards activities at any of the sites. No NNCs were identified at any facility and there are no events reported in 2024.

CNSC staff concluded that the overall performance of the safeguards and non-proliferation SCA at the operating facilities was satisfactory.

4.14 Packaging and transport

The packaging and transport SCA covers programs for the safe packaging and transport of nuclear substances to and from the licensed facility.

Licensees include program documentation for the packaging and transport SCA as part of the overall management system documents; these form part of the licensing basis for these facilities.

Table 4.14.1: Packaging and transport ratings

Cigar Lake	Key Lake	McArthur River	McClean Lake	Rabbit Lake
Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

In 2024, CNSC staff conducted 1 packaging and transport focused inspection, at the Key Lake Operation. Also, CNSC staff reviewed and inspected elements of the packaging and transport SCA during CNSC general inspections at all facilities. Three NNCs were identified during the focused packaging and transportation inspection in 2024. In total, 4 NNCs related to packaging and transportation were identified in 2024.

- 3 at the Key Lake Operation
- 1 at the McArthur River Operation (not related to Class 7 radioactive material transport)

The NNCs identified in 2024 were all classified as low safety significance. The NNCs identified at these sites were in relation to:

- shipping documents and placards
- transportation of dangerous goods certificates
- dangerous goods safety marks

CNSC staff concluded that the overall performance of the packaging and transport SCA at the operating facilities was satisfactory.

5 Consultation and engagement

5.1 Indigenous consultation and engagement

The common-law duty to consult with Indigenous Nations and communities applies when the Crown contemplates actions that may adversely affect potential or established Indigenous and/or treaty rights. The CNSC ensures that all its licensing decisions under the NSCA uphold the honour of the Crown and uphold Indigenous peoples' potential or established Aboriginal and/or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.

The CNSC is committed to building long-term relationships and conducting ongoing engagement and consultation with Indigenous Nations and communities who have an interest in CNSC-regulated facilities within their traditional and/or treaty territories. The CNSC's ongoing Indigenous engagement and consultation practices include:

- sharing information and discussing topics of interest with Indigenous Nations and communities
- seeking feedback and input on CNSC processes, policies and regulations
- responding to issues and concerns
- creating and maintaining the conditions for collaboration and 2-way dialogue on an ongoing basis
- collaborating on drafting relevant sections of CNSC reports, including this ROR
- providing opportunities to participate in environmental monitoring through the CNSC's Independent Environmental Monitoring Program (IEMP)
- supporting participation in Commission proceedings and ongoing regulatory activities via funding opportunities through the CNSC PFP and Indigenous and Stakeholder Capacity Fund (ISCF)
- participating in community engagements and outreach events upon request, including community tours, workshops and ceremonies

The operating uranium mines and mills in Canada are located within Treaty 10 boundaries and fall within the traditional territories of many Indigenous Nations and communities, listed in Appendix D. In 2024, CNSC staff worked with Indigenous Nations and communities in northern Saskatchewan with an interest in the uranium mine and mill sites to identify opportunities for formalized and regular engagement throughout the lifecycle of those facilities, through meetings and workshops.

CNSC staff continue to hold an annual ROR-focused engagement meeting with northern Saskatchewan Indigenous Nations and communities. This meeting is typically held in September in Saskatoon, before the public consultation period. This meeting serves to provide updated information on the regulatory performance of uranium mine and mill licensees, and to listen to

questions or concerns with a view to addressing them. Indigenous Nations and communities with an interest in Canada's uranium mines and mills are also provided with a copy of the ROR for review each year. The CNSC offers participant funding to ensure that Indigenous Nations and communities can participate in the engagement meeting.

CNSC engagement efforts – Saskatchewan

In 2024, CNSC staff efforts relating to UMM sites focussed primarily on consultation activities linked to ongoing environmental assessments (EAs) under the *Canadian Environmental Assessment Act,* 2012 (CEAA 2012) and licensing processes for the proposed NexGen Energy Ltd.'s (NexGen) Rook I Project and the Denison Mines' (Denison) Wheeler River Project as well as focused consultation and engagement on the request to transfer the Beaverlodge properties to Saskatchewan's Institutional Control Program (ICP). While these projects are outside the scope of this ROR, these consultation activities advanced the CNSC's relationships with many Indigenous Nations and communities and enabled discussions on the operational uranium mine and mill sites in Saskatchewan in this ROR.

In September 2024, CNSC staff hosted an in-person ROR engagement meeting with Indigenous Nations and communities with interests in the uranium mine and mill sites in northern Saskatchewan to discuss the following operational and decommissioned uranium mines and mills: McArthur River Operation (Cameco), Cigar Lake Operation (Cameco), Rabbit Lake Operation (Cameco), Key Lake Operation (Cameco), McClean Lake Operation (Orano) as well as the Gunnar legacy uranium mine (SRC) and the former Lorado mill site (SRC). CNSC staff also provided regulatory updates on proposed uranium mines and mill sites including: NexGen Rook I, Denison Wheeler River and Paladin's Patterson Lake South Projects, as well as Orano's intention to apply for a licence to develop the Midwest project.

Additionally, in 2024 CNSC staff carried out several engagement activities with Indigenous Nations and communities in northern Saskatchewan and Alberta, where CNSC staff:

- Provided updates on the 2023 Beaverlodge, Gunnar and Lorado IEMP results to verify that the public, Indigenous Nations and communities and the environment surrounding nuclear facilities are safe. In 2024, CNSC staff worked with Ya'thi Nene Lands and Resources (YNLR) directly, communicating results to leadership and community members, and collaborating on easy-to-read results cards that were shared with YNLR community members. This also included a joint presentation between CNSC and YNLR that was presented at the 2024 Turtle Island Indigenous Science Conference to discuss continued collaboration between the CNSC and YNLR on the IEMP.
- Engaged with Indigenous Nations and communities and collaborated with YNLR directly, regarding the 2024 IEMP at the Cigar Lake site, to ensure that IEMP sampling reflects Indigenous Knowledge, land use and values. A community land technician from YNLR joined CNSC staff for a week-long sampling program in the Cigar Lake area.

