CMD 26-M7 - CNSC Staff Submission

Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2024

Classification	UNCLASSIFIED
Type of CMD	Original
CMD Number	CMD 26-M7
Reference CMD(s)	N/A
Type of report	Regulatory Oversight Report
Public meeting date	Week of March 23, 2026
Word e-Doc #	7573226 – EN 7573235 – FR
PDF e-Doc #	7573236 – EN 7573237 – FR
Summary	This CMD presents the Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2024. - Purpose of document - Key events - Key findings
Actions required	There are no actions requested of the Commission. This CMD is for information only.

CMD 26-M7

Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2024

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Foxit PDF Editor Version: 13.0.1

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Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

Canada

Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2024

Canadian Nuclear Safety Commission

Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2024 Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2024

Cat. No. CC171-33E-PDF
ISSN 2562-0010

Également publié en français sous le titre : Rapport de surveillance réglementaire des installations de traitement de l'uranium et des substances nucléaires au Canada : 2024

Document availability

This document can be viewed on the CNSC website. To request a copy of the document in English or French, please contact:

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Publishing history

TBD

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Changes to the 2024 Regulatory Oversight Report

Change	Rationale
Re-alignment of data presented in appendices.	To better align with the data presented in other regulatory oversight reports across the CNSC, as well as to better focus on the relevant data obtained during the applicable calendar year.
Additional information provided on reportable events to address corrective actions taken by licensees.	Added in response to feedback received from public and Indigenous interventions requesting this information.

Land acknowledgement and reconciliation statement

At the Canadian Nuclear Safety Commission (CNSC), we recognize the importance of consulting and building relationships with Indigenous Nations and communities and are committed to working together to ensure the safe and effective regulation of Uranium and Nuclear Substance Processing Facilities.

We acknowledge that the facilities and activities regulated by the CNSC, including those covered in this Regulatory Oversight Report (ROR), are located on the traditional and treaty territories of Indigenous peoples across Canada, as listed in Appendix O. We also recognize that when these sites were originally constructed, Indigenous consultation and engagement did not meet today's standards.

CNSC staff are committed to ongoing engagement and collaboration with Indigenous Nations and communities to better understand and address concerns related to the operation of Canada's Uranium and Nuclear Substance Processing Facilities. We will continue to create meaningful opportunities for long-term engagement and encourage open, two-way dialogue to foster mutual understanding, even when perspectives differ.

The CNSC strives to be an open, culturally aware, and respectful organization that engages transparently and collaboratively with Indigenous Nations and communities. Our staff are committed to active listening, understanding our role in advancing reconciliation, and working together to support the safe and effective regulation of nuclear energy and materials.

Plain language summary

The Regulatory Oversight Report (ROR) for Uranium and Nuclear Substance Processing Facilities in Canada: 2024 provides information on the safety performance of the following licensed facilities in Canada:

Uranium Processing Facilities:

- Cameco Corporation Blind River Refinery, Blind River, Ontario
- Cameco Corporation Port Hope Conversion Facility, Port Hope, Ontario
- Cameco Fuel Manufacturing Inc., Port Hope, Ontario
- BWXT Nuclear Energy Canada Inc., Toronto, Ontario
- BWXT Nuclear Energy Canada Inc., Peterborough, Ontario

Nuclear Substance Processing Facilities:

- SRB Technologies (Canada) Inc., Pembroke, Ontario
- Nordion (Canada) Inc., Ottawa, Ontario
- Best Theratronics Ltd., Ottawa, Ontario
- BWXT Medical Ltd., Ottawa, Ontario

This report also provides an update on CNSC staff's regulatory activities regarding Indigenous engagement, public information, community engagement, and parts of the CNSC's Independent Environmental Monitoring Program (IEMP) that relate to UNSPF facilities.

This report covers the 2024 calendar year for Uranium and Nuclear Substance Processing Facilities (UNSPF).

In 2024, all UNSPFs operated safely. Monitoring data demonstrated that people and the environment remained protected.

Each year, CNSC inspectors and experts conduct inspections at these facilities. The number and scope of these inspections depend on the facility's potential risks to people and the environment, as well as past performance. The CNSC uses a risk-informed approach when planning inspections.

The CNSC uses 14 safety and control areas (SCAs) to evaluate the performance of each licensee; the resulting performance ratings are included in this report. Special attention is given to the SCAs for radiation protection, environmental protection, and conventional health and safety, as they give a good overview of overall safety performance.

The SCA ratings in this report are from the results of activities conducted by CNSC staff to verify licensee compliance. These activities included inspections, technical assessments, reviews of licensee reports, reviews of events and incidents, and ongoing exchanges of information with licensees.

This report is available to download on the Open Government Portal, and the documents referenced in this Commission Member Document (CMD) are available to the public upon request, subject to confidentiality considerations.

1 Overview

1.1 Background

Each year, the Canadian Nuclear Safety Commission (CNSC) publishes regulatory oversight reports, which offer information on the safety performance of Canadian licensees who are authorized to use nuclear substances. The reports evaluate licensees based on their compliance with regulatory requirements. Key issues and emerging changes in regulation are also highlighted.

Learn more about regulatory oversight reports

1.2 Scope of report

Through the application of the *Nuclear Safety and Control Act* (NSCA) and its associated regulations, the CNSC regulates Canada's nuclear industry to protect the health and safety of persons and the environment and to implement Canada's international commitments on the peaceful use of nuclear energy. The CNSC also disseminates objective scientific, technical, and regulatory information to the public. Licensees are responsible for operating their facilities safely and are required to implement programs that make adequate provision for meeting regulatory requirements and licence conditions.

Learn more about the NSCA

This report covers the 2024 calendar year for Uranium and Nuclear Substance Processing Facilities (UNSPFs). Research Reactors and Class IB Particle Accelerators are reported on every 3 years, with the most recent reports included in the 2023 ROR.

Learn more about the 2023 UNSPF, Research Reactor, and Class IB Accelerator ROR

1.3 Nuclear Facilities Covered by this Report

Uranium Processing Facilities:

Nuclear facility	Location	Licensee
Cameco Corporation Blind River Refinery	Blind River, Ontario	Cameco Corporation

Nuclear facility	Location	Licensee
Cameco Corporation Port Hope Conversion Facility	Port Hope, Ontario	Cameco Corporation
Cameco Fuel Manufacturing Inc.	Port Hope. Ontario	Cameco Fuel Manufacturing Inc.
BWXT Nuclear Energy Canada Inc.	Toronto, Ontario	BWXT Nuclear Energy Canada Inc.
BWXT Nuclear Energy Canada Inc.	Peterborough, Ontario	BWXT Nuclear Energy Canada Inc.

Nuclear Substance Processing Facilities:

Nuclear facility	Location	Licensee
SRB Technologies (Canada) Inc.	Pembroke, Ontario	SRB Technologies (Canada) Inc.
Nordion (Canada) Inc.	Ottawa, Ontario	Nordion (Canada) Inc.
Best Theratronics Ltd.	Ottawa, Ontario	Best Theratronics Ltd.
BWXT Medical Ltd.	Ottawa, Ontario	BWXT Medical Ltd.

This report discusses all safety and control areas (SCAs), but focuses on radiation protection, environmental protection, and conventional health and safety, as they provide a good overview of safety performance at licensed facilities. The report also provides an overview of licensee operations, licence changes, major developments at licensed facilities and sites, and reportable events. In addition, the report includes information on engagement with Indigenous Nations and communities, and public information programs.

2 Uranium Processing Facilities

Uranium processing facilities are part of the nuclear fuel cycle that includes refining, conversion, and fuel manufacturing. The fuel produced is used in nuclear power plants for the generation of electricity.

2.1 Cameco Blind River Refinery

Cameco Corporation owns and operates the Blind River Refinery (BRR) in Blind River, Ontario. The facility is located about 5 km west of the town of Blind River and south of Mississauga First Nation. The facility is located within the Robinson-Huron and Robinson-Superior Treaties territory and the traditional territory of the Anishinabek, Métis and Odawa peoples, in particular the Mississauga First Nation.

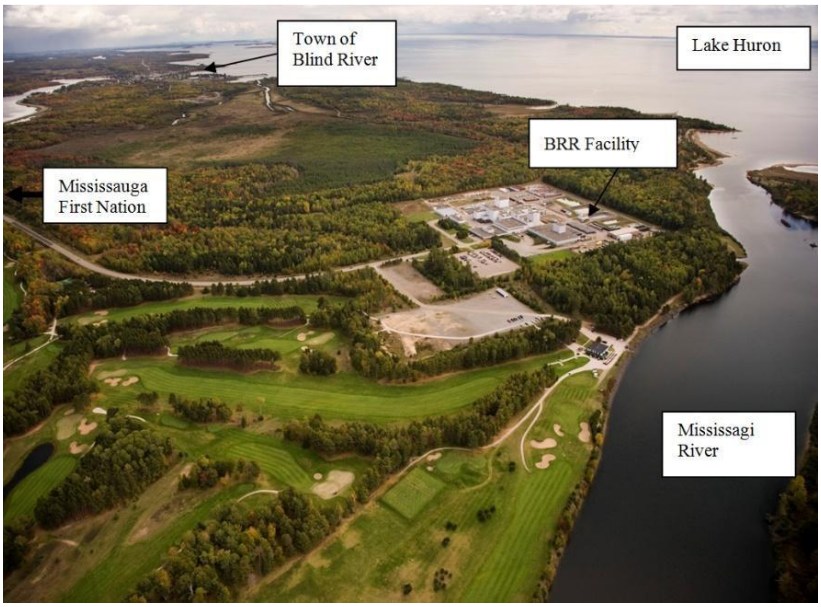


Figure 2-1: Aerial view of the Blind River Refinery, showing its proximity to the Town of Blind River, Ontario, the Mississauga First Nation, Lake Huron, and the Mississagi River (Source: Cameco).

The BRR facility refines uranium concentrates (yellowcake) received from uranium mines in Canada and around the world to produce uranium trioxide (UO_3), an intermediate product of the nuclear fuel cycle. The primary recipient of the UO_3 is Cameco's Port Hope Conversion Facility (PHCF).

Learn more about Blind River Refinery

In 2024, CNSC staff conducted 5 inspections at the BRR facility that covered 11 SCAs. Table D-1 in Appendix D lists these inspections and the 21 resulting Notices of Non-Compliance (NNCs).

CNSC staff are satisfied that Cameco's BRR operated safely in 2024 and in accordance with its licensing basis.

2.2 Cameco Port Hope Conversion Facility

Cameco Corporation owns and operates the Port Hope Conversion Facility (PHCF), which is located in Port Hope, Ontario, and is in the traditional territory of the Michi Saagiig Anishinaabe people. These lands are covered by the Williams Treaty between Canada and the Mississauga and Chippewa Nations. The facility is situated on the north shore of Lake Ontario, approximately 100 km east of Toronto.

Figure 2-2: Aerial view of the Port Hope Conversion Facility (Source: Cameco).

PHCF converts UO_3 powder produced by Cameco's BRR into uranium dioxide (UO_2) and uranium hexafluoride (UF_6). UO_2 is used in the manufacturing of Canada Deuterium Uranium (CANDU) reactor fuel, while UF_6 is exported for further processing before being converted into fuel for light-water reactors.

Learn more about Port Hope Conversion Facility

In 2024, CNSC staff conducted 6 inspections at PHCF that covered 10 SCAs, as well as compliance verification activities associated with the Vision in Motion (VIM) project (discussed below). Table D-2 in Appendix D lists these inspections and the 17 resulting NNCs.

CNSC staff are satisfied that Cameco's PHCF operated safely in 2024 and in accordance with its licensing basis.

2.2.1 PHCF Financial Guarantee

In 2022, CNSC staff received an updated preliminary decommissioning plan (PDP) and financial guarantee from Cameco for the PHCF to fulfill the requirement to update the PDP and cost estimate at a minimum every 5 years. In 2023, CNSC staff's assessment was completed and CMD 23-H107 was submitted to the Commission for a hearing in writing. In May 2024, the Commission accepted the revised financial guarantee proposed by Cameco for PHCF, as documented in the Record of Decision, DEC 23-H107.

2.2.2 Vision in Motion

Vision in Motion (VIM) is Cameco's project to clean up and renew the PHCF site. The project builds on work now underway through the Port Hope Area Initiative (PHAI) to address historic low-level radioactive waste issues in the municipality of Port Hope. The VIM project is being carried out under Cameco's operating licence, FFOL-3631.00/2027. Licence condition 16.1 states: "The licensee shall implement and maintain a program to carry out clean-up, decontamination and remediation work". A key objective of VIM is transferring Cameco decommissioning waste to the Long-Term Waste Management Facility (LTWMF) in Port Hope operated by PHAI. The materials being transferred include building demolition debris, equipment, contaminated soils, and stored wastes. The project is also implementing building and infrastructure modifications needed to support the remediation effort. In 2024, Cameco carried out VIM work that included the following:

- The transfer of 444 dump trucks of eligible wastes, 970 super sacks, 8 roll-off bins, 2,106 drums, and 43 vac trucks to the LTWMF from the PHCF and the Dorset Street warehouse.
- Building 14/15 was completely disassembled including the concrete floor slab foundations.
- Drum dumping equipment was installed in Building 5.
- A temporary cylinder lay down area was constructed north of the former Building 27 footprint to facilitate the execution of VIM Area 5 (north of warehouse) in-situ stabilization proof of concept trial.
- VIM Area 5 proof of concept trial trenching was completed, including installation of monitoring wells.
- Building 2 redundant equipment removal continued.