- Continued engagement and consultation activities with several Indigenous Nations and communities on NexGen's Rook I Project EA, ongoing in northwestern Saskatchewan. This included a week-long community tour in northwestern Saskatchewan, providing a forum for discussions with Clearwater River First Nation, Birch Narrows Dene Nation, Buffalo River Dene Nation and the Métis Nation-Saskatchewan (MN-S).
- Continued engagement and consultation activities on Denison's Wheeler River Project, including the CNSC's participation in the Kineepik Métis Local (KML) Elders' Gathering in June 2024.
- Attended the Decommissioned Beaverlodge Properties outreach session in Uranium City, Saskatchewan, in May 2024, to discuss the 2023 Beaverlodge and IEMP results, including the Beaverlodge Licence Revocation Request, and upcoming January 2025 Commission hearing.
- Continued to conduct regular meetings with YNLR, MN-S, ERFN and KML that focused on the operating uranium mine and mill sites in northern Saskatchewan.
- Signed a Terms of Reference (TOR) for long-term engagement with ERFN in June 2024, and with Athabasca Chipewyan First Nation (ACFN) in May 2024.
- Continued collaboration on drafting a long-term relationship TOR and workplan with KML in 2024/2025.
- Attended MN-S' "Back to Batoche Days" in July 2024, participating in Métis cultural events and providing information on the CNSC to Métis citizens.
- Attended the Northern Saskatchewan Environmental Quality Committee meetings in February 2024 in Prince Albert, Saskatchewan, and June 2024 in La Ronge, Saskatchewan, providing an update on existing licensees and proposed projects, including plans for Indigenous engagement.
- Participated in a meeting between YNLR and the CNSC Registry team in April 2024, to hear YNLR's concerns, questions and feedback on the CNSC's Commission proceeding processes.
- Participated in a ceremonial sweat and feast in April 2024, which ERFN hosted, where CNSC staff were immersed in Indigenous ceremony, culture and traditional foods.
- Hosted the annual Women in Science, Technology, Engineering and Mathematics (WiSTEM) event for women and girls in Saskatoon, in May 2024. This event enabled women and girls from northern Saskatchewan to learn more about careers in STEM and ways of achieving educational and professional milestones in STEM.
- Collaborated with ACFN on an in-person community meeting in Fort Chipewyan, Alberta, where CNSC staff provided information on operating, decommissioned and proposed uranium mines and mills to ACFN community members.
- Supported the Federation of Sovereign Indigenous Nations (FSIN) in hosting an in-person nuclear workshop in Saskatoon, where CNSC staff gave presentations to Indigenous Nations and communities across Saskatchewan on the following topics:

Indigenous Engagement, Regulatory Frameworks, Emergency Preparedness, the CNSC regulatory process and proposed projects in Saskatchewan.
- Attended the KML Annual Gathering in December 2024, where CNSC staff shared a meal with community members, engaged with them and provided updates on the Denison Wheeler River project.

Tracking of ROR issues, concerns and recommendations

To track and respond to Indigenous Nations and communities' input and comments on past RORs and other Commission proceedings effectively, CNSC staff utilize issues and concerns tracking tables. These tracking tables show CNSC staff's proposed actions and responses to ROR-related issues that Indigenous Nations and communities have identified.

At the Commission's request, CNSC staff have compiled a summary of Indigenous Nations and communities' interventions on the 2023 ROR in Appendix E, which contains 2 tables listing issues and concerns by Nation and by theme, respectively. These tables summarize 2023 ROR interventions, enabling CNSC staff to identify and prioritize key themes for focus and achieve meaningful resolution, where possible.

During regular meetings, CNSC staff engaged with intervening Indigenous Nations and communities to discuss the content of their interventions. For those Indigenous Nations and communities that have a TOR for long-term engagement with the CNSC, interventions are being discussed in regular, agreed-upon meetings and engagement work plans. CNSC staff will continue to work with each Indigenous Nation and community to share and verify data in their respective issues tracking tables, with the goal of identifying solutions together and discussing recommendations that address issues and concerns.

Overall, interventions relating to the 2023 ROR spanned 9 different themes, including environmental protection and monitoring; Indigenous knowledge, language and culture; economic development; decommissioning and waste; UMM operations and compliance; licensing decisions; health and safety; the CNSC's Indigenous consultation and engagement activities; and licensees' Indigenous consultation and engagement activities.

CNSC communications with Indigenous Nations and communities

Beyond outreach and engagement sessions, CNSC staff have provided all interested Indigenous Nations and communities with the opportunity to review and submit interventions on the ROR to the Commission, including opportunities to intervene orally or in writing, and receive funding through the CNSC's Participant Funding Program (PFP) to support intervening and/or participating in Commission proceedings.

As part of the CNSC's long-term engagement TORs with YNLR, ERFN and ACFN, CNSC staff drafted engagement updates for this ROR with YNLR, ERFN and ACFN collaboratively. More

information on the TOR engagement summaries for YNLR, ERFN and ACFN can be found in Appendix F.

CNSC staff are also working to establish a TOR for long-term engagement with KML. Engagement details related to this TOR are detailed in Appendix F.

A list of Indigenous Nations and communities with traditional and/or treaty territories in proximity to operating uranium mine and mill sites can be found in Appendix D.

5.2 Public consultation and engagement

The NSCA mandates the CNSC to disseminate objective scientific, technical and regulatory information to the public concerning its activities and the activities it regulates. CNSC staff fulfill this mandate in a variety of ways, including hosting in-person and virtual information sessions and through annual regulatory reports.

All uranium mines and mills are required to maintain and implement public information and disclosure programs (PIDPs), in accordance with CNSC's REGDOC-3.2.1, *Public Information and Disclosure*, which sets out the requirements for public information and disclosure by licensees. The primary goal of the program is to ensure that information related to the health, safety and security of persons and the environment, and other issues associated with the lifecycle of nuclear facilities is shared with the public in a format relevant to the audience. A PIDP must include a commitment and protocol for ongoing and timely dissemination of information related to the licensed facility.

As the operating mine and mill sites are in northern Saskatchewan, where the population is predominantly Indigenous, information dissemination is typically delivered through Indigenous engagement activities. To fulfill CNSC's mandate to disseminate information, CNSC staff communicate information in a variety of ways, including publishing RORs and conducting project-specific outreach sessions. CNSC staff also seek out additional opportunities to engage with the public and Indigenous Nations and communities, often participating in meetings or events in communities with an interest in nuclear sites. These events enable CNSC staff to identify and discuss community members' concerns and answer questions about the CNSC's mandate and role as a nuclear regulator. CNSC staff always attempt to meaningfully address specific requests, concerns and comments raised by Indigenous Nations or communities and key intervenors. Please see Appendix E for more details.

In 2024, CNSC staff worked with the public in northern Saskatchewan to identify opportunities for formalized and regular engagement throughout the lifecycle of uranium mines and mills in that region, through both meetings and facilitated workshops. Some of those engagements included:

- participated in the Northern Saskatchewan Environmental Quality Committee meeting that took place in February 2024 in Prince Albert, Saskatchewan.
- attended northern Saskatchewan community tours in Buffalo Narrows, Dillon, Turnor Lake and Clearwater River, where CNSC staff had a booth and shared information with community members. CNSC staff also attended a public community meeting in Pinehouse, Saskatchewan, to share information about the CNSC.
- organized an information and engagement session on the UMM ROR in Saskatoon, in September 2024 with interested Indigenous Nations and communities.

5.3 Licensee public information and engagement

In 2024, CNSC staff monitored licensee engagement work to ensure that licensees are conducting active and inclusive engagement with Indigenous Nations and communities interested in their facilities and/or in licensing and Commission hearing activities. Licensee engagement activities included interests and concerns regarding the Cigar Lake, McClean Lake, McArthur River, Key Lake and Rabbit Lake operations.

CNSC staff can confirm that licensees continued to meet, engage and share information with interested Indigenous Nations and communities throughout the 2024 period. I

CNSC staff encourage licensees to continue building strong and trusting relationships with Indigenous Nations and communities by engaging meaningfully with groups, organizations and communities that have expressed an interest in their operations and activities.

5.4 Participant Funding Program

The CNSC established the Participant Funding Program (PFP) in 2011 to:

1. enhance individual, not-for-profit organization and Indigenous Nations and Communities participation in the CNSC's environmental assessment (EA) and licensing processes for major nuclear facilities (e.g., uranium mines, nuclear power plants, nuclear substance processing, or nuclear waste facilities)

2. assist individuals, not-for-profit organizations and Indigenous Nations and Communities to bring value-added information to the Commission through informed and topic-specific interventions related to EAs and licensing (i.e., new, distinctive and relevant information that contributes to a better understanding of the anticipated effects of a project)

The CNSC also offered participant funding to review the 2024 UMM ROR (this report). The details of this offering can be found online , here. Once the funding decision has been made by the CNSC, this online announcement will be updated with the list of funding recipients.

6 Events and other matters of regulatory interest

6.1 Public information and disclosure program

A PIDP is a regulatory requirement for licence applicants and licensees of Class I nuclear facilities, uranium mines and mills and certain Class II nuclear facilities. These requirements are found in REGDOC-3.2.1, *Public Information and Disclosure*.

The primary goal of the PIDP is to ensure that information related to the health, safety and security of persons and the environment, and other issues associated with the lifecycle of nuclear facilities are effectively communicated to the public. The program must include a commitment to, and protocol for ongoing, timely communication of information related to the licensed facility during the course of the licence period.

The CNSC's expectations of a licensee's public information program and disclosure protocol are commensurate with the level of risk of the facility, as well as the level of public interest in the licensed activities. The program and protocol may be further influenced by the complexity of the nuclear facility's lifecycle and activities, and the risks to public health and safety and the environment perceived to be associated with the facility and activities.

The CNSC monitors licensees' implementation of public information and disclosure programs to verify that they communicate regularly with their target audiences in a way that is open, transparent and meaningful.

In 2024, both Cameco and Orano successfully maintained their PIDP and remained complaint with REGDOC-3.2.1. In 2024, both held in-person engagement and maintained or expanded digital communication tools to reach their target audiences. These efforts included:

- regularly updating their websites with information on each facility
- posting and engaging with audiences on social media with relevant information about each facility
- advertising on social media and conventional media
- securing earned media in televised and radio news, newsletters, magazines and newspapers
- directly engaging with local communities and interested stakeholders with fact sheets and annual progress reports
- providing site tours on request from educational facilities and committees
- responding to public inquiries and meeting with community leadership and members
- using visual aids, including videos and tours (virtual and in-person), to improve clarity

- in-person and virtual/hybrid events and sponsorship

CNSC staff encourage licensees to provide information on the number and topic of public inquiries to better identify and describe community and public views and indicate how feedback received from the public is used to improve communication and engagement products.

7 Conclusions

CNSC staff conclude that, in 2024, operating uranium mines and mills in Canada operated safely. This assessment is based on CNSC staff's verification of licensee activities, including inspections, reviews of reports submitted by licensees, and reviews of events supported by follow-up and general communication with the licensees.

For 2024, the performance safety ratings for all operating uranium mines and mills in all 14 SCAs were rated as "satisfactory".

8 Glossary

For definitions of terms used in this document, see REGDOC-3.6, *Glossary of CNSC Terminology*, which includes terms and definitions used in the *Nuclear Safety and Control Act* and the regulations made under it, and in CNSC regulatory documents and other publications.

Appendix A: List of Inspections

The following table presents CNSC's 2024 uranium mine and mill inspections by facility and SCA.

Facility	Method	Safety and control area	Notices of non-compliance	Inspection report issued
Cigar Lake Operation	On Site	Radiation Protection	0	March 5, 2024
	On Site	Management System Human Performance Management Operating Performance Fitness for Service Radiation Protection Conventional Health and Safety Environmental Protection	3	May 29, 2024
	On Site	Management System Radiation Protection Conventional Health and Safety Environmental Protection	4	September 13, 2024
	On Site	Human Performance Management Operating Performance Safety Analysis Radiation Protection Conventional Health and Safety Environmental Protection Packaging and Transport	1	November 28, 2024
	On Site	Emergency Management and Fire Protection Management System Radiation Protection Conventional Health and Safety	5	December 16, 2024

Facility	Method	Safety and control area	Notices of non-compliance	Inspection report issued
	On Site	Operating Performance Radiation Protection Conventional Health and Safety Environmental Protection	2	March 6, 2025
Key Lake Operation	On Site	Management System Operating Performance Fitness for Service Radiation Protection Conventional Health and Safety Environmental Protection	3	April 29, 2024
	On Site	Human Performance Management Radiation Protection Conventional Health and Safety Environmental Protection Emergency Management and Fire Protection Waste Management	5	May 22, 2024
	On Site	Radiation Protection Conventional Health and Safety Emergency Management and Fire Protection	7	July 31, 2024
	On Site	Packaging and Transport	7	September 23, 2024
	On Site	Fitness for Service Radiation Protection Conventional Health and Safety Environmental Protection	6	November 29, 2024

Facility	Method	Safety and control area	Notices of non-compliance	Inspection report issued
	On Site	Safety Analysis	3	December 11, 2024
McArthur River Operation	On Site	Management System Human Performance Management Radiation Protection Conventional Health and Safety Emergency Management and Fire Protection Waste Management	4	August 8, 2024
	On Site	Operating Performance Physical Design Radiation Protection Conventional Health and Safety	4	May 22, 2024
	On Site	Safety Analysis Conventional Health and Safety Environmental Protection Emergency Management and Fire Protection Waste Management	4	October 30, 2024
	On Site	Radiation Protection Conventional Health and Safety Emergency Management and Fire Protection Security	6	November 18, 2024
McClean Lake Operation	On Site	Fitness for Service Conventional Health and Safety Emergency Management and Fire Protection	6	April 17, 2024

Facility	Method	Safety and control area	Notices of non-compliance	Inspection report issued
	On Site	Management System Operating Performance Safety Analysis Physical Design Radiation Protection Conventional Health and Safety Packaging and Transportation Public Information and Disclosure	6	February 29, 2024
	On Site	Human Performance Management Operating Performance Radiation Protection Conventional Health and Safety Environmental Protection Emergency Management and Fire Protection Security Public Information and Disclosure	5	August 13, 2024
	On Site	Management System Human Performance Management Operating Performance Safety Analysis Radiation Protection Conventional Health and Safety Emergency Management and Fire Protection Packaging and Transportation	7	July 24, 2024