Learn more about Cameco's VIM project

2.1 Cameco Fuel Manufacturing Inc.

Cameco Fuel Manufacturing Inc. (CFM) is a wholly owned subsidiary of Cameco Corporation. CFM is in the traditional territory of the Michi Saagiig Anishinaabe people. These lands are covered by the Williams Treaty between Canada and the Mississauga and Chippewa Nations. CFM operates 2 facilities: a nuclear fuel fabrication facility licensed by the CNSC in Port Hope, Ontario (referred to as CFM in this report); and a metals manufacturing facility in Cobourg, Ontario, which manufactures fuel bundle and reactor components. This latter facility is not licensed by the CNSC and is not discussed further in this report.

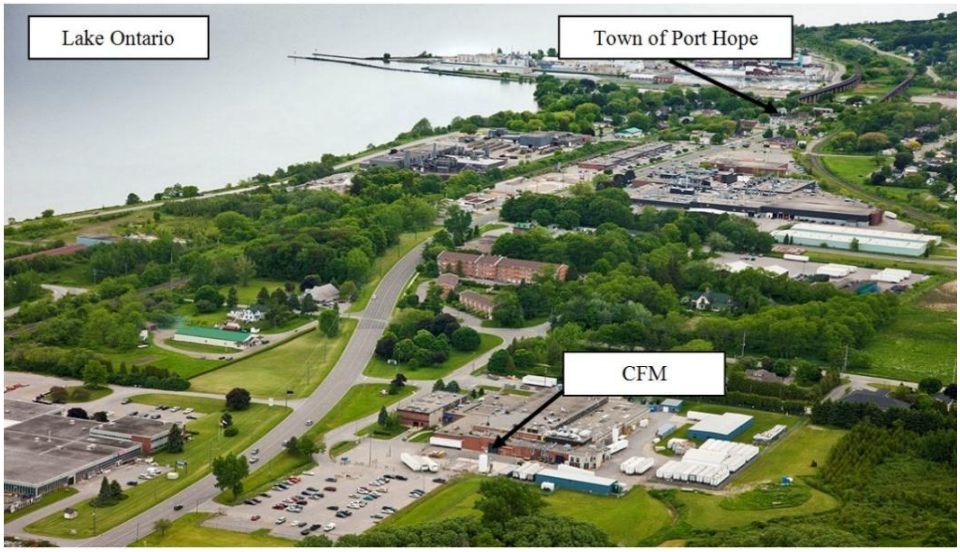


Figure 2-3: Aerial view of the Cameco Fuel Manufacturing facility and its proximity to Lake Ontario within the Town of Port Hope (Source: Cameco).

The CFM facility manufactures fuel pellets from UO_2 powder and assembles nuclear reactor fuel bundles. The finished fuel bundles are primarily shipped to Canadian nuclear power reactors.

Learn more about Cameco Fuel Manufacturing Inc.

In 2024, CNSC staff conducted 4 inspections at CFM that covered 10 SCAs. Table D-3 of Appendix D lists these inspections and the 16 resulting NNCs.

CNSC staff are satisfied that CFM operated safely in 2024 and in accordance with its licensing basis.

2.3 BWXT Nuclear Energy Canada Inc. (Toronto and Peterborough)

BWXT Nuclear Energy Canada Inc. (BWXT NEC) produces nuclear fuel bundles used in Canadian nuclear power plants. BWXT NEC operates 2 facilities for this purpose, each under separate CNSC licences. One facility is located in Toronto and the other facility is located in Peterborough, Ontario. Figures 2-4 and 2-5 show aerial views of the BWXT NEC facilities. The Toronto facility is located within the traditional territory of many Nations, including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples, and now home to many diverse First Nations, Inuit and Métis peoples. The Peterborough facility resides in the traditional territory of the Michi Saagiig Anishinaabe people. These lands are covered by the Williams Treaty between Canada and the Mississauga and Chippewa Nations.

Figure 2-4: Aerial view of the BWXT NEC Toronto facility outlined in red (Source: Google Maps).

Figure 2-5: Aerial view of the BWXT NEC Peterborough facility outlined in red (Source: Google Earth).

The Toronto facility produces natural and depleted uranium dioxide pellets using UO_2 powder supplied by PHCF. The Peterborough facility manufactures CANDU nuclear fuel bundles using the uranium pellets from the Toronto facility and zircaloy tubes manufactured in-house. The Peterborough facility also runs a fuel services business involved with the manufacturing and maintenance of equipment used in nuclear power plants.

Learn more about BWXT Nuclear Energy Canada Inc.

In 2024, CNSC staff conducted 2 inspections at each BWXT NEC facility for a total of 4 inspections, covering 4 SCAs and 1 area related to other matters of regulatory interest (public information and disclosure). Table D-4 in Appendix D lists these inspections and the resulting 8 NNCs.

CNSC staff are satisfied that the BWXT NEC facilities operated safely in 2024 and in accordance with their licensing basis.

2.3.1 BWXT NEC Financial Guarantee

In November 2023, CNSC staff received a request to update BWXT NEC's financial guarantee based on an updated preliminary decommissioning plan (PDP). The PDP was updated to fulfill the requirement to update the PDP and cost estimate at a minimum every 5 years. CNSC staff's

assessment of this request was submitted to the Commission through CMD 24-H104 for a hearing in writing.

In April 2024, the Commission accepted the revised financial guarantees proposed by BWXT NEC for its Toronto and Peterborough facilities, as documented in its Record of Decision, DEC 24-H103.

3 Nuclear Substance Processing Facilities

Nuclear substance processing facilities use nuclear substances to manufacture various products for end uses in industrial or medical applications. The nuclear substances can be used for lighting self-luminous emergency and exit signs, sterilizing items such as surgical gloves for sanitary reasons, and providing cancer diagnosis and treatment. All the facilities are located within the traditional unceded territory of the Algonquin Anishinaabeg peoples.

3.1 SRB Technologies (Canada) Inc.

SRB Technologies (Canada) Inc. (SRBT) is licensed to operate a Class IB nuclear substance processing facility, in Pembroke, Ontario.

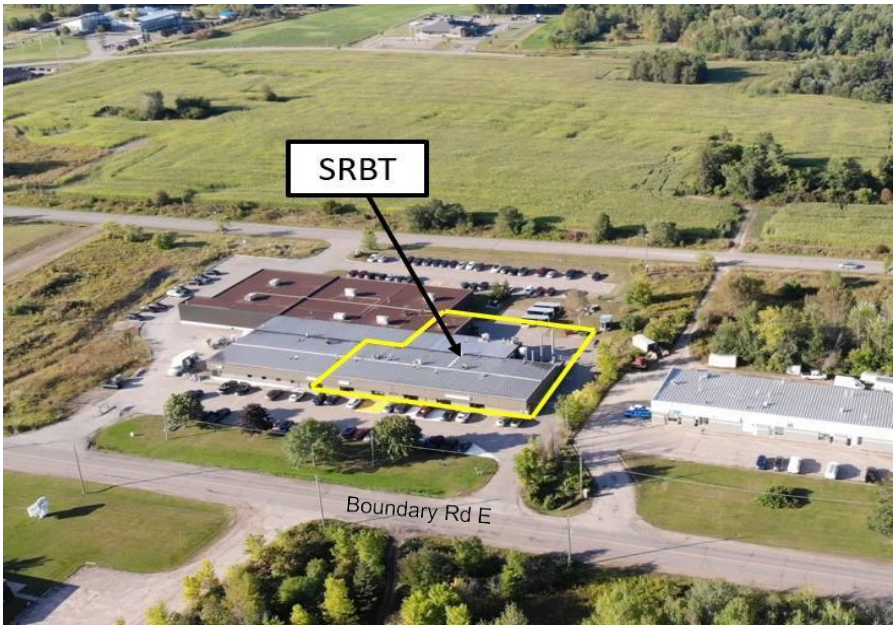


Figure 3-1: Aerial view of the SRBT facility outlined in yellow (Source: SRBT).

The SRBT facility processes tritium gas (HT) to produce sealed glass capsules coated with phosphorescent powder and filled with HT to generate continuous light. Examples of such

gaseous tritium light sources include signs, markers, and tactical devices. SRBT distributes its products in Canada and internationally.

Learn more about SRB Technologies (Canada) Inc.

In 2024, CNSC staff conducted 2 inspections at SRBT that covered 7 SCAs. Table D-5 in Appendix D lists these inspections and there were 3 resulting NNCs.

CNSC staff are satisfied that SRBT operated safely in 2024 and in accordance with its licensing basis.

3.2 Nordion (Canada) Inc.

Nordion (Canada) Inc. (Nordion) is located in Ottawa, Ontario, and is licensed to operate a Class IB nuclear substance processing facility.

Figure 3-2: Aerial view of the Nordion facility outlined in orange (Source: Nordion/Canadian Aerial Photo Corporation).

Nordion provides cobalt-60 and gamma irradiation systems for medical devices, food safety and health care industries, and innovative applications.

Learn more about Nordion (Canada) Inc.

In 2024, CNSC staff conducted 2 inspections at Nordion that covered 5 SCAs. Table D-6 in Appendix D lists these inspections and the 3 resulting NNCs.

CNSC staff are satisfied that Nordion operated safely in 2024 and in accordance with its licensing basis.

3.3 Best Theratronics Ltd.

Best Theratronics Ltd. (BTL) is licensed to operate a Class IB nuclear substance processing facility in Ottawa, Ontario.

Figure 3-3: Aerial view of the Best Theratronics Ltd. Facility (Source: Google Maps).

BTL manufactures cyclotrons and medical equipment, including cobalt-60-based external beam radiation therapy units and cesium-137 self-contained irradiators for blood irradiation.

Learn more about Best Theratronics Ltd.

In 2024, CNSC staff conducted 3 inspections at BTL that covered 10 SCAs. Table D-7 in Appendix D lists these inspections, the 12 resulting NNCs, as well as the inspector's Order. BTL's performance has resulted in ratings of below expectations (BE) in the Emergency Management and Fire Protection SCA and Security SCA. For more information on these ratings, see sections 5.10 and 5.12, respectively.

For more information on compliance actions regarding BTL, including the inspector's Order, please refer to section 7.3 of this report.

CNSC staff are generally satisfied that BTL operated safely in 2024 and in accordance with its licensing basis, except in the case of its financial guarantee. For more information on the Designated Officer's Order issued to BTL regarding its financial guarantee, please refer to section 7.3.2 of this report.

3.4 BWXT Medical Ltd.

BWXT Medical Ltd. (BWXT Medical) operates a Class IB nuclear substance processing facility in Ottawa, Ontario.

Figure 3-4: Aerial view of the BWXT Medical facility outlined in red (Source: Nordion/Canadian Aerial Photo Corporation).

BWXT Medical processes unsealed radioisotopes such as yttrium-90 and indium-111 for health and life sciences applications.

Learn more about BWXT Medical Ltd.

In 2024, CNSC staff conducted 3 inspections at BWXT Medical that covered 3 SCAs. Table D8 in Appendix D lists these inspections and the resulting 8 NNCs.

CNSC staff are satisfied that BWXT Medical operated safely in 2024 and in accordance with its licensing basis.

4 Regulatory Oversight

The CNSC performs regulatory oversight of licensed facilities to verify compliance with the requirements of the NSCA and the associated regulations made under it, each facility's licence and licence conditions, and any other applicable standards and regulatory documents (REGDOCs).

CNSC staff use the SCA framework to assess, evaluate, review, verify and report on licensee performance. The SCA framework includes 14 SCAs, which are subdivided into specific areas

that define each SCA's key components. Further information on the SCA framework can be found on the CNSC's website.

Learn more about the CNSC's safety and control area framework.

4.1 Regulatory Activities

CNSC staff conducted many risk-informed regulatory oversight activities at Canada's UNSPFs in 2024.

In addition to CNSC compliance inspections, the IAEA performs verification activities to confirm that all nuclear material in Canada remains in peaceful use. The CNSC regulatory framework requires Canadian operators to provide the access, assistance and information required for the IAEA to complete its activities. CNSC staff ensure operator compliance with these requirements.

Table 4-1 presents CNSC staff's inspections and compliance verification efforts for these facilities for the reportable year.

Table 4-1: CNSC inspections and compliance verification efforts at UNSPFs, safeguards verification activities led by the International Atomic Energy Agency (IAEA) and by CNSC staff in 2024.

Facility	Number of CNSC inspections	CNSC-led safeguards inspections	IAEA-led safeguards inspections
BRR	5	0	8
PHCF	6	0	11
CFM	4	0	4
BWXT NEC - Peterborough	2	1	4
BWXT NEC – Toronto	2	1	5
SRBT	2	0	0
Nordion	2	0	1
BTL	3	0	0
BWXT Medical	3	0	0

4.2 Licensing

CNSC staff's licensing activities include assessments of applications for new licences and licence renewals, drafting new or amended licences, preparing CMDs, and drafting or revising licence conditions handbooks (LCHs).