Facility	Method	Safety and control area	Notices of non-compliance	Inspection report issued
	On Site	Environmental Protection* Management System Radiation Protection Emergency Management and Fire Protection	5	October 11, 2024
	On Site	Operating Performance Physical Design Fitness for Service Conventional Health and Safety Environmental Protection	3	March 18, 2025
Rabbit Lake Operation	On Site	Emergency Management and Fire Protection	1	February 29, 2024
	On Site	Management System Operating Performance Radiation Protection Emergency Management and Fire Protection Waste Management	2	August 7, 2024
	On Site	Management System Human Performance Management Fitness for Service Radiation Protection Conventional Health and Safety Environmental Protection	2	November 8, 2024
	On Site	Management System Human Performance Management	5	March 11, 2025

Facility	Method	Safety and control area	Notices of non-compliance	Inspection report issued
		Operating Performance Radiation Protection Conventional Health and Safety Environmental Protection Emergency Management and Fire Protection		
Cigar Lake Operation, Key Lake Operation, McArthur River Operation, Rabbit Lake Operation	Virtual	Human Performance Management	8	February 28, 2026

Appendix B Safety performance rating levels

Satisfactory (SA)

Licensee meets all of the following criteria:

- Performance meets CNSC staff expectations
- Licensee non-compliances or performance issues, if any, are not risk-significant
- Any non-compliances or performance issues have been, or are being, adequately corrected

Below expectations (BE)

One or more of the following criteria apply:

- Performance does not meet CNSC staff expectations
- Licensee has risk-significant non-compliance(s) or performance issue(s)
- Non-compliances or performance issues are not being adequately corrected

Unacceptable (UA)

One or both of the following criteria apply:

- Risk associated with a non-compliance or performance issue is unreasonable
- At least one significant non-compliance or performance issue exists with no associated corrective action

Appendix C: Safety and Control Area Framework

The following table provides a high-level definition of each SCA.

Functional Area	Safety and Control Area	Definition
Management	Management system	Covers the framework that establishes the processes and programs required to ensure an organization achieves its safety objectives and continuously monitors its performance against these objectives and fostering a healthy safety culture
Management	Human performance management	Covers activities that enable effective human performance through the development and implementation of processes that ensure that a sufficient number of licensee personnel are in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties
Management	Operating performance	Includes an overall review of the conduct of the licensed activities and the activities that enable effective performance
Facility and equipment	Safety analysis	Covers maintenance of the safety analysis that supports that overall safety case for the facility. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards
Facility and equipment	Physical design	Relates to activities that impact on the ability of systems, components and structures to meet and maintain their design basis given new information arising over time and taking changes in the external environment into account

Functional Area	Safety and Control Area	Definition
Facility and equipment	Fitness for service	Covers activities that impact on the physical condition of systems, components and structures to ensure that they remain effective over time. This area includes programs that ensure all equipment is available to perform its intended design function when called upon to do so
Core control processes	Radiation protection	Covers the implementation of a radiation protection program in accordance with the *Radiation Protection Regulations*. This program must ensure that contamination levels and radiation doses received by individuals are monitored and controlled and maintained ALARA
Core control processes	Conventional health and safety	Covers the implementation of a program to manage workplace safety hazards and to protect workers
Core control processes	Environmental protection	Covers programs that identify, control and monitor all releases of radioactive and hazardous substances and effects on the environment from facilities or as the result of licensed activities
Core control processes	Emergency management and fire protection	Covers emergency plans and emergency preparedness programs which exist for emergencies and for non-routine conditions. This also includes any results of participation in exercises
Core control processes	Waste management	Covers internal waste-related programs which form part of the facility's operations up to the point where the waste is removed from the facility to a separate waste management facility. This area also covers the planning for decommissioning
Core control processes	Security	Covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, orders, or expectations for the facility or activity

Functional Area	Safety and Control Area	Definition
Core control processes	Safeguards and non-proliferation	Covers the programs and activities required for the successful implementation of the obligations arising from the Canada / International Atomic Energy Agency safeguards agreements, as well as all other measures arising from the Treaty on the Non-Proliferation of Nuclear Weapons
Core control processes	Packaging and transport	Covers programs for the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility

Appendix D: List of Indigenous Nations, communities and organizations that have traditional and/or treaty territories and/or interests within proximity to the licensed facilities

List of Indigenous Nations and communities with traditional and/or treaty territories in proximity to the sites that this report covers.

Uranium Mines and Mills Sites:

English River First Nation (ERFN)

Lac La Ronge Indian Band (LLRIB)

Métis Nation – Saskatchewan (MN-S) (Northern Region 1, Northern Region II and Northern Region III)

Kineepik Métis Local (KML)

Ya'thi Néné Lands and Resource Officer (YNLR) who represents Black Lake Denesųłiné First Nation, Fond-du-Lac Denesųłiné First Nation, Hatchet Lake Denesųłiné First Nation, the Northern Hamlet of Stony Rapids, and the Northern Settlements of Camsell Portage, Uranium City and Wollaston Lake

Appendix E: Summary Table of the Status of Issues, Concerns and Requests from Indigenous Intervenors in the 2023 UMM ROR

Responding to the Commission's actions, which are outlined in meeting minutes for CMD 22-M29 to CMD 22-M34, CMD22-M37, and CMD 22-M40 to CMD 22- M42, held on November 1, 2, and 3, 2022, CNSC ROB and ICED staff have continued to work towards the transparent resolution of intervenor recommendations. When Indigenous Nations and communities raise concerns or make recommendations, the Commission expects an update from CNSC staff on whether and how these interventions have been or will be addressed, and where there are disagreements. CNSC staff use issues and concerns tracking tables to record, track and respond to submissions from each Indigenous Nation and community. These tables also serve as mechanisms for tracking CNSC staff's efforts at responding to and addressing intervenor submissions, where feasible.

Based on the CNSC's records and past interventions, this appendix summarizes issues and concerns that Indigenous Nations and communities have submitted on the 2023 UMM ROR. The tables below summarize interventions on last year's ROR and CNSC staff's responses and actions. Table E1 highlights the number of key themes that each Indigenous Nation and community raised and outlines CNSC staff's response. Table E2 outlines the number of issues and concerns raised by theme and quantifies how many times each sub-theme was raised in relation to the 2023 ROR, as well as the number of intervenors who raised each specific topic in their interventions. This data serves as a baseline that helps to inform CNSC staff's focus on priority areas. This tracking method is relatively new and will continue to evolve as CNSC staff gather more data in the form of interventions and identify trends.

CNSC staff remain committed to communicating with intervenors regarding their submissions and working collaboratively to identify solutions, where possible. For Indigenous Nations and communities that have TORs for long-term engagement with the CNSC, CNSC staff have integrated feedback on the ROR into engagement work plans and regular meetings.

CNSC staff continue to engage with Indigenous Nations and communities that do not have TORs for long-term engagement with the CNSC. For instance, CNSC staff have continued working with Kineepik Métis Local (KML), responding to their interests in youth education in the science, technology, engineering and mathematics (STEM) fields and employment prospects in the nuclear industry. The CNSC hosted its annual Women in STEM (WiSTEM) event for women and girls in Saskatoon in 2024. This enabled women and girls from northern Saskatchewan to

participate in the annual event and learn more about careers in STEM and means of achieving educational and professional milestones in those fields.