When CNSC regulatory documents are published, CNSC staff update the LCHs as applicable for each facility, taking into consideration the licensee's implementation plans. CNSC staff verify the implementation as part of ongoing compliance verification activities. Appendix F provides a list of CNSC regulatory documents and applicable standards implemented in 2024 at UNSPFs and used by CNSC staff for compliance verification.

4.3 Compliance Verification

The CNSC ensures licensee compliance through verification, enforcement, and reporting activities. CNSC staff implement compliance plans for each site by conducting regulatory activities, including inspections, desktop reviews, and technical assessments of licensee programs, processes, and reports.

Appendix C contains a list of annual compliance reports prepared by the licensees.

Appendix D contains a list of inspections carried out by CNSC staff in 2024. CNSC inspection findings are categorized into low, medium, or high safety significance based on the likelihood and potential for impacts to human health, safety and security if not addressed by the licensee. All findings for inspections conducted in 2024 were of low safety significance, with the exception of 2 medium safety significant findings from inspections conducted at PHCF under the Operational Performance SCA and Physical Design SCA, as well as 5 medium safety significant findings and an Inspector's Order from inspections conducted at BTL under the Security SCA and Emergency Management and Fire Protection SCA. None of the findings had a significant impact on the health and safety of workers, people or the environment, or the safe operation of the facilities as licensees have taken, or have committed to take, necessary corrective actions to address the findings.

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

5 Assessment of Safety and Control Areas

CNSC staff assign performance ratings to licensees based on the results of regulatory oversight activities, and Appendix A provides more detail on these ratings and the criteria used to assign them. These ratings are either "satisfactory" (SA) or "below expectations" (BE) for the UNSPFs in 2024, and Appendix H provides the SCA ratings for each licensee.

The CNSC regulates all aspects of safety at nuclear sites in Canada, including risks to workers, the public, and the environment. All 14 SCAs, have been assessed. Detailed information is provided on radiation protection, conventional health and safety, and environmental protection, since these 3 SCAs are considered the most indicative of safety performance at UNSPFs. In particular, the SCAs of radiation protection and conventional health and safety are a good measure of the safety of workers, while the SCA of environmental protection is an appropriate measure of the safety of people and the environment.

5.1 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; and performance assessment, improvement, and management review.

Three (3) NNCs from inspections related to the management system SCA were issued to the following licensees over the reporting period:

- BRR – 1 NNC associated with ensuring that records accurately capture planned changes at the facility.
- CFM – 1 NNC associated with procedural documentation for tracking of safety culture assessment findings.
- BTL – 1 NNC associated with measures to ensure that monthly records are traceable, retrievable and retained.

The licensees have taken, or have committed to take, necessary corrective actions to address the above-noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the management system SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.2 Human Performance Management

The human performance management SCA covers activities that enable effective human performance through the development and implementation of processes that ensure 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.

CNSC staff assess performance in the human performance management SCA by verifying the compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive.

Thirteen (13) NNCs from inspections related to the human performance management SCA were issued to the following licensees over the reporting period:

- BRR – 3 NNCs related to ensuring: that the prescribed review cycle is maintained for training documentation; that workers attend scheduled training to maintain minimum complement qualifications; and that training-related corrective action plans are carried out in a timely manner.
- PHCF – 4 NNCs related to ensuring: consistent definition and use of self-assessments in all training governance; that UF6 operators meet all prerequisites prior to granting an area qualification; that supervisors verify worker qualifications and training prior to assigning duties and work; and that supervisors, the training coordinator and training staff, have readily available access to all worker qualifications and training records.
- BWXT Medical – 6 NNCs related to ensuring: that all training system documents and outputs consistently and accurately record all required information; that training system governing documents consistently and accurately define all positions requiring implementation of the Systematic Approach to Training (SAT) system; that Job Task Analyses (JTAs) are documented and complete, and that positional training requirements are based on the JTAs; that the training change management process is used to identify changes to tasks and to assess potential training implications leading to training modifications; that the training program documentation used to train and qualify workers meets BWXT Medical's training system requirements; and that workers complete the required training for their assigned position within the specified timeframes and training qualifications and exemptions are accurately recorded.

The licensees have taken, or have committed to take, necessary corrective actions to address the above-noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the human performance management SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.3 Operating Performance

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

CNSC staff assess performance in the operating performance SCA by verifying that policies, programs, methods and procedures are in place for the safe operation and maintenance of nuclear facilities. Verification of compliance with the requirements of this SCA is included as part of the CNSC's compliance verification activities, including desktop reviews of annual reports, reviews of event reports and related corrective actions, and planned or reactive inspections.

Three (3) NNCs from inspections related to the operating performance SCA were issued for the following licensees over the reporting period:

- CFM – 1 NNC related to procedural adherence with respect to types of locks used for equipment lock-outs.
- PHCF – 2 NNCs related to reviewing event reporting practices, particularly related to release events; and ensuring alignment with reporting requirements, and to submit an event report for an identified interior release event at the UF6 plant.

The licensees have taken, or have committed to take, necessary corrective actions to address the above-noted NNCs. The NNC issued to PHCF related to reviewing event reporting practices is considered to be a finding of medium safety significance. PHCF provided a corrective action plan acceptable to CNSC staff. All other findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the operating performance SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.4 Safety Analysis

The safety analysis SCA includes 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 preventive measures and strategies in reducing the effects of such hazards.

CNSC staff assess performance in the safety analysis SCA by verifying the compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. CNSC staff verify that licensees maintain safety analysis reports (SARs) that include updated information on the description of the facility and

the measures in place to protect the safety of workers, the public and the environment under normal operations, abnormal, and accident conditions. CNSC staff review the SARs to ensure that they address the concept of defence in depth, provide an assessment of the potential consequences of postulated accidents, and that the established safety goals, objective and acceptance criteria are met.

Two (2) NNCs from inspections related to the safety analysis SCA were issued for the following licensee over the reporting period:

- PHCF – 2 NNCs related to ensuring that: all credible accident scenarios related to the outdoor storage of filled UF_6 cylinders are discussed in the safety analysis; and a defined process is in place to address observations from periodic inspection and testing activities for fire sprinklers.

The licensee has taken, or has committed to take, necessary corrective actions to address the above-noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facility.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the safety analysis SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.5 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.

CNSC staff assess performance in the physical design SCA by verifying compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. CNSC staff verify the physical design SCA requirements by ensuring the implementation of national codes and standards for structural design and maintaining authorized inspection agency formal agreements including those relating to pressure-retaining programs where applicable.

Two (2) NNCs from inspections related to the physical design SCA were issued for the following licensee over the reporting period:

- PHCF – 2 NNCs related to ensuring a loss of primary containment resulting in an uncontrolled release of uranium in processing areas is addressed in a timely manner; and to develop and implement a cleanup process of visible contamination in processing areas.

The licensee has taken, or has committed to take, necessary corrective actions to address the above-noted NNCs. The NNC issued to PHCF related to developing and implementing a cleanup process of visible contamination in processing areas is considered to be of medium safety significance. PHCF has provided a corrective action plan that is acceptable to CNSC staff. All other findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facility.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the physical design SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.6 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 verify all equipment is available to perform its intended design function when called upon to do so.

CNSC staff assess performance in the fitness for service SCA by verifying compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. CNSC staff verify that the programs cover activities that affect the physical condition of structures, systems and components over time. Specific areas are assessed within this SCA to ensure that the fitness for service programs are supported by detailed procedures on preventative maintenance, measuring and testing of equipment and new equipment validation.

One (1) NNC from an inspection related to the fitness for service SCA was issued for the following licensee over the reporting period:

- CFM - 1 NNC related to completion of inspections/maintenance at defined frequencies for specific equipment.

The licensee has taken all necessary corrective actions to address the above-noted NNC. The finding was of low safety significance and did not affect the health and safety of workers, people and the environment, or the safe operation of the facility.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the fitness for service SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.7 Radiation Protection

The radiation protection SCA covers the implementation of a radiation protection program in accordance with the *Radiation Protection Regulations.* The program must ensure that contamination levels and radiation doses received by individuals are monitored, controlled, and maintained as low as reasonably achievable (ALARA).

Learn more about the *Radiation Protection Regulations*.

Six (6) NNCs from inspections related to the radiation protection SCA were issued for the following licensees over the reporting period:

- BRR – 1 NNC related to ensuring that the required information is displayed and maintained current on the ALARA bulletin board.
- CFM – 4 NNCs related to radiation protection document maintenance, respirator maintenance, contamination zone demarcation, and management of radiation survey instruments.
- SRBT – 1 NNC related to radiation protection training requirements and frequency of trained workers.

The licensees have taken, or committed to take, corrective actions to address the above noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities. CNSC staff rated the radiation protection SCA at all UNSPFs as satisfactory.

Application of ALARA

CNSC staff confirmed that all UNSPFs continued to implement radiation protection measures to keep radiation exposures and doses to persons ALARA. The CNSC requirement for licensees to apply the ALARA principle has consistently resulted in these doses staying well below regulatory dose limits.

Appendix L contains data on doses to workers for the UNSPFs from 2020 to 2024.

Worker dose control

Radiation protection programs include dosimetry methods, identification of workers requiring nuclear energy worker (NEW) status, and the methods for radiation safety of workers. Radiation protection program provisions will vary, depending on the radiological hazards present and the expected magnitude of doses received by workers. CNSC staff confirmed that all UNSPFs monitored and controlled the radiation exposures and doses received by all persons present at their licensed facilities, including workers, contractors, and visitors. Direct comparison of doses received by NEWs between facilities does not necessarily provide an

appropriate measure of a licensee's effectiveness in implementing its radiation protection program, since radiological hazards differ across these facilities due to complex and varying work environments.

Radiation protection program performance

CNSC staff conducted regulatory oversight activities at UNSPFs to verify that the licensees' radiation protection programs complied with regulatory requirements. These oversight activities included inspections and desktop reviews focused on radiation protection. Through these activities, CNSC staff confirmed that all the licensees have effectively implemented their radiation protection programs to control occupational exposures to workers and to keep doses ALARA.

Action levels

Action levels for radiological exposures are established as part of the licensees' radiation protection programs. Each licensee is responsible for identifying the parameters of its own program(s) to represent timely indicators of potential losses of control of the program(s). These licensee-specific action levels may also change over time, depending on operational and radiological conditions.

If an action level is reached, it triggers the licensee to determine the cause, notify the CNSC and, if applicable, take corrective action to restore the effectiveness of the radiation protection program. It is important to note that occasional action level exceedances indicate that the action level chosen is likely an adequately sensitive indicator of changing conditions or a potential loss of control of the program.

Learn more about Action Levels

The following RP action level exceedances occurred at the UNSPFs:

- Nordion - In the first quarter of 2024, a Nordion employee had a dose of 2.85 mSv, which was above the Nordion action level threshold of 2.0 mSv per report. It was determined that the employee's thermoluminescent dosimeter (TLD) had been x-rayed at the airport during their travel. The Direct Reading Dosimeter (DRD) log for the employee was checked and the DRD dose estimation for this period was 0.001 mSv. This event was reported to the CNSC and a correction to the National Dose Registry was made.
- BRR - In 2024, five (5) action levels were reached at BRR; however, a radiation protection (RP) focused CNSC inspection that occurred in May 2025 revealed that the exceedances were not reported by Cameco to the CNSC as required by regulation. Cameco provided corrective actions that have been reviewed and accepted by CNSC staff, which include updating their internal procedures for reporting action levels. This is

expected to be completed by Dec 31, 2025. CNSC staff note that in all instances, Cameco conducted investigations as required, and subsequently determined that the action level exceedances were not authentic, and due to the dosimeters receiving exposures while not worn by the workers.

  - In September 2024, a worker's dosimeter recorded a skin dose of 16.1 mSv and a lens of eye dose of 7.4 mSv for the month, which exceed the corresponding action levels of 15 mSv/month for skin dose and 6 mSv/month for lens of eye dose. Cameco conducted an investigation, which revealed that the worker lost their dosimeter for a period of time within a processing area. Therefore, a portion of the doses recorded on the dosimeter were received while the worker was not wearing the dosimeter. Cameco submitted to the CNSC a request to revise the worker's skin and eye doses, and as of August 2025, the dose change requests were reviewed and approved by CNSC staff. The licensed dosimetry service was requested to make the changes to the workers' dose records.
  - In November 2024, a second worker's dosimeter recorded a whole-body dose of 21.4 mSv, a skin dose of 24.2 mSv, and a lens of eye dose of 23.4 mSv, which exceeded the corresponding action levels of 2 mSv/month for whole-body dose, 15 mSv/month for skin dose, and 6 mSv/month for lens of eye dose. Cameco conducted an investigation, which revealed that the worker lost their dosimeter in a processing area for a period of time. The dosimeter was also stored in the worker's work area, and not at the dedicated low background radiation storage location. Therefore, a portion of the doses recorded on the dosimeter were received while the worker was not wearing the dosimeter. Cameco submitted to the CNSC a request to revise the worker's whole-body, skin and eye doses, and as of August 2025, the dose change requests were reviewed and approved by CNSC staff. The licensed dosimetry service was requested to make the changes to the workers' dose records.

- PHCF - In 2024, Cameco reported 2 radiological action level exceedances to the CNSC at the PHCF. In accordance with Cameco's corrective action process, investigations were conducted for the events that resulted in the exceedances. The corrective actions were accepted by CNSC staff, and the verification of these actions will be performed during follow-up compliance inspections.
  - The first action level exceedance occurred in January 2024. A worker's pre-shift uranium in urine sample concentration was 120 micrograms of uranium per litre (µgU/L) which is above the corresponding action level of 65 µgU/L. An investigation was completed, and the elevated result was found to have been due to a contaminated sample and not due to an intake received by the worker.
  - The second action level exceedance occurred in June 2024. A worker's external dosimeter recorded a whole-body dose of 2.6 mSv, which is above the

corresponding action level of 2.0 mSv/month. An investigation was completed, and it was found that the worker performed tasks in higher dose areas throughout the month. A DRD was not worn as required during this work, which would enable monitoring and managing of the worker's dose. Corrective actions included coaching and issuing a site-wide safety bulletin to all supervisors and workers, to explain lessons learned from this event and the importance of adhering to DRD requirements during work activities in high dose rates.

Radiological hazard control

CNSC staff verified that UNSPFs continued to implement acceptable measures to monitor and control radiological hazards in their facilities. These measures included delineation of zones for contamination control purposes and in-plant air-monitoring systems. Licensees demonstrated that they have implemented workplace monitoring programs to protect workers. The licensees have also demonstrated that contamination is controlled at the source with levels of radioactive contamination that were below limits within their facilities throughout the year.

Conclusion

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the radiation protection SCA. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.8 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.

Appendix M contains health and safety information for each UNSPF in 2024.

Performance

Employment and Social Development Canada (ESDC) and the CNSC regulate conventional health and safety programs at UNSPFs. CNSC staff monitor compliance with regulatory reporting requirements and, when a concern is identified, consult with ESDC staff.

Licensees are required to report to the CNSC as required by section 29 of the *General Nuclear Safety and Control Regulations* (GNSCR), including reports on serious illnesses or injuries incurred or possibly incurred as a result of a licensed activity.

A key performance measure for the conventional health and safety SCA is the number of lost-time injuries (LTIs) that occur per year. An LTI is an illness or injury that takes place at work and

results in the worker being unable to return to work to carry out their duties on their next scheduled shift.

Four (4) LTIs that were incurred or possibly incurred as a result of a licensed activity were reported by the following licensees over the reporting period:

- PHCF – 3 LTIs were recorded for 2024. The first LTI occurred on April 9, 2024: a contractor sustained an injury (break to the elbow) due to a fall from heights at the Site 2 Dorset Street location, which led to lost time. For more information about this workplace injury, please see Section 7.2 of this report. The second LTI occurred in Q2 of 2024: a contractor strained their lower back while removing a debris screen at the Building 27 pad, which led to lost time. The third LTI occurred in Q4 2024 and was also a strained lower back, which led to lost time.
- Nordion – 1 LTI was recorded in 2024: an employee tripped on a chair dolly injuring their knee, which led to lost time.

Practices

Licensees are responsible for developing and implementing conventional health and safety programs for the protection of their workers. These programs must comply with Part II of the *Canada Labour Code*.

Learn more about the *Canada Labour Code, Part II.*

CNSC staff conducted desktop reviews and inspections at all UNSPFs to verify compliance of the licensees' conventional health and safety programs with regulatory requirements.

Ten (10) NNCs from inspections related to the conventional health and safety SCA were issued for the following licensees over the reporting period:

- BRR – 3 NNCs related to ensuring: that annual PPE inspections are completed as specified by BRR's procedures; that BRR review its Facility Health and Safety Committee inspection follow-up program to ensure alignment of practices and processes, ensuring that inspection findings are addressed in an appropriate and timely manner; and that BRR ensure that emergency stations are not obstructed or have impaired function without an alternative being available in the immediate area.
- CFM – 3 NNCs related to health and safety committee inspections and meeting documentation, and personal protective equipment (i.e., hardhat) maintenance.
- BTL – 4 NNCs related to eye wash stations; storage of gas cylinders; respiratory protection program, respiratory training and fit testing; and ensuring WHMIS signage and records are retrievable and retainable.

The licensees have taken, or committed to take, corrective actions to address the above noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

Awareness

Licensees are responsible for ensuring that workers have the knowledge to identify workplace hazards and take the necessary precautions to protect against those hazards. This is accomplished through training and ongoing internal communications with workers.

During inspections, CNSC staff verify that workers are trained to identify hazards at the facilities. CNSC staff confirmed that the UNSPFs have effectively implemented their conventional health and safety programs to keep workers safe.

Conclusion

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the conventional health and safety SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.9 Environmental Protection

Protection of the environment and the public are linked in the Environmental Protection SCA. This SCA covers programs that identify, control, and monitor all releases of radioactive and hazardous substances, and the effects on the environment and people from facilities or as a result of licensed activities.

Based on regulatory oversight activities, CNSC staff rated the Environmental Protection SCA at all UNSPFs as satisfactory.

Two (2) NNCs from inspection related to the environmental protection SCA were issued for the following licensees over the reporting period:

- CFM – 1 NNC related to a non-alignment of the documented procedure for performing daily rooftop air filter changes with the implemented site practice.
- SRBT – 1 NNC related to reviewing their procedures and practices for conducting investigations into effluent intercomparison discrepancies.

The licensees have taken, or committed to take, corrective actions to address the above noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

Appendix I provides the total annual releases of radionuclides for the UNSPFs in 2024. Appendix J contains data on dose to the public from 2020 to 2024. Appendix K contains supplemental environmental data.

Effluent and emissions control (releases)

All UNSPFs implement effluent monitoring programs commensurate with the risks of their operations. Airborne and waterborne releases of radioactive and hazardous substances at UNSPFs remained below regulatory limits in 2024.

Action levels

Action levels serve as an early warning system to ensure that licensees are carefully monitoring their operations and performance to prevent release limits from being exceeded. Action level exceedances are reportable to the CNSC.

Licensee performance is not evaluated on the number of action level exceedances in a given period, but rather on how the licensee responds and implements corrective actions to enhance program performance and prevent reoccurrence. Licensees are required to periodically review their action levels to validate their effectiveness.

The following Environmental Protection action level exceedance occurred at the UNSPFs in 2024:

- SRBT – On November 28, 2024, SRBT became aware of an exceedance of an action level associated with gaseous effluent release of tritium. SRBT took corrective actions to address this issue, including: conducting a training needs analysis (TNA) with the processes described in SRBT's training program manual and requirements of the Regulatory Reporting Program, reviewing the SAT-based training material associated with tritium processing operations, including a health and safety video on avoiding distractions in the workplace, and reducing the "low alarm" set point to a level that will provide earlier alert of a problem.

CNSC staff concluded that there was no impact to workers, the public or the environment as a result of these action level exceedances. CNSC staff reviewed the licensee's corrective actions in relation to the exceedance and are satisfied with the licensee's response.

Environmental management system

The CNSC requires each licensee to develop and maintain an Environmental Management System (EMS) that provides a framework for integrated activities related to environmental protection. The EMS is described in the Environmental Management Program and includes activities such as the establishment of annual environmental objectives, goals, and targets. Licensees conduct internal audits of their programs at least once a year. As part of regular compliance verification, CNSC staff review and assess these objectives, goals, and targets. CNSC staff determined that the UNSPFs established and implemented their EMS in compliance with CNSC regulatory requirements.

Assessment and monitoring

CNSC staff verify that UNSPFs have environmental monitoring programs commensurate with the risks of the operations at each of their facilities. The environmental monitoring programs are designed to monitor releases of radioactive and hazardous substances, and to characterize the quality of the environment associated with the licensed facility. CNSC staff determined that the UNSPFs established and implemented environmental monitoring programs in compliance with CNSC regulatory requirements, where applicable.

Environmental risk assessment

An Environmental Risk Assessment (ERA) of nuclear facilities 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.

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*. 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.

All the UNSPF facilities have ERAs which are compliant with CSA N288.6.

Protection of people

The protection of the public within the environmental protection SCA is related to ensuring that members of the public are not exposed to unreasonable risk with respect to hazardous and nuclear substances released from the licensed facilities. Licensees use effluent and environmental monitoring programs to verify that releases of hazardous substances do not result in environmental concentrations that may affect public health. CNSC staff receive reports of discharges to the environment in accordance with reporting requirements outlined in the licence and the LCH. Based on assessments of the programs at the UNSPFs, CNSC staff concluded that the public continues to be protected from facility emissions of hazardous substances.

Estimated dose to the public

The maximum dose to the public from licensed activities is calculated by considering monitoring results from air emissions, liquid effluent releases and gamma radiation. The CNSC's requirement to follow the ALARA principle, taking into account social and economic factors, means that licensees must monitor their facilities and keep doses to the public below the annual public dose limit of 1 millisievert per year (mSv/year) prescribed in the *Radiation Protection Regulations*.

Table J-1 of Appendix J compares estimated public doses from 2020 to 2024 for the UNSPFs. Estimated doses to the public from all these facilities continued to be well below the regulatory annual public dose limit of 1 mSv/year.

Conclusion

CNSC staff concluded that the UNSPFs have implemented their environmental protection programs satisfactorily in 2024. The licensees' programs are effective in protecting the health and safety of people and the environment. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.10 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.

CNSC staff assess performance in the emergency management and fire protection SCA by verifying the compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. Specific areas assessed within this SCA include licensee response to conventional and nuclear events, both onsite and offsite, and events that can affect the facility. CNSC staff ensure that comprehensive fire protection programs are also in place to minimize the risk to the health and safety of persons and to the environment from fire, through appropriate fire protection system design, fire safety analysis, fire-safe operation, and fire prevention.

Thirty-two (32) NNCs from inspections related to the emergency management and fire protection SCA were issued for the following licensees over the reporting period:

- BRR – a total of 11 NNCs were issued across 2 inspections:
    - Seven (7) of the NNCs were issued from a fire-protection-focused inspection, and were related to ensuring: means of egress remain free of obstructions; the integrity of fire separations is maintained; fire doors are maintained to perform their intended function; that combustible materials do not accumulate in quantities or locations that will constitute and undue fire hazard; that compressed gases are capped when not in service; that fire alarms are readily visible and accessible; and that fire protection documentation are revised at the appropriate frequency and references the current standards.
    - Four (4) NNCs were issued from an emergency-management-focused inspection and related to ensuring: that approved documentation is prepared and available for use during emergencies; that effective communication is maintained during emergency conditions; that emergency conditions are appropriately classified as

per their Emergency Response Plan; and that control zones are established to manage emergency conditions.

- PHCF – 7 NNCs related to ensuring: means of egress remain free of obstructions; the integrity of fire separations is maintained; closures in fire separations latch and remain closed after each use and are not wedged open; combustible materials do not accumulate in quantities or locations that will constitute an undue fire hazard; compressed gases are capped when not in service; and exits are equipped with fire alarm activation devices and made readily visible and accessible.
- BWXT NEC – 4 NNCs issued to Peterborough facility related to integrity of fire separations; exit signs; storage of flammable or combustible liquids; and access to fire fighting equipment.
- BWXT NEC – 3 NNCs issued to Toronto facility related to integrity of fire separations; disposal of combustible material; and installation of fire extinguishers.
- BWXT Medical – 2 NNCs related to ensuring: closures in fire separations latch and remain in a securely closed position after each use. In addition, ensuring that combustible materials at the facility do not accumulate in quantities that will constitute an undue fire hazard.
- Nordion – 3 NNCs related to ensuring that: means of egress are free from obstruction, combustible materials do not accumulate in the active area; and all compressed gas cylinders in storage are provided with protective valve caps
- BTL – 2 NNCs related to ensuring emergency response equipment is maintained and in working condition and storage of compressed gas cylinders.

The licensees have taken, or committed to take, corrective actions to address the above noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

The two (2) NNCs issued to BTL, referenced above, were the result of an inspection in April 2024 and were assessed as having low safety significance. However, a subsequent reactive inspection conducted in November 2024 led to the issuance of an Inspector's Order, with the identified issues being classified as having medium safety significance, resulting in a BE rating for BTL. For more details on the Inspector's Order, please see section 7.3.3 of this report.

Otherwise, CNSC staff concluded that the remaining UNSPFs met regulatory requirements and maintained satisfactory ratings in the emergency management and fire protection SCA in 2024. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.11 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 SCA also covers the planning for decommissioning.

CNSC staff assess performance in the waste management SCA by verifying the compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. CNSC staff ensure that the licensees properly manage wastes throughout the lifecycle of a nuclear facility, which includes maintaining an up-to-date waste inventory and ensuring continued waste tracking.

The CNSC requires that licensees have a decommissioning plan and financial guarantee to ensure that sufficient financial resources are available to fund all approved decommissioning activities. Financial guarantee amounts for each UNSPF can be found in Appendix G.

CNSC staff confirmed that the financial guarantees remain valid, in effect, and sufficient, with the exception of BTL, for which a Designated Officer's order was issued (for more information, see section 7.3.2 of this report). Efforts to ensure BTL re-establishes its financial guarantee are ongoing.