Table E1, below, shows the number of key themes that each Indigenous Nation and community raised and outlines CNSC staff's planned response. For the 2023 ROR, there were 6 Indigenous Nations and communities that submitted interventions. Nations are listed in order of appearance from interventions presented at the January 29, 2025, Commission meeting. Key themes derive from CNSC staff's review and analysis of the 2023 interventions.

Table E1. Key themes raised by Indigenous Nations and communities on the 2023 UMM ROR

Indigenous Nation or Community	Number of key themes raised as interventions on the 2023 ROR	Number of key themes addressed by CNSC staff	Notes
English River First Nation (ERFN)	4	3	For the 2023 ROR, CNSC staff are using an issues and concerns tracking table, as well as monthly and quarterly meetings, to monitor and address ERFN's input. CNSC and ERFN signed a TOR in June 2024 which stipulates that both parties will meet quarterly to advance priorities. This includes co-developing a workplan for discussing issues and concerns relating to current and proposed projects. CNSC staff are committed to working with ERFN to address each key theme to the greatest possible extent. Examples of key themes that ERFN raised regarding the 2023 ROR include environmental protection and monitoring; Indigenous knowledge, language and culture; decommissioning and waste management; and health and safety.

Indigenous Nation or Community	Number of key themes raised as interventions on the 2023 ROR	Number of key themes addressed by CNSC staff	Notes
Ya'thi Néné Lands and Resource Office (YNLR)	6	6	For the 2023 ROR, CNSC staff are using an issues and concerns tracking table, as well as quarterly meetings, to monitor and address YNLR's input. The TOR between the CNSC and YNLR stipulates that both parties will meet quarterly and includes a co-developed workplan for discussing issues and concerns relating to current and proposed projects. CNSC staff are committed to working with YNLR to address each key theme to the greatest possible extent. Examples of key themes that YNLR raised regarding the 2023 ROR include UMM operations and compliance; licensing decisions; environmental protection and monitoring; Indigenous knowledge, language and culture; the licensees' Indigenous consultation and engagement; and the CNSC's Indigenous consultation and engagement.
Kineepik Métis Local (KML)	3	2	For the 2023 ROR, CNSC staff are using an issues and concerns tracking table, as well as monthly meetings, to monitor and address KML's input. CNSC staff are committed to working with KML to address each key theme to the greatest possible extent.

Indigenous Nation or Community	Number of key themes raised as interventions on the 2023 ROR	Number of key themes addressed by CNSC staff	Notes
			Further, the CNSC has offered KML a TOR for long-term engagement to continue working through KML's concerns. KML is interested in signing a TOR for long-term engagement and is working towards signing it in 2025. Examples of key themes that KML raised regarding the 2023 ROR include economic development; Indigenous knowledge, language and culture; and health and safety.
Métis Nation – Saskatchewan (MN-S)	1	1	For the 2023 ROR, CNSC staff are using an issues and concerns tracking table, as well as monthly meetings, to monitor and address MN-S' input. CNSC staff are committed to working with MN-S to address each key theme to the greatest possible extent. CNSC staff have offered to develop a long-term engagement TOR with MN-S, however, MN-S has not expressed an interest to date. Examples of key themes that MN-S raised regarding the 2023 ROR include the CNSC's Indigenous consultation and engagement.
Athabasca Chipewyan First Nation (ACFN)	5	3	For the 2023 ROR, CNSC staff are using an issues and concerns tracking table, as well as quarterly meetings, to monitor and address ACFN's input.

Indigenous Nation or Community	Number of key themes raised as interventions on the 2023 ROR	Number of key themes addressed by CNSC staff	Notes
			ACFN and the CNSC signed a TOR for long-term engagement in May 2024.The TOR between the CNSC and ACFN stipulates that both parties will meet quarterly and includes a co-developed workplan for discussing issues and concerns relating to current and proposed projects. CNSC staff are committed to working with ACFN to address each key theme to the greatest possible extent. The first regular meeting between both parties took place in 2025. CNSC staff met with ACFN regularly prior to 2025. Examples of key themes that ACFN raised regarding the 2023 ROR include environmental protection and monitoring; health and safety; Indigenous knowledge, language and culture; decommissioning and waste management; and the licensees' consultation and engagement.
Manitoba Métis Federation (MMF)	6	4	For the 2023 ROR, CNSC staff are using an issues and concerns tracking table, as well as monthly meetings, to monitor and address MMF's input. CNSC staff are committed to working with MMF to address each key theme to the greatest possible extent. MMF is interested in working with the CNSC to develop and finalize a TOR for long-term engagement.

Indigenous Nation or Community	Number of key themes raised as interventions on the 2023 ROR	Number of key themes addressed by CNSC staff	Notes
			MMF and the CNSC are working towards finalizing the TOR in 2025. Examples of key themes that MMF raised regarding the 2023 ROR include CNSC's Indigenous consultation and engagement; licensees' Indigenous consultation and engagement; UMM operations and compliance; environmental protection and monitoring; health and safety; and decommissioning and waste management.

Based on the interventions received for the 2023 ROR and CNSC staff's analysis, issues, concerns and requests falling under the following themes remain unaddressed:

- Decommissioning and waste management
- Health and safety
- Licensee and CNSC Indigenous consultation and engagement
- Indigenous knowledge, language and culture

The CNSC remains committed to working with Indigenous Nations and communities to address and achieve consensus on the issues and concerns raised through the ROR intervention process that are within CNSC's regulatory mandate.

Table E2, below, shows the number of sub-themes raised in relation to each key theme for the 2023 ROR, as well as the number of intervenors who raised 1 or more sub-theme. Sub-themes refer to specific topics of interest falling within the broader key themes category, and the number of intervenors represents intervening Indigenous Nations and communities only. For the 2023 ROR, there were 6 intervening Indigenous Nations and communities. Key themes are ranked from highest to lowest priority, based on the number of intervenors. Key themes and sub-themes derive from CNSC staff's review and analysis of the 2023 interventions.

Table E2 – Key themes raised by Indigenous Nations and Communities on the 2023 ROR

Key theme	Number of sub-themes raised in relation to the 2023 ROR	Number of Indigenous intervenors who raised 1 or more sub-theme
Environmental protection and monitoring (e.g., concerns about protecting the environment for future generations and traditional activities)	2	5
Indigenous knowledge, language and culture (e.g., ensuring that Indigenous knowledge, language and culture is both incorporated and protected)	2	4
Health and safety (e.g., concerns about Human Health Risk Assessments and related indicators, cumulative effects, and long-term health impacts of mining facilities)	5	3
Decommissioning and waste management (e.g., concerns about legacy mining sites in northern Saskatchewan)	3	3
CNSC's Indigenous consultation and engagement (e.g., concerns about the implementation of UNDRIP and the need for safety and control areas specific to Indigenous Nations and communities and improvements to the ROR process)	2	2
Licensees' Indigenous consultation and engagement (e.g., concerns about the implementation of UNDRIP and the need for safety and control areas specific to Indigenous engagement and community comprehension)	2	2

Key theme	Number of sub-themes raised in relation to the 2023 ROR	Number of Indigenous intervenors who raised 1 or more sub-theme
UMM operations and compliance	1	2
Economic development (e.g., ensuring that communities have equitable economic opportunities and benefits)	1	1
Licensing decisions (e.g., concerns about longer licensing for current mining operations in northern Saskatchewan)	2	1

Engagement with Other Public Intervenors

CNSC staff remain committed to engaging with the public and learning more about what they value and what they find concerning. CNSC staff have followed up with repeat public intervenors, whether individuals or civil society organizations, on their issues and concerns through public engagement events and bilateral meetings.