> Learn about CNSC requirements for Financial Guarantees

Seven (7) NNCs from inspections related to the waste management SCA were issued for the following licensees over the reporting period:

- BRR – 2 NNCs related to ensuring that there is alignment between the implemented practice and documented requirement for annual waste container and storage areas condition inspection; and that storage areas are inspected in accordance with BRR's Waste Management Plan.
- CFM – 5 NNCs related to non-alignment of program documentation with CFM site practice regarding aspects of waste monitoring and inventory maintenance; securement of stacked waste drums; and signage for both hazardous waste and radioactive waste storage areas.

The licensees have taken, or committed to take, corrective actions to address the above noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the waste management SCA for the reportable timeframe. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.12 Security

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

CNSC staff assess performance in the security SCA by verifying the compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. Specific areas assessed within this SCA include programs and procedures relating to nuclear security measures, response arrangements, security practices, cyber security and drills and exercises. CNSC staff ensure that the security programs in place prevent the loss, unauthorized removal or sabotage of nuclear substances, nuclear materials, prescribed equipment, and prescribed information.

Security inspections and details of security arrangements with the licensees are protected and not publicly available.

- BTL – 5 NNCs were issued; however, the content of the NNCs is considered prescribed information and is not disclosed in this report.

There are ongoing efforts from the licensee to address the above noted NNCs. The findings were generally of medium safety significance, however, did not affect the health and safety of workers, people and the environment, or the safe operation of the facility.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the security SCA in 2024, except for Best Theratronics which had a below expectation (BE) rating (for more information, see section 7.3.3 of this report). CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.13 Safeguards and Non-Proliferation

The safeguards and non-proliferation SCA cover the programs and activities required for the successful implementation of the obligations arising from the Canada/IAEA safeguards agreements, as well as all other measures arising from the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT).

> Learn more about the *Treaty on the Non-Proliferation of Nuclear Weapons (NPT).*

CNSC staff assess performance in the safeguards and non-proliferation SCA by verifying licensee compliance through desktop reviews and in-field activities, including participation in IAEA verification activities (see table 4-1). CNSC staff verify that licensees meet Canada's international safeguards obligations as well as other measures arising from the NPT. CNSC staff

ensure that the licensees have implemented and maintained effective programs to allow the implementation of both safeguards measures and non-proliferation commitments.

CNSC staff continue to monitor the facilities' compliance with REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*. Licensees require a licence, separate from the licensing of their operations, for the import and export of controlled nuclear substances, equipment and information identified in the *Nuclear Non-proliferation Import and Export Control Regulations*.

Learn more about the *Nuclear Non-proliferation Import and Export Control Regulations.*

There were no NNCs issued from any inspection related to the safeguards and non-proliferation SCA in 2024.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the safeguards and non-proliferation SCA for the reportable timeframe. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

5.14 Packaging and Transport

The packaging and transport SCA covers the safe packaging and transport of nuclear substances to and from licensed facilities. CNSC staff assess performance in the packaging and transport SCA by verifying compliance of licensee documents and programs through desktop reviews and through compliance verification inspections that are planned or reactive. CNSC staff ensure that all elements of package design, package maintenance, and the registration for use of certified packages are in compliance with the *Packaging and Transport of Nuclear Substances Regulations*, 2015 (PTNSR) and *Transportation of Dangerous Goods Regulations* (TDGR).

Learn more about the *Packaging and Transport of Nuclear Substances Regulations, 2015.*

Learn more about the *Transportation of Dangerous Goods Regulations.*

In 2024, CNSC staff conducted 3 inspections that included the Packaging and Transport SCA at UNSPFs; no NNCs were issued from any of these inspections.

CNSC staff concluded that the UNSPFs met regulatory requirements and maintained satisfactory ratings in the packaging and transport SCA for the reportable timeframe. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA.

6 Consultation, Engagement and Public Outreach

6.1 Indigenous Consultation and Engagement

The Canadian Nuclear Safety Commission (CNSC), as an agent of the Government of Canada and as Canada's nuclear regulator, acknowledges the importance of building relationships and consulting with Indigenous peoples in Canada. The CNSC ensures that all its licensing decisions under the *Nuclear Safety and Control Act* uphold the honour of the Crown, uphold Indigenous peoples' potential or established Indigenous and/or treaty rights, pursuant to section 35 of the Constitution Act, 1982, and uphold the principles of the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP).

The CNSC works closely with Indigenous Nations and communities as part of its ongoing commitment to consultation, engagement and reconciliation. The CNSC's engagement and consultation practices are guided by:

- The principles of UNDRIP, *United Nations Declaration on the Rights of Indigenous Peoples Act* (UNDA), and Free, Prior and Informed Consent (FPIC)
- The Crown's Legal Duty to Consult and Accommodate obligations
- Canada's *Aboriginal Consultation and Accommodation – Updated Guidelines for Federal Officials to Fulfill the Duty to Consult* (March 2011)
- The CNSC's *Commitment to Indigenous Consultation and Engagement*
- The CNSC's statement on Reconciliation
- The CNSC is committed to building long-term relationships and conducting ongoing engagement with Indigenous Nations and communities who have rights and interests in relation to CNSC-regulated facilities. Ongoing Indigenous engagement practices include:
    - Sharing information and discussing topics of interest with Indigenous Nations and communities.
    - Creating meaningful opportunities for participation and actively seeking feedback on CNSC processes.
    - Working collaboratively to address the issues and concerns raised and engaging in meaningful dialogue to find constructive solutions.
    - Incorporating and reflecting Indigenous Knowledge into the CNSC's regulatory processes as per the CNSC's Indigenous Knowledge Policy Framework.
    - Providing opportunities to participate in environmental monitoring through the CNSC's Independent Environmental Monitoring Program (IEMP).
    - Funding opportunities through the CNSC's Participant Funding Program (PFP) to support participation in Commission proceedings and ongoing regulatory

activities and build knowledge and capacity through the CNSC's Indigenous and Stakeholder Capacity Fund (ISCF).

- Upholding the principles of UNDRIP by working with Indigenous Nations to understand, support and respect their governance processes for coming to their FPIC position in relation to proposed nuclear projects that may impact their rights and interests.

CNSC staff's efforts in 2024 supported the CNSC's ongoing commitment to engage and build positive relationships with Indigenous peoples with interests in Canada's Uranium and Nuclear Substance Processing Facilities. CNSC staff worked with Indigenous Nations, communities, and organizations to identify opportunities for formalized and regular engagement throughout the lifecycle of these facilities and welcomed the opportunity to meet with Indigenous Nations and communities to discuss and address topics of interest or concern.

CNSC staff have existing Terms of Reference (ToR) for Long-Term Engagement with 6 Nations and communities. Further information on engagement conducted in relation to each ToR can be found in Section 6.6 and Appendix P.

6.2 Engagement with Indigenous Nations and Communities on UNSPFs

CNSC staff's engagement with Indigenous Nations and communities included conducting engagement activities specific to relevant licensing and Commission hearing processes during the reporting timeframe for this ROR. For the UNSPFs, this included continuing engagement with interested Indigenous Nations and communities regarding the 2024 Class IB renewal application for Nordion Canada Inc. CNSC staff's engagement in relation to this application and regulatory processes included notifying identified Nations and communities about the application, sharing information about opportunities to participate and get involved, hosting meetings, making funding available through the CNSC's Participant Funding Program (PFP), providing regular updates, and offering to meet to discuss any questions or concerns.

The CNSC remains committed to meaningful and ongoing engagement with Indigenous Nations and communities.

6.3 Engagement with Indigenous Nations and Communities on the UNSPF ROR

CNSC staff ensure that all interested Indigenous Nations and communities are made aware of the opportunities to review the UNSPF ROR, submit interventions to the Commission, intervene orally, as well as opportunities to receive funding through the CNSC's PFP to support their participation in the process. CNSC staff sought the input of interested Indigenous Nations and communities on the draft components of the ROR, including the engagement summaries outlined within the Terms of Reference (ToR). Furthermore, their views were sought regarding the nature and effectiveness of engagement undertaken with the CNSC and licensees throughout the reporting period. CNSC staff will send copies of this report to all Indigenous Nations, communities and organizations who had requested that they be kept informed of activities at the facilities covered in this report. CNSC staff will offer to hold meetings and anticipates scheduling an information session in the fall of 2025 with the identified Nations and communities to discuss the 2024 ROR and answer any related questions.

6.4 Engagement on Monitoring Activities

CNSC staff have continued to engage and collaborate with Indigenous Nations and communities on the CNSC's Independent Environmental Monitoring Program (IEMP). CNSC staff have made it a priority to ensure that IEMP sampling reflects Indigenous Knowledge, land use, and values, where possible.

In advance of the 2024 IEMP sampling campaign at CFM, PHCF, SRBT and BRR, notification emails were sent to Indigenous Nations and communities near the facilities to notify them of the sampling campaigns and to seek input on the sampling plans. CNSC staff invited each interested Nation and community to provide and share Indigenous Knowledge, as well as suggestions for species of interest, valued components, and potential sampling locations where traditional practices and activities may take place.

Prior to the BRR sampling campaign Mississauga First Nation (MFN) invited CNSC staff to their Community Health Fair where CNSC staff engaged MFN membership on the CNSC's IEMP and nuclear safety. During the BRR sampling campaign, a representative of MFN joined the CNSC field team to collect food samples from the community garden on MFN territory and to provide a sample of local fish for the IEMP. MFN also invited CNSC staff to provide a presentation on the IEMP and the CNSC's mandate at a community council meeting, which CNSC staff delivered while they were in the area conducting sampling.

During the CFM and PHCF sampling campaign, representatives from Mississaugas of Scugog Island First Nation (MSIFN) and Curve Lake First Nations joined the CNSC field team on separate

days to observe the sampling. CNSC staff and MSIFN located and collected jewelweed together. CNSC staff and MSIFN also located choke cherry plants within the sampling area that could be harvested once ripe.

During the SRBT sampling campaign, a representative from Algonquins of Ontario (AOO) joined the CNSC field team to collect samples; the representative also identified vegetation species of importance to sample including hawthorne berries and jewelweed. The Algonquins of Pikwàkanagàn First Nation (AOPFN) also joined the SRBT IEMP sampling campaign on a separate day. Key vegetation samples identified by AOPFN included as part of the sampling campaign were Canadian mint, willow, wild apples and local market corn.

More information about the IEMP can be found on their dedicated IEMP results pages linked below:

- Blind River Refinery
- BWXT Nuclear Energy Canada Inc. - Peterborough
- Port Hope Conversion Facility and Cameco Fuel Manufacturing
- SRB Technologies
- Learn more about the IEMP

In 2024, CNSC and Environment and Climate Chance Canada (ECCC) engaged with participating Indigenous Nations and communities and Environmental Non-Government Organizations (ENGOs) in Phase 1 of the Regional Information and Monitoring Network for the Ottawa River Watershed (RIMNet) Initiative. RIMNet is an independent initiative led by ECCC and the CNSC to improve information sharing and documentation regarding the environmental aspects of past, existing and proposed nuclear facilities in the Ottawa River Watershed Basin.

The Algonquins of Pikwàkanagàn First Nation, Kebaowek First Nation, Kitigan Zibi Anishinabeg, and Ottawa Riverkeeper have been participating in RIMNet. Participants have reviewed and contributed to the Phase I report, which included co-drafting sections, and have continued to be engaged as the initiative progresses. Phase II involves data amalgamation and analysis, and engagement has involved sharing updates on the process and facilitating ways the RIMNet data can be useful for each nation, community, and organization. CNSC and ECCC are engaging with participants at all stages of RIMNet to ensure a collaborative process and look forward to further collaboration in future phases of the initiative.

More information and updates can be found at: Regional Information and Monitoring Network for the Ottawa River Watershed Basin.

6.5 Tracking of ROR Requests, Concerns and Comments

In direct response to the Commission's action (RIB 26782) following the presentation of the 2021 RORs, CNSC staff have established issues and concerns tracking tables for each Indigenous Nation or community who intervene in CNSC regulatory processes, including RORs.

These tables capture the requests, concerns and comments included in the interventions in relation to each ROR, or other Commission proceedings as appropriate, from each Indigenous Nation and community. The tables also track CNSC staff's responses and proposed actions. The tracking tables are shared with each Indigenous Nation and community for validation and discussion in order to make progress on addressing their requests and concerns collaboratively.

CNSC staff have included Appendix Q which provides a summary of issues, concerns and recommendations submitted via intervention by each Indigenous Nation and community. The information presented in this appendix is derived from interventions submitted specifically for the 2023 ROR and these conversations carried forward into 2024.

For Indigenous Nations and communities who have a ToR for long-term engagement with the CNSC, the concerns, comments and recommendations were further discussed in agreed-upon regular meetings and captured where appropriate in the engagement work plans with each Nation.

Overall, the issues and concerns were categorized into 9 different themes including improvements to the ROR process, CNSC's implementation of UNDA and concerns regarding Participant Funding amounts awarded.

6.6 CNSC Terms of Reference for Long-Term Engagement with Indigenous Nations and Communities

CNSC staff have formalized long-term engagement relationships with interested Indigenous Nations and communities through Terms of Reference (ToR) collaboratively developed with each Nation or community. The ToRs and associated engagement work plans include regular meetings, an accountability and governance structure, specific collaborative activities, as well as topics, facilities, sites, and projects of interest.

A summary of the engagement activities that occurred in 2024 in relation to each of the existing ToRs for long-term engagement is included in Appendix P. These summaries were collaboratively drafted between CNSC staff and each respective Indigenous Nation or community unless otherwise stated. The CNSC has developed and finalized ToRs for long-term

engagement with the following Indigenous Nations and communities with an interest in UNSPF sites and activities:

- Algonquins of Pikwàkanagàn First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Métis Nation of Ontario
- Mississaugas of Scugog Island First Nation
- Kebaowek First Nation

The CNSC is also working on developing a number of other ToRs for long-term engagement in the coming years with interested Indigenous Nations and communities. CNSC staff remain open to developing ToRs for long-term engagement with other interested Nations and communities with nuclear facilities in their territories upon request.

6.7 Licensee Engagement Activities

CNSC staff continued to monitor the engagement work conducted by the UNSPF licensees to ensure that there was active engagement and communication with Indigenous Nations and communities interested in their facilities, and that there were also activities in relation to relevant licensing and Commission hearing processes that occurred.

CNSC staff confirmed that the licensees have Indigenous engagement and outreach programs. Throughout the reporting timeframe, most UNSPF licensees met and shared information with interested Indigenous Nations, communities, and organizations. These efforts have included emails, letters, meetings, as well as site visits and tours, upon request.

CNSC staff will continue to work with all licensees to discuss concerns and feedback provided by Indigenous Nations and communities relating to ongoing engagement.

The CNSC encourages licensees to continue to develop relationships and engage with Indigenous Nations and communities who have expressed an interest in the licensee's activities and collaborate with them to develop an approach to engagement and communication that meets their needs and preferences.

6.8 Public Consultation and Engagement

The NSCA mandates that the CNSC 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 oversight reports.

CNSC staff also seek out other opportunities to engage with the public and Indigenous Nations and communities, often participating in meetings or events in communities with interest in nuclear facilities. These allow CNSC staff to educate and answer questions about the CNSC's mandate and role in regulating the nuclear industry.

Although there were no ongoing licensing activities in 2024 for which targeted outreach activities took place, CNSC staff carried out other more generic public outreach activities, including outreach related to the 2023 ROR on UNSPFs, research reactors and class IB accelerators. Outreach related to the ROR focused on Indigenous Nations and communities whose traditional and/or treaty territory included the facilities covered in the report. Additionally, CNSC staff engaged with the public on an ongoing basis by responding to information requests via the CNSC Information line, where members of the public have the opportunity ask the CNSC about its regulatory activities, or place inquiries.

6.9 Participant Funding Program

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

1. enhance the participation of Indigenous Nations and communities, members of the public, and interested parties in the CNSC's EA and licensing processes for major nuclear facilities (e.g., uranium mines, nuclear power plants, nuclear substance processing, or nuclear waste facilities)
2. assist Indigenous Nations and communities, members of the public, and interested parties 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 offered participant funding to review and submit comments to the Commission on CNSC staff's 5 regulatory oversight reports (RORs) for the 2024 calendar year, including this report. The details of this offering can be found in the online announcement, here. Once the funding decision has been made by the CNSC, this online announcement will be updated with the list of funding recipients.

Learn more about the CNSC's participant funding program

6.10 Public Information and Disclosure

A public information and disclosure program (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.

All UNSPF licensees are required to maintain and implement PIDPs. These programs are supported by disclosure protocols that outline the type of facility information to be shared with the public and that provide details on how that information is to be shared.

CNSC staff monitor licensee implementation of the PIDPs to ensure that communication with target audiences is regular and meaningful. CNSC staff also review yearly program summaries to verify that licensees are taking public feedback into consideration and making program adjustments accordingly. All UNSPFs have approved PIDPs.

In 2024, licensees engaged with stakeholders and members of the public in a variety of ways, including:

- providing website and social media updates with information on facilities/sites/projects, in addition to posting public disclosure protocols and reportable events.
- sending out information externally to local communities and interested stakeholders via newsletter (both virtual and direct mail), as well as internally to employees.
- engaging with local/national media to provide operational and facility updates.
- conducting site tours at facilities for local communities, interested stakeholders and media, as requested.
- hosting and participating in events (in-person and virtual), providing sponsorships, organizing webinars and presentations.

Following the review of Annual Compliance Reports (ACR) received from licensees, CNSC staff concluded that UNSPFs maintained and implemented satisfactory PIDPs for the reportable year.

Licensees have been encouraged to regularly assess and update their PIDPs to ensure that communications remain clear, transparent, and responsive to their audiences' needs.

Under REGDOC 3.2.1, PIDPs must include a process for evaluating program performance and for implementing improvements. It was found that Best Theratronics committed to conducting public opinion polling every 3 years as part of its PIDP but has not followed through. This was, in part, attributed to the labour dispute that lasted from May 2024 to February 2025.

As such, it is expected that Best Theratronics will include a summary of any public opinion survey conducted in next year's ACR.

The PIDP for BWXT NEC (Toronto and Peterborough) was enhanced in 2024 by hiring a communications specialist, increasing in-person meetings, tours and events, expanding use of social media, and earned an increase in positive media coverage. In addition, CNSC staff conducted a focused inspection on BWXT-NEC's PIDP in 2024 that resulted in 1 NNC and 6 recommendations. As part of the inspection CNSC staff noted that BWXT has significantly improved its public outreach and social media engagement.

CNSC staff conducted a general inspection at SRB Technologies in June 2024 resulting in 1 NNC related to their PIDP regarding ensuring its public information committee meetings are conducted according to the frequency and commitments outlined in their PIDP.

The licensees have taken, or have committed to take, necessary corrective actions to address the above-noted NNCs. The findings were of low safety significance and did not affect the health and safety of workers, people or the environment, or the safe operation of the facilities.

7 Events and Other Matters of Regulatory Interest

7.1 Reportable Events

Appendix N indicates the number of the reportable events that occurred at each facility over the reporting period. Reportable events related to LTIs are described in section 5.8. Reportable events related to action level exceedances are described in the Radiation Protection section and Environmental Protection section, respectively. The remaining reportable events are described below, and none had an impact on the environment, the health and safety of persons, or the maintenance of national or international security.

7.1.1 Uranium Processing Facilities

Table 7-1: Reportable Events at BRR in 2024

Description of Event	Corrective Actions Taken
On June 26, 2024, when the glycol heating systems were drained for maintenance, a mechanical failure occurred. It was observed that the drain valve on number three coil was leaking glycol. A pipe cap was immediately installed to stop the leak. It was assumed the leak had been minimal and there was minimal glycol in the system since the coil had been isolated and drained in 2023 when it had failed. During a maintenance inspection, it was determined that glycol had passed through the sewage plant and was released to Lake Huron on July 1, 2024. A lab investigation estimates 70 L of glycol had spilled. This was reported to the CNSC as well as the Ontario Spills Action Centre.	BRR's corrective actions include revising the work instruction related to Start-up of the Main Glycol Heat System to include capping the condensate drains, in order to eliminate the potential for any glycol that migrates into the condensate site of the heat BRR also plans to replace and upgrade the 3 glycol heaters in 2025, including its critical support infrastructure (feed and drain piping, valves, gaskets and automatic steam control) in order to fortify the reliability of the HVAC system.
On November 27, 2024, a pull station was activated at the Blind River Refinery when a small fire was observed inside of a 5-gallon plastic pail in the plant. The fire was extinguished using a nearby fire extinguisher. Due to the speedy response and action of the emergency response team there was no health or safety risk posed to the workers or the environment.	BRR's corrective actions include obtaining additional self-closing stainless steel waste receptacles for oily rags and other material that may spontaneously combust, as well as ensuring that organic materials that are susceptible to self-heating and self-ignition will be kept in an area free of combustible materials. BRR also held a safety stand-down to address the significance and potential risk that this event could have caused.

Table 7-2: Reportable Events at PHCF in 2024

Description of Event	Corrective Actions Taken
On January 22, 2024, Cameco reported to the Ontario Ministry of Environment, Conservation and	Cameco stated that it is likely that a combination of street traffic levels

Description of Event	Corrective Actions Taken
Parks (MECP) an ambient station high volume air sampler (hi-vol) exceedance of 171 µg TSP/m3 total suspended particulate (TSP) for the period of January 19-20, 2024, at the Marsh Street Hi-Vol station. The measurement was above the ECCC and MECP 120 µg/m3 TSP dust criteria for visibility.	along Marsh Street and certain weather conditions are contributing to higher dust levels at the Marsh Street Hi-Vol sampler. As a result, there were no corrective actions.
April 4, 2024, Cameco reported that a contractor vehicle carrying one 48Y cylinder of uranium hexafluoride was in a minor incident on Highway 401 westbound. The traffic slowed down and came to an abrupt stop and the truck rearended another truck. There was no damage to the 48Y cylinder and only minor damage to the truck. There was no material released from the 48Y cylinder and therefore no effect on the environment and the health and safety of persons.	A police report was completed. The driver returned to the contractor's yard and the shipment was sent on another truck the next day.
On April 18, 2024, a vacuum truck transferring contaminated water from a storage tank leaked, releasing water to the ground and to the harbour via a catch basin. It was estimated approximately 10 L entered the catch basin. Assuming a maximum volume of 10 L entering the catch basin at the maximum uranium concentration of 3.9 mg/L, with mixing taking place within the catch basin, a diluted harbour discharge concentration of 0.12 mg/L (120 ug/L) was estimated. It was also noted that the storm sewer outlet discharged to the Port Hope Harbour turning basin within the CNL inner harbour remediation zone. This area is bounded by a wave attenuator installed at the harbour approach channel.	The leak was stopped and residual water at surface and within the catch basin was recovered. An investigation was completed. PHCF's corrective action was to include information for storage tank transfers near catch basins in site procedures.
On May 21, 2024, Cameco reported to the Ontario Ministry of Environment, Conservation and Parks (MECP) ambient station high volume air sampler (hi-vol) exceedances of 148 µg TSP/m3, 121 µg TSP/m3 and 217 µg TSP/m3 total suspended particulate (TSP) for the period of May 14 - 16, 2024, at the	Cameco stated that these elevated dust results were localized and caused by sections of roadway along Marsh Street being prepped for paving (May 14), asphalt paving (May 15) and

Description of Event	Corrective Actions Taken
Marsh Street Hi-Vol station. The measurements are above the ECCC and MECP 120 µg/m3 TSP dust criteria for visibility.	street sweeping (May 16). As a result, there were no corrective actions.
On October 17, 2024, Cameco reported that a contractor vehicle carrying one 48Y cylinder of uranium hexafluoride was in a minor incident on Highway 402. Another vehicle tried to merge into the lane occupied by the truck and contacted the truck from the passenger side. There was no damage to the 48Y cylinder and only superficial damage to the truck. There was no material released from the 48Y cylinder and therefore no effect on the environment and the health and safety of persons.	The police were notified and the driver continued with the delivery.
On October 23, 2024, there was a small release of UF6 from a line in the 3rd floor cold trap area. The plant was not in operation at the time. One employee was in the area and left the area immediately. Operations personnel managed the situation; however, the Emergency Response Team was activated for standby support and to perform hydrogen fluoride (HF) air monitoring outside the release area. Following the event, there were a number of elevated uranium in urine samples from personnel in the UF6 plant. It was suspected that there may have been some migration of the release through the HVAC system causing additional personnel exposures. All the results were below action levels. All stack discharges and environmental monitoring results were within normal ranges.	Cameco conducted an investigation which resulted in three corrective actions. 1) Develop a detailed Maintenance Task List for the installation of steam tracing; 2) Relocate the census station to the UF6 conference room; and 3) Install area monitoring for Hydrogen Fluoride (HF) and Uranium in the office area of Building 50. In addition, Cameco PHCF identified two improvement activities. 1) Related to improving emergency ventilation in the UF6 plant, and 2) Related to performing a smoke test in the areas around the offices and seal any identified gaps.

Table 7-3: Reportable Events at CFM in 2024

Description of Event	Corrective Actions Taken
On the morning May 13, 2024, CFM staff identified that a groundwater pumping well maintenance hole	In response to the event, CFM pumped groundwater from the

Description of Event	Corrective Actions Taken
was discharging groundwater onto the parking lot surface. Some of the discharged water entered the municipal storm sewer system which outlets to nearby Gages Creek and subsequently flows to Lake Ontario. CFM's event investigation determined the event resulted when a hose, which transfers groundwater to the onsite groundwater treatment facility, became disconnected. Groundwater consequently filled the maintenance hole and eventually overflowed onto the surface. The event was reported to the CNSC as well as the Ontario Spills Action Centre. There were no impacts to the environment because of this discharge.	maintenance hole to a temporary storage container, which allowed contractors access the hole and reconnect the hose line. The system was returned to operation the same morning the event was identified. To mitigate against potential recurrence, CFM inspected the connections on all pumping well maintenance holes and implemented improvements where necessary.