Conclusion

CNSC staff have identified environmental protection and monitoring, Indigenous knowledge, language and culture, and health and safety as the top key themes that Indigenous intervenors raised on the 2023 UMM ROR and have made it a priority to discuss and address these with each intervening Indigenous Nation and community, where feasible. As a reflection of that commitment, CNSC staff have listed and provided status updates on these issues and concerns in all 2023 ROR annexes.

CNSC staff will continue to communicate and collaborate with each intervenor listed in Table E1, as well as with repeat individual and civil society organization intervenors, to address issues and concerns they have raised. CNSC staff remain committed to gathering more feedback related to these issues and concerns to inform and improve the ROR reporting process. This includes working to improve the accessibility and transparency of tracking and reporting on issues and concerns and engagement efforts. CNSC staff will continue to identify meaningful ways of responding to Indigenous Nations and communities' interventions with a focus on continuous improvement. In instances of disagreement, CNSC staff remain committed to open dialogue, working towards building consensus and adopting solutions for key issues within the CNSC's mandate and authorities.

Appendix F: Summary of Engagement in Relation to CNSC's Terms of Reference for Long-Term Engagement and Associated Workplans In 2024

Ya'thi Néné Lands and Resource Office (YNLR):

As part of the commitments contained within the Terms of Reference (TOR) for long-term engagement between YNLR and the CNSC, this update was prepared in collaboration with representatives from YNLR's 7 Athabasca communities including Black Lake Denesųłiné First Nation, Hatchet Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, the Northern Hamlet of Stony Rapids, the Northern Settlement of Camsell Portage, the Northern Settlement of Uranium City and the Northern Settlement of Wollaston Lake.

In June 2022, CNSC staff and YNLR signed a TOR for long-term engagement in order to formalize an existing and longstanding relationship. To support the implementation and work related to the TOR the CNSC awards funding and enables YNLR to participate in annual consultation and engagement activities. It also acts as a framework for discussions of CNSC-regulated facilities and activities of interest within YNLR's traditional territory.

This update for the engagement activities during the 2024reporting period was prepared in collaboration with members of the YNLR Working Group, which includes YNLR staff and Athabasca Land Protection Committee (ALPC) representatives. The ALPC is composed of 8 appointed community members from 3 Denesųłiné First Nations (Hatchet Lake, Fond du Lac and Black Lake) and the Athabasca Permanent Resident Organization (APRO) consisting of the 4 municipalities (Uranium City, Camsell Portage, Stony Rapids, and Wollaston Lake), all of which report back to their Leadership and communities. YNLR's Executive Director also participates in the Working Group, alongside CNSC representatives, other YNLR staff, and invited guests.

Each year, CNSC staff and YNLR develop an engagement work plan that provides information on the scope of work, detailed activities, and general timelines associated with work items for collaboration and engagement that year.

YNLR and CNSC staff have agreed to meet quarterly to advance work plan items and shared priorities. In January 2024, YNLR and CNSC staff met in Saskatoon for the first quarterly regular meeting. In June 2024, YNLR and CNSC staff met in Hatchet Lake to develop a new workplan for 2024/25. Through these meetings and interactions, YNLR and the CNSC staff have developed a positive working relationship grounded in open communication, two-way dialogue, and actions.

The 2024/25 engagement work plan included:

- conducting -identified activities and providing project updates.
- providing collaborative annual reporting to the Commission and elected Leadership of the 7 Athabascan communities.
- participating in the CNSC's Independent Environmental Monitoring Program (IEMP) in northern Saskatchewan.
- enhancing 2-way information sharing and communication between CNSC staff and YNLR community members.
- providing updates and discussions on specific projects for Uranium Mines and Mills (UMM) facilities of interest, as well as upcoming licensing activities, including operations, decommissioning, and proposed CNSC-regulated projects in northern Saskatchewan.
- relaying communications on other topics and opportunities (e.g., regulatory document updates, feedback on the UMM Regulatory Oversight Report (ROR), health studies, CNSC compliance verification activities, CNSC Participant Funding Program (PFP) opportunities, and cumulative effects).

In the workplan, the facilities of interest relating to the 2024 Uranium Mines and Mills Regulatory Oversight Report include the Rabbit Lake, Cigar Lake, McClean Lake, Key Lake, and McArthur River operations, the Beaverlodge Properties, the Gunnar legacy mine site, and the former Lorado mill site.

Other discussion topics included consultation and engagement activities for ongoing CEAA 2012 EAs of interest to YNLR, including NexGen's Rook I Project and Denison's Wheeler River Project, both beyond the scope of the 2024 UMM ROR, as well as ongoing non-designated projects in Saskatchewan, including Paladin's Patterson Lake South Project.

In 2024, CNSC staff and YNLR collaborated on the IEMP sampling campaign at Cigar Lake. In August 2024, a YNLR Community Land Technician (CLT) participated in a week-long IEMP sampling campaign around Cigar Lake. Having a YNLR CLT join CNSC staff in the sampling campaign facilitated a better understanding of the IEMP and its sampling methods. It also facilitated CNSC staff's incorporation of Indigenous Knowledge into sampling activities and plans, enabling the inclusion of YNLR-identified species of interest, valued components, knowledge, and sampling locations and sites of importance to local Elders and land users.

In 2024, CNSC staff conducted several in-person engagement activities with YNLR including:

- In January 2024, CNSC staff, alongside Saskatchewan Research Council (SRC) staff, visited Athabascan Basin communities to provide updates on the Project CLEANS program, as well as the status of the former Gunnar and Lorado sites.