Table 7-4: Reportable Events at BWXT NEC in 2024

Description of Event	Corrective Actions Taken
On March 28, 2024, BWXT-NEC reported a mislabelled package transported from Peterborough to Toronto wherein a single empty package (classified as UN2908) contained a single pellet left behind. Because of this, the package should have been classified as UN2910.	BWXT NEC conducted an investigation and implemented corrective actions including improved signage and updated rules for collections of empty trays.
On September 26, 2024, BWXT-NEC reported that during the conduct of an IAEA led short notice random inspection, a seal put on a skid by the IAEA personnel was broken due to BWXT personnel moving it.	BWXT NEC conducted an investigation and implemented corrective actions related to training of personnel and improved barriers, signage and better communication during shift turnover.
On November 14, 2024, BWXT-NEC reported that a shipment of fuel bundles shipped to DNGS was returned due to a security issue.	The issue was resolved at DNGS satisfactorily.

7.1.2 Nuclear Substance Processing Facilities

Table 7-5: Reportable Events at SRBT in 2024

Description of Event	Corrective Actions Taken
No events were reported to CNSC.	N/A

Table 7-6: Reportable Events at Nordion in 2024

Description of Event	Corrective Actions Taken
August 29, 2024 and December 17, 2024, Nordion delivered a number of Type A transport packages to an air carrier as a carrier for another licensee. Each package consisted of a single patient dose of a medical isotope. Several of the packages were damaged by the subsequent air carriers.	Nordion returned the damaged package to the original consignor for safe and proper disposition. The air carrier has provided additional guidance on package handling to mitigate future damage.
September 13, 2024, it was identified that Nordion made a shipment of a non-Nordion model sealed sources in a Type B transport package that is only authorized to transport the Nordion C-188 sealed source type. The transported sealed source was identical to the C-188 in form, fit, and function.	Additional documentation verification has been implemented to prevent reoccurrence.
November 4, 2024, Ottawa Fire Services on site due to time change panel notice on the alarm panel.	Panel software updated. Communication protocol revised.

Table 7-7: Reportable Events at BTL in 2024

Description of Event	Corrective Actions Taken
On May 1, 2024, a union labor dispute occurred at BTL. On September 13th, the labour dispute escalated and led to a blockade at BTL's property, restricting access to the facility for all non-union employees.	The CNSC conducted a visit and inspection at the Best Theratronics facility to verify that the site and nuclear substances were secure. The inspection findings ultimately lead to the issuance of the Inspector's Order.

Description of Event	Corrective Actions Taken
	On March 17, 2025, the strike concluded, allowing BTL staff to regain access to the facility.

Table 7-8: Reportable Events at BWXT Medical in 2024

Description of Event	Corrective Actions Taken
On August 29, 2024, BWXT Medical was notified by FedEx that one Type A package was damaged at their Ottawa depot. The damage was a puncture to the side of the box with the Category label. The box contained 6.7 GBq Y-90 (Category II).	The package was returned to BWXT Medical and quarantined. BWXT Medical informed the road carrier of the incident and provided the feedback from FedEx regarding the stacking of the packages.
On December 11, 2024, BWXT Medical reported the receipt of a package that was visibly damaged that contained a waste TheraSphere administration set from a customer in the U.S.	The package and its contents were inspected and checked for contamination, and it was found that the shipment had not been packaged correctly, though no leakage was observed. BWXT Medical's customer (as importer into Canada) followed up with the hospital site and are assessing corrective actions to ensure any future returns are packaged correctly.
On December 17, 2024, BWXT Medical was notified by FedEx of three Type A packages that were damaged at their Ottawa depot. The boxes contained 6.5 GBq, 3 GBq and 3 GBq of Y-90.	On December 19, 2024, two appropriately trained BWXT Medical staff members went to the Ottawa Airport depot and repackaged the packages. FedEx shipped the 3 packages back to BWXT Medical with a contracted road carrier. The packages were decayed and disposed of.

7.2 PHCF Workplace Injury

This section is an update on the matter that was first reported to the Commission as an Event Initial Report (EIR) in CMD24-M25 on May 22, 2024.

On April 9, 2024, PHCF staff reported that a worker had been injured after a fall from heights at PHCF's Site 2 (Cameco's Dorset Street property). A contracting company was replacing translucent panels on the Building 64 roof when a worker fell through the roof. The fall was nearly 8 meters. Paramedics arrived on site and a decision was made to transport the worker to a Toronto hospital by air ambulance. It was later reported that the worker was in stable condition and was being treated for injuries (break to the elbow).

In addition to the CNSC, Cameco notified the Municipality of Port Hope. Cameco also conducted an investigation of this event in accordance with Cameco's Corrective Action Process. The contracting company notified the Ontario Ministry of Labour, Immigration, Training and Skills Development (MLTSD). As this was a construction accident involving a contractor that is regulated by MLTSD, MLTSD undertook its investigation of this occupational health and safety incident.

The Cameco investigation identified 4 causal factors for the incident: 1 - Worker placed weight onto translucent panel, 2 – Unrestricted or open access to translucent panels, 3 – Anchor point at edge of translucent panel, and 4 – Worker not tied off when in proximity to the translucent panel.

The investigation team developed 3 corrective actions to address the causal factors: 1 – Add barriers to roof fall hazards, 2 – Perform more field visits, and 3 – Review and revise fall protection and rescue plan. CNSC inspectors have followed up on the corrective actions and are satisfied with Cameco's progress.

7.3 Best Theratronics Ltd. Compliance Action

7.3.1 Labour Dispute

On May 1, 2024, Best Theratronics informed the CNSC that a labour dispute began at Best Theratronics Ltd. From May until August, non-unionized employees were able to access the building. Subsequently, it escalated such that Best Theratronics non-unionized employees could not access the facility due the blockade associated with the strike. The labour dispute was

resolved in March 2025. There were no operational activities occurring at the facility during the strike and the nuclear materials on site were stored safely.

7.3.2 Best Theratronics Ltd. Financial Guarantee Designated Officer Order

On November 6, 2024, a CNSC designated officer issued an order to Best Theratronics Ltd. for non-compliance with its licence condition to maintain an acceptable financial guarantee for decommissioning. On February 14, 2025, this order was largely confirmed by the Commission and was amended to clarify the requirements for the financial guarantee. The amended order will be in place until the licensee satisfies the requirements for the financial guarantee.

On May 21, 2025, the CNSC issued a request pursuant to subsection 12(2) of the *General Nuclear Safety and Control Regulations* letter regarding the status of BTL's efforts on complying with the Commission's Order. In its reply on June 21, 2025, Best Theratronics indicated it had not re-established its financial guarantee.

On July 24, 2025, pursuant to subsection 43(3) of the NSCA, the Commission, on its own initiative, decided to redetermine this order to decide whether to confirm the amended order or cancel the amendment and confirm, amend, revoke or replace the order. A closed hearing was held in September 2025 to consider information provided by both CNSC staff and from BTL.

On October 22, 2025, pursuant to paragraph 43(4)(i) of the NSCA, the Commission, in its Record of Decision, amended the order in line with CNSC staff's recommendations to allow BTL to focus on reducing its onsite inventory of radioactive sources and other regulated materials. In doing so, it will help mitigate risks to the environment and to the health and safety of persons, lower the estimated cost of decommissioning, and consequently reduce the required financial guarantee, potentially making it easier for BTL to establish a financial guarantee acceptable to the Commission and enabling BTL to return to regulatory compliance.

7.3.3 Best Theratronics Inspector's Order

On November 8, 2024, following an inspection of the facility, a CNSC inspector issued an order related to Best Theratronics Ltd.'s security and emergency preparedness programs. The order required the licensee to put additional security and emergency preparedness measures in place. On February 14, 2025, this order was amended by a CNSC Designated Officer to reflect the licensee's progress in addressing the items raised in the original order. The Inspector's Order was officially closed on May 7, 2025, after Best Theratronics Ltd. fulfilled all the stipulated terms and conditions.

7.4 CNSC Independent Environmental Monitoring Program

The CNSC requires that each nuclear facility licensee develops, implements, and maintains an environmental monitoring program as appropriate to demonstrate that the public and the environment are protected from any releases to the environment related to the facility's nuclear 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.

The Independent Environmental Monitoring Program (IEMP) is an independent, from licensee, technical environmental sampling program in publicly accessible areas around nuclear facilities, while using CNSC resources effectively and efficiently. The CNSC continues to strive to build Indigenous and public trust in the CNSC's regulation of the nuclear industry and thus implements an IEMP as one tool of confirming the effectiveness of a licensee's monitoring program and to promote more awareness and information sharing of CNSC's work in the protection of people and the environment. The IEMP is a regulatory tool that complements and informs the CNSC's ongoing compliance verification program. The IEMP does not rely on licensees to provide samples. CNSC staff or independent contractors obtain samples from publicly accessible areas around nuclear facilities, then measure and report the amounts of radiological and hazardous substances present in these samples to the Commission, Indigenous Nations and communities, and the public.

> Visit the CNSC's webpage for results from previous IEMP sampling campaigns
>
> Learn more about the IEMP

In 2024, CNSC staff conducted independent environmental monitoring around CFM, PHCF, SRBT, BWXT NEC (Peterborough), and BRR. There were no results of concern. In addition, these results are consistent with the results submitted by the licensees. The IEMP results add to the body of evidence and supports CNSC staff's assessment that the public and the environment in the vicinity of the uranium and nuclear substance processing facilities are protected and that the licensees' environmental protection programs are effective.

7.5 Environmental Protection Review Reports

CNSC staff conduct environmental protection reviews (EPRs) for all licence applications with potential environmental interactions, in accordance with CNSC's mandate under the NSCA and associated regulations. An EPR is a science-based environmental technical assessment

conducted by CNSC staff. The fulfillment of other aspects of the CNSC's mandate, such as regulating safety and security, are met through other oversight activities.

CNSC staff have posted the following 3 EPR reports for UNSPFs:

- EPR report: Blind River Refinery (2021)
- EPR report: Cameco Fuel Manufacturing Inc. (2022)
- EPR report: SRB Technologies (2023)

The information in EPR reports support staff's recommendations to the Commission in future licensing and regulatory decisions on whether the proposal provides adequate protection of the environment and the health of people.

8 Conclusions

CNSC staff concluded that UNSPFs in Canada operated safely in 2024. This assessment was based on CNSC staff's verification of licensee activities, through inspections, reviews of reports submitted by licensees, and reviews of events supported by follow-up and general communication with the licensees.

The performance ratings for all UNSPFs in all 14 of the SCAs were rated as satisfactory, with the exception of Best Theratronics, which received a rating of below expectation in 2 SCAs.

CNSC staff's compliance verification activities concluded that:

- radiation protection programs at all facilities were effective and adequately controlled radiation exposures, keeping doses ALARA.
- environmental protection programs at all facilities were effective in protecting people and the environment.
- conventional health and safety programs at all facilities continued to protect workers.

CNSC staff concluded that the licensees discussed in this report made adequate provision to protect the health and safety of workers, to protect the public and the environment, and to meet Canada's international obligations on the peaceful use of nuclear energy.

CNSC staff will continue to provide regulatory oversight to all licensed facilities.

9 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: 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 B: 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 (IAEA) 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 C: Links to Licensee Websites and Annual Compliance Reports

Licensee	Website	Annual Compliance Report
BRR	Blind River Refinery	2024 Annual Compliance Report
PHCF	Port Hope Conversion Facility	2024 Annual Compliance Report
CFM	Cameco Fuel Manufacturing	2024 Annual Compliance Report
BWXT NEC Toronto	BWXT Nuclear Energy Canada	2024 Annual Compliance Report
BWXT NEC Peterborough	BWXT Nuclear Energy Canada	2024 Annual Compliance Report
SRBT	SRB Technologies (Canada) Inc	2024 Annual Compliance Report
Nordion	Nordion	2024 Annual Compliance Report
BTL	Best Theratronics Ltd.	2024 Annual Compliance Report available upon request
BWXT Medical	BWXT Medical Ltd.	2024 Annual Compliance Report

Appendix D: CNSC Inspections

Table D-1: Inspection, BBR, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
CAMECO-BRR-2024-01	Operating Performance, Environmental Protection, Radiation Protection, Conventional Health and Safety, Waste Management	January 24 – 25, 2024	**5**
CAMECO-BRR-2024-02	Management System, Fitness for Service, Radiation Protection, Conventional Health and Safety, Environmental Protection, Packaging and Transport	June 5 – 6, 2024	**2**
CAMECO-BRR-2024-03	Emergency Management and Fire Protection (focus of Fire Protection)	September 19 – 20, 2024	**7**
CAMECO-BRR-2024-04	Emergency Management and Fire Protection (focus of Emergency Management)	September 23 – 25, 2024	**4**
CAMECO-BRR-2024-05	Human Performance Management	November 13 – 15, 2024	**3**

Table D-2: Inspection, PHCF, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
CAMECO-PHCF-2023-05	Human performance management	January 31 – February 2, 2024	**4**
CAMECO-PHCF-2024-01	Safety analysis, fitness for service	March 19 -22, 2024	**2**
CAMECO-PHCF-2024-02	Physical design, waste management, conventional health and safety, environmental protection, packaging and transport	March 20-22, 2024	**2**
CAMECO-PHCF-2024-03	Fitness for service, operating performance, conventional health and safety	July 16-18, 2024	**2**
CAMECO-PHCF-2024-04	Emergency management and fire protection	November 25-27, 2024	**0**