- In February 2024, CNSC staff held an in-person meeting in Saskatoon and provided an update to Indigenous Nations and communities, including YNLR working group members, on the status of the Canadian Uranium Workers Study (CANUWS).
- In April 2024, YNLR ALPC met in-person in Saskatoon with CNSC staff, including Commission Registry staff, to receive feedback and concerns from the YNLR ALPC on the CNSC's hearing and regulatory processes.
- In May 2024, CNSC staff travelled with YNLR staff to co-present in Regina, Saskatchewan, at the Turtle Island Indigenous Science Conference, highlighting our collaborative work over the last 3 years on the IEMP in northern Saskatchewan.
- In May 2024, the CNSC partnered with the University of Saskatchewan to host the annual Women in Science, Technology, Engineering, and Mathematics (STEM) event, which showcased women in STEM in leadership roles and offered interactive and culturally relevant STEM activities to encourage Indigenous girls to become more involved and interested in STEM. The event enabled Indigenous girls from across northern Saskatchewan to participate.
- On May 27 and 28, 2024, CNSC staff attended community engagement sessions in Uranium City, alongside Uranium City residents, YNLR staff, Cameco, Saskatchewan Population Health, Ministry of Environment, Ministry of Energy and Resources, and leadership from Fond du Lac Denesųłiné First Nation, regarding the Beaverlodge sites and January 2025 hearing in Saskatoon.
- On September 18, 2024, YNLR ALPC travelled to Saskatoon to participate in the annual in-person UMM ROR engagement session. CNSC staff and YNLR also held a quarterly meeting in Saskatoon that same week.
- On October 17, 2024, the President of the CNSC, the Vice President of the Regulatory Affairs Branch (RAB) and CNSC staff met in-person with YNLR ALPC, First Nation Chiefs and municipal Leadership.
- In 2024, the CNSC continued to provide funding and capacity support to YNLR through the Indigenous and Stakeholder Capacity Fund (ISCF) and Participant Funding Program (PFP) for the following activities:
    - PFP funding for the Beaverlodge Properties Commission hearing in January 2025
    - PFP funding to support YNLR for the UMM ROR Commission meeting in January 2025
    - ISCF funding for the long-term engagement TOR to facilitate participating in consultation and engagement activities and formalize ongoing dialogue regarding CNSC-regulated facilities and activities of interest occurring on YLNR's traditional and treaty territories
    - ISCF funding for YNLR for an internal resource position to support YNLR on all nuclear-related files by coordinating YNLR's participation in activities
    - ISCF funding to support the Uranium City regional land use mapping project

- ISCF funding to support YNLR's participation at the Turtle Island Indigenous Conference in May 2024, where CNSC staff and YNLR co-presented an oral presentation illustrating YNLR-CNSC collaboration on the IEMP

CNSC staff and YNLR do not agree on all topics of discussion. YNLR and the Athabasca leadership note the disconnect between their previous intervention recommendations on the Beaverlodge property transfer and the recent decision made by the Commission. YNLR and the Athabasca Leadership expect that their collective voice and concerns are better reflected in future CNSC staff recommendations and Commission decisions. Both YNLR and the CNSC are interested in strengthening their relationship through on-going respectful dialogue that will enable them to learn from one another through knowledge sharing and cross-cultural exchange. Many of the activities completed in 2024/25 have benefitted the relationship and advanced project-specific discussions, although some previous decisions, such as the licence renewal terms for the Rabbit Lake, Key Lake and McArthur River facilities, have disappointed YNLR and Athabasca leadership CNSC staff and YNLR staff look forward to continuing to work collaboratively through our shared focus group in 2025/2026.

English River First Nation (ERFN):

As part of the commitments contained within the Terms of Reference (TOR) for long-term engagement between ERFN and the CNSC, this update was prepared in collaboration with ERFN.

In June 2024, CNSC staff and ERFN signed a TOR for long-term engagement to formalize an existing and longstanding relationship. To support the implementation and work related to the TOR CNSC awards funding and enables ERFN to participate in annual consultation and engagement activities. It also acts as a framework for discussions of CNSC-regulated facilities and activities of interest within ERFN's traditional and treaty territories. ERFN refers to its ancestral lands as the Nuhtsiye-kwi Benéne. CNSC staff and ERFN celebrated the signing of the TOR with a Sweat and Feast Ceremony.

This update was prepared in collaboration with ERFN. Regular meetings included a focus group composed of ERFN Elders, land users, leadership and youth, as well as the Lands and Consultation Director of ERFN, CNSC representatives, other ERFN staff and invited guests.

Each year, CNSC staff and ERFN develop an engagement work plan that provides information on the scope of work, detailed activities and general timelines associated with work items for collaboration and engagement that year.

ERFN and CNSC staff have agreed to meet quarterly to advance work plan items and shared priorities. In September 2024, ERFN and CNSC staff met in Saskatoon for the first quarterly meeting since signing the TOR in June 2024. In October 2024, ERFN and CNSC staff met in

Saskatoon for a second regular meeting, which included a visit from the CNSC President and the Vice President of the Regulatory Affairs Branch (RAB). ERFN and the CNSC have developed a positive working relationship grounded in open communication, two-way dialogue and actions.

The 2024/25 engagement work plan included:

- finalizing the signing of the TOR, which included a workplan and 2024/25 budge
- participating in the CNSC's Independent Environmental Monitoring Program (IEMP) in Nuhtsiye-kwi Benéne
- enhancing 2-way information sharing and communication between CNSC staff and ERFN community members
- providing updates and discussions on specific projects for uranium mining and milling (UMM) facilities of interest, as well as upcoming licensing activities, including operations, decommissioning and proposed CNSC-regulated projects in Nuhtsiye-kwi Benéne
- relaying communications on other topics and opportunities (e.g., regulatory document updates, feedback on the UMM ROR, health studies, the UNDRIP/UNDA Action Plan, CNSC PFP and ISCF opportunities and environmental monitoring programs)

In the workplan, the facilities of interest relating to the 2024 Uranium Mines and Mills Regulatory Oversight Report include the Cigar Lake, Key Lake and McArthur River operations.

Other discussion topics included consultation and engagement activities for ongoing CEAA 2012 EAs of interest to ERFN, including Denison's Wheeler River Project, although this Project falls outside the scope of the 2024 UMM ROR.

In 2024, CNSC staff conducted several in-person engagement activities with ERFN including:

- In April 2024, CNSC staff attended a ceremonial Sweat and Feast with ERFN, to celebrate the finalization of the TOR and celebration of the long-term relationship.
- In May 2024, the CNSC partnered with the University of Saskatchewan to host the annual Women in STEM event, which showcased women in STEM in leadership roles and offered interactive and culturally relevant STEM activities to encourage Indigenous girls to become more involved and interested in STEM. ERFN's Director of Lands and Consultation was one of the mentors at the event and the event enabled Indigenous girls from across northern Saskatchewan to participate.
- In June 2024, the CNSC and ERFN signed a long-term TOR.
- On September 18, 2024, ERFN members travelled to Saskatoon to participate in the annual in-person UMM ROR engagement session. CNSC staff and ERFN also held the first quarterly meeting in Saskatoon that same week.
- On October 17, 2024, the President of the CNSC, the Vice President of the Regulatory Affairs Branch (RAB) and CNSC staff met in-person with ERFN.

- In 2024, the CNSC continued to provide funding and capacity support to ERFN through the Indigenous and Stakeholder Capacity Fund (ISCF) and Participant Funding Program (PFP) for the following activities:
    - PFP funding to support ERFN in the UMM ROR Commission meeting in January 2025.
    - ISCF funding for the long-term engagement TOR to facilitate participating in consultation and engagement activities and formalize ongoing dialogue regarding CNSC-regulated facilities and activities of interest occurring on ERFN's ancestral lands, the Nuhtsiye-kwi Benéne.
    - ISCF funding for ERFN for an internal resource position to support ERFN on all nuclear-related files in their territories by coordinating ERFN's participation in activities.
    - ISCF funding to facilitate ERFN's review of REGDOC- 3.2.1, *Public Information and Disclosure*.

CNSC staff and ERFN are continuing to strengthen their relationship through on-going respectful dialogue that will enable them to learn from one another through knowledge sharing and cross-cultural exchange. The activities completed in 2024 have benefitted relationship building and advanced project-specific discussions. CNSC staff and ERFN look forward to continuing this collaborative work through our engagement working group in 2025.

Athabasca Chipewyan First Nation (ACFN):

As part of the commitments contained within the Terms of Reference (TOR) for long-term engagement between ACFN and the CNSC, CNSC staff prepared this update and the ACFN Dene Lands and Resource Management (DLRM) office provided comments and feedback.

In May 2024, CNSC staff and ACFN signed a TOR for long-term engagement to formalize the existing and longstanding relationship. This TOR was signed as a 1-year trial that both parties will reassess at the end of 2025 and provides capacity funding that enables ACFN to participate in annual consultation and engagement activities with the CNSC. It also acts as a framework for discussions about CNSC-regulated facilities and activities of interest within ACFN's traditional and treaty territories.

Regular meetings include a focus group composed of ACFN Elders, land users and community members, and ACFN staff from the DLRM office. CNSC staff and invited guests participate in the discussions. Each year, CNSC staff and ACFN DLRM develop an engagement work plan on the scope of work, detailed activities, areas of interest and general timelines associated for collaboration and engagement that year. ACFN DLRM and CNSC staff have agreed to meet quarterly to advance work plan items and shared priorities. These quarterly meetings include 2 in-person and 2 virtual meetings, with the first official quarterly meeting occurring in March 2025 (note that there was a delay in starting the formal quarterly meetings with the focus

group as ACFN needed to identify members from the community to participate). ACFN and the CNSC have developed a positive working relationship grounded in open communication, 2-way dialogue and actions.

CNSC conducted the following engagement activities in 2024:

- In May 2024, CNSC staff attended community engagement sessions in Uranium City, alongside ACFN DLRM staff and ACFN members, focussed on the Beaverlodge sites and January 2025 hearing in Saskatoon.
- In September 2024, CNSC staff participated in an in-person community engagement session in Fort Chipewyan, AB, presenting on historic and decommissioned uranium mine and mill sites and proposed projects within ACFN's traditional territory, including the Beaverlodge, Gunnar, Lorado, NexGen and Paladin projects. CNSC staff also provided an update on the UMM ROR and January 2025 Commission proceeding.
- For the 2024 reporting period, the CNSC continued to provide funding and capacity support to ACFN through the CNSC's Indigenous and Stakeholder Capacity Fund (ISCF) and Participant Funding Program (PFP) for the following activities:
    - PFP funding to support ACFN's participation in the Beaverlodge Properties Commission hearing in January 2025.
    - PFP funding to support ACFN's participation in the UMM ROR Commission meeting in January 2025.
    - ISCF funding for the TOR for long-term engagement to support participation in consultation and engagement activities.
    - ISCF funding for an internal resource position to support, coordinate and enable ACFN's continued participation in all nuclear-related files within ACFN's traditional territory.
    - ISCF funding to complete a Traditional Land Use study.
    - ISCF funding to attend the Canadian Nuclear Society conference in 2024.
    - ISCF funding to assist with the purchase of new IT equipment for ACFN staff.
    - ISCF funding to review and comment on REGDOC-1.1.4*, Licence Application Guide: Licence to Decommission a Reactor Facility*.
    - ISCF funding to support ACFN's K'ai Tailé Dene Days Event, as well as a community engagement session.

CNSC staff and ACFN DLRM are continuing to strengthen their relationship through on-going conversations that will enable them to learn from one another through knowledge sharing and cross-cultural exchange. The activities completed in 2024 have benefitted relationship building and advanced project-specific discussions. CNSC staff and ACFN DLRM look forward to continuing this collaborative work through our shared focus group in 2025.

Appendix G: Links to Websites

Benefits from Northern Mining

Cameco Corporation

Cameco Corporation – Cigar Lake Operation

Cameco Corporation – McArthur River/Key Lake Operations

Cameco Corporation – Rabbit Lake Operation

CNSC Fact Sheet on Natural Background Radiation

CNSC Independent Environmental Monitoring Program

CNSC Indigenous Engagement

Eastern Athabasca Regional Monitoring Program

Health Canada's Guidelines for Canadian Drinking Water Quality

National Pollutant Release Inventory

Northern Saskatchewan Environmental Quality Committee

Orano Canada Inc.

Saskatchewan Environmental Quality Guidelines

Appendix H: Acronyms

ACFN	Athabasca Chipewyan First Nation
ALARA	As Low As Reasonably Achievable
AGTMF	Above Ground Tailings Management Facility
AMP	Administrative Monetary Penalty
BE	Below Expectations
Bq/L	Becquerels per liter
Bq/m^3	Becquerels per cubic meter
Cameco	Cameco Corporation
CAP	Corrective Action Plan
CMD	Commission Member Document
CNSC	Canadian Nuclear Safety Commission
COPC	Contaminants of Potential Concern
CSA	Canadian Standards Association
Dension	Denison Mine
EA	Environmental Assessment
EARMP	Eastern Athabasca Regional Monitoring Program
ERA	Environmental Risk Assessment
ERFN	English River First Nation
ERT	Emergency Resource Team
FS	Fully Satisfactory
HHRA	Human Health Risk Assessment
IEMP	Independent Environmental Monitoring Program
JEB	John Everett Bates
KML	Kineepik Métis Local
LCH	Licence Conditions Handbook
L	Litre
LLRD	Long-lived Radioactive Dust

LTI	Lost-Time Injury
MDMER	*Metal and Diamond Mining Effluent Regulations*
mg/L	milligram per litre
MoU	Memorandum of Understanding
mSv	millisievert
NEW	Nuclear Energy Worker
NNC	Notice of Non-compliance
NexGen	NexGen Energy Ltd.
NSCA	*Nuclear Safety and Control Act*
Orano	Orano Canada Inc.
OSLD	optically stimulated luminescence dosimeter
p-mSv	Person-millisieverts
PAD	Personal Alpha Dosimeter
PFP	Participant Funding Program
PIDP	public information and disclosure program
PPE	Personal Protective Equipment
REGDOC	Regulatory Document
RnG	Radon Gas
RnP	Radon Progeny
ROR	Regulatory Oversight Report
RP	Radiation Protection
SA	Satisfactory
SRC	Saskatchewan Research Council
SCA	Safety and Control Area
SRC	Saskatchewan Research Council
STEM	Science, Technology, Engineering and Mathematics
TMF	Tailings Management Facility
TOR	Terms of Reference

TSS	Total Suspended Solids
U	Uranium
UA	Unacceptable
UMM	Uranium Mines and Mills
UMMD	Uranium Mines and Mills Division
WiSTEM	Women in Science, Technology, Engineering and Mathematics
YNLR	Ya'Thi Nene Lands and Resource