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
CAMECO-PHCF-2024-05	Emergency management and fire protection	October 20-22, 2025	**7**

Table D-3: Inspection, CFM, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
CAMECO-CFM-2024-01	Management system, fitness for service, operating performance, conventional health and safety, human performance management, emergency management and fire protection, radiation protection	February 21-23, 2024	**6**
CAMECO-CFM-2024-02	Environmental Protection	May 30-31, 2024	**1**
CAMECO-CFM-2024-03	Waste Management	September 10-12, 2024	**5**
CAMECO-CFM-2024-04	Radiation Protection	November 19-21, 2024	**4**

Table D-4: Inspection, BWXT NEC Toronto and Peterborough, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
BWXT-TOR-2024-01	Emergency management & fire Protection	February 21-22, 2024	**3**
BWXT-PTB-2024-01	Emergency management & fire protection	February 20, 2024	**4**
BWXT-TOR-2024-02	Public Information and Disclosure	November 6-7, 2024	**1**
BWXT-PTB-2024-02	Public Information and Disclosure	November 5, 2025	**1**

Table D-5: Inspection, SRBT, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
SRBT-2024-01	Fitness for service, management system (safety culture), operating performance, environmental protection, convention health and safety, emergency management and fire protection (fire protection),	June 17-19, 2024	**2**

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
	public information and disclosure program		
SRBT-2024-02	Radiation Protection	October 22-23 2024	**1**

Table D-6: Inspection, Nordion, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
NORDION-2024-01	Fitness for Service, Operating Performance, Conventional Health and Safety, Waste Management	March 19-21, 2024	**0**
NORDION-2024-02	Emergency Management and Fire Protection	March 19-21, 2024	**3**

Table D-7: Inspection, BTL, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
BT-BTL-2024-01	Management system, fitness for service, operating performance, radiation protection, conventional health and safety, human performance management, emergency management and fire protection, packaging and transport	April 8-10, 2024	**7**
BT-BTL-2024-02	Security	June 25, 2024	**5**
BT-BTL-2024-03	Security and Emergency Management/Preparedness	November 4, 2024	**Inspector's Order (see section 7.3)**

Table D-8: Inspection, BWXT Medical, 2024

Inspection Title	Safety and control area(s)	Inspection Date	#NNCs
BWXT-MED-2024-01	Human performance management	March 5-7, 2024	**6**
BWXT-MED-2024-02	Environmental Protection	July 16-18, 2024	**0**
BWXT-MED-2024-03	Fire Protection	November 25-27, 2024	**2**

Appendix E: Significant Changes to Licence Conditions Handbooks

Licensee	Date	Facility License	Summary of Changes
N/A	N/A	N/A	There have been no changes to the Licence Conditions Handbooks of UNSPFs in 2024.

Appendix F: Regulatory Document Implementation

Regulatory documents (REGDOCs) and standards are key parts of the CNSC's regulatory framework for nuclear activities in Canada. REGDOCS explain to licensees and applicants what they must achieve in order to meet the requirements set out in the *Nuclear Safety and Control Act* and the regulations made under the *Nuclear Safety and Control Act*, while standards such as CSA Group nuclear standards provide information on best practices and complement CNSC REGDOCS.

When a new regulatory document or revision is published, CNSC staff will formally request the licensee to conduct a gap analysis and provide an implementation plan, which is then reviewed by the CNSC. The dates provided in the implementation plan are considered the date that the regulatory document becomes effective at the site, at which point it becomes compliance verification criteria.

The table below lists the REGDOCs and standards that were implemented at UNSPFs in 2024.

Table D-1: Uranium Processing Facilities

Licensee	Document Number	Document Title	Version	Status
BRR	CSA N393:22	Fire protection for facilities that process, handle, or store nuclear substances	2022	Implemented
PHCF	CSA N393:22	Fire protection for facilities that process, handle, or store nuclear substances	2022	Implemented
CFM	CSA N393:22	Fire protection for facilities that process, handle, or store nuclear substances	2022	Implemented

Appendix G: Financial Guarantees

Table G-1: Financial Guarantee, Uranium Processing Facilities

Facility	Amount ($CAD)
BRR	$57,500,000
PHCF	$138,200,000
CFM	$10,800,000
BWXT NEC Toronto	$20,429,189
BWXT NEC Peterborough	$10,069,695

Table G-2: Financial Guarantee, Nuclear Substances Processing Facilities

Facility	Amount ($CAD)
SRBT	$770,522
Nordion	$35,003,045
BTL	$236,000*
BWXT Medical	$10,540,000

*For more information on BTL's Financial Guarantee and the related Designated Officer's Order, please see section 7.3.2.

Appendix H: Safety and Control Area Ratings

Please note that only the ratings of "satisfactory" (SA) or "below expectations" (BE) were used for the UNSPFs. The "fully satisfactory" (FS) rating was not used, consistent with the approach used for the 2019 RORs. It is important to recognize that if a facility received an SCA rating of FS in previous RORs, and now has a rating of SA, it does not necessarily indicate a reduction in performance. The simplified rating approach considerably reduced the effort that is often needed to reach a consensus on a final rating.

Table H-1: SCA ratings for Uranium Processing Facilities in 2024

SCA's	BRR	PHCF	CFM	BWXT NEC
Management system	SA	SA	SA	SA
Human performance management	SA	SA	SA	SA
Operating performance	SA	SA	SA	SA
Safety analysis	SA	SA	SA	SA
Physical design	SA	SA	SA	SA
Fitness for service	SA	SA	SA	SA
Radiation protection	SA	SA	SA	SA
Conventional health and safety	SA	SA	SA	SA
Environmental protection	SA	SA	SA	SA
Emergency management and fire protection	SA	SA	SA	SA
Waste management	SA	SA	SA	SA
Security	SA	SA	SA	SA
Safeguards and non-proliferation	SA	SA	SA	SA

SCA's	BRR	PHCF	CFM	BWXT NEC
Packaging and transport	SA	SA	SA	SA

Table H-2: SCA ratings for Nuclear Substance Processing Facilities in 2024

SCA's	SRBT	Nordion	BTL	BWXT Medical
Management system	SA	SA	SA	SA
Human performance management	SA	SA	SA	SA
Operating performance	SA	SA	SA	SA
Safety analysis	SA	SA	SA	SA
Physical design	SA	SA	SA	SA
Fitness for service	SA	SA	SA	SA
Radiation protection	SA	SA	SA	SA
Conventional health and safety	SA	SA	SA	SA
Environmental protection	SA	SA	SA	SA
Emergency management and fire protection	SA	SA	*BE	SA
Waste management	SA	SA	SA	SA
Security	SA	SA	*BE	SA
Safeguards and non-proliferation	SA	SA	SA	SA
Packaging and transport	SA	SA	SA	SA

***Note: Best Theratronics received a below expectations (BE) rating for the emergency management and fire protection SCA stemming from enforcement actions in the Inspector's Order issued on**

November 8, 2024. A BE rating was given for the security SCA due to NNCs incurred from the June 2024 security inspection combined with enforcement actions stemming from the Inspector's Order issued on November 8, 2024. For further details, refer to section 7.3.3.

Appendix I: Total Annual Releases of Radionuclides to the Environment

The CNSC is making radionuclide release data more readily accessible to the public and Indigenous Nations and communities as part of its commitment to Open Government and its mandate to disseminate this information. This appendix reflects the continued commitment to provide data, within the regulatory oversight reports, on the total annual release of radionuclides.

CNSC staff have commenced publishing annual releases of radionuclides to the environment from nuclear facilities on the Open Government Portal.

Direct releases of radionuclides to the environment from uranium processing facilities are primarily limited to uranium released to the atmosphere. As uranium is more chemically toxic than radiologically toxic, releases are monitored as total uranium. As a result, the annual load is reported in kilograms (kg). Of these facilities, only Cameco's BRR has direct releases to surface water, with the relevant radionuclides being uranium and radium-226.

Direct releases to the environment for the nuclear processing facilities - SRBT, Nordion, and BWXT Medical - are limited to atmospheric releases. SRBT, Nordion, and BWXT Medical have no direct releases to surface waters. BTL does not have any airborne or liquid radiological releases.

Appendix J: Public Dose Data

This appendix contains information on the estimated dose to the public around the facilities reported on in this ROR. Radiological releases from all the sites covered by this ROR remain well under the derived release limits (DRLs) applicable to those sites and the contribution to the dose to the public from these releases remains well below the regulatory limit for the public of 1 mSv/year, as set out in the *Radiation Protection Regulations*.

Table J-1: Public dose comparison table, Uranium and Nuclear substance processing facilities: mSv, Regulatory Limit of 1mSv, 2020–2024.

	2020	2021	2022	2023	2024
BRR	0.009	0.009	0.009	0.009	0.009
PHCF Site 1	0.129	0.072	0.088	0.097	0.053
PHCF Site 2	0.117	0.086	0.118	0.128	0.072
CFM	0.020	0.306[1]	0.2931[1]	0.241[1]	0.242[1]
BWXT NEC Toronto	0.0057	0.0175	0.0173	0.0402	0.1378
BWXT NEC Peterborough	<0.001	<0.001	0.0115	0	0
SRBT	0.0024	0.0020	0.0020	0.002251	0.00263
Nordion	0.00122	0.00185	0.00156	0.000796	0.00102
BWXT Medical	N/A	0.0005	0.0005	0.0002	0.00016
BTL[2]	N/A	N/A	N/A	N/A	N/A

N/A = not applicable; mSv = millisievert

[1]The estimated dose to the public is higher in 2021, 2022, 2023 and 2024 than in previous years but there has not been an actual increase in emissions/dose from the facility. Cameco submitted revised DRLs, which included an update to the public dose calculation formulas. The revisions included airborne and liquid emissions in the

calculation and a new location for the critical receptor so the results from 2021, 2022, 2023 and 2024 cannot be compared to the results from previous years.

[2]No activities occur inside the BTL facility that result in the release of radioactive material to the environment.

Appendix K: Environmental Data

This appendix provides environmental data for the UNSPFs. With the exception of the November 2024 event at SRBT (described in section 7.1.2), no environmental action levels were exceeded.

Blind River Refinery

Atmospheric emissions

Cameco monitors uranium, nitrogen oxides (NO_x), nitric acid (HNO_3), and particulates released from facility stacks at the BRR. The monitoring data in table K-1 demonstrates that atmospheric emissions from the facility continued to be effectively controlled, as annual averages were consistently well below their respective licence limits in 2024.

Table K-1: Air emission monitoring results, Blind River Refinery, 2024

Parameter	Annual Weekly Average	Licence Limit[1]
Dust collection and exhaust ventilation stack: uranium (g/h)	0.08	**93[1]**
Absorber stack: uranium (g/h)	0.01	**21[1]**
Absorber stack: NO_x + HNO_3 (kg NO_2/h)	2.9	**19[2]**
Incinerator stack: uranium (g/h)	<0.01	**29[1]**
All stacks: Particulate (g/h)	10	**15,000[2]**

HNO_3 = nitric acid; g/h = gram per hour; kg/h = kilogram per hour; NO_2 = nitrogen dioxide; NO_x = nitrogen oxides
Note: Results less than detection limit are denoted as "<".
[1] Limit based on weekly averaging
[2] Limit based on daily averaging

Liquid effluent

There are 3 sources of liquid effluent from the BRR facility: plant effluent, storm water runoff, and sewage treatment plant effluent. These effluents are collected in lagoons and treated, as required, prior to discharge into Lake Huron. Cameco monitors uranium, radium-226, nitrates, and pH in liquid effluents to demonstrate compliance with their respective licence limits.

Table K-2 summarizes the average monitoring results in 2024. For 2024, the liquid discharges from the facility continued to be below (or, within, in the case of pH) their respective licensed limits.

Table K-2: Liquid effluent monitoring results, Blind River Refinery, 2024

Parameter	Value	Result	Licence Limit
Uranium (mg/L)	Monthly average	0.02	**1.7**
Nitrates (mg/L)	Monthly average	6.0	**N/A**
Radium-226 (Bq/L)	Monthly average	0.01	**N/A**
pH	Daily minimum	7.8	**Minimum 6.0**
pH	Daily maximum	8.1	**Maximum 9.5**

mg/L = milligram per litre; Bq/ L= becquerel per litre

Uranium in ambient air

The concentrations of uranium in the ambient air (average and maximum), as monitored by Cameco's sampling network around BRR, continue to be low and all values measured were below the Ontario Regulation (O. Reg) 419/05: Air Pollution – Local Air Quality standard for uranium of 0.03 µg/m^3. In 2024, the maximum concentrations of uranium in ambient air at each sampling location were 0.0010 µg/m^3 (Golf Course), 0.0057 µg/m^3 (Southeast Yard), 0.0028 µg/m^3 (East Yard), 0.0002 µg/m^3 (Hydro Yard), and 0.0002 µg/m^3 (Town of Blind River).

Groundwater monitoring

Cameco is in compliance with CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*. Cameco has an extensive groundwater monitoring program in place around the BRR facility with 35 monitoring wells: 14 wells are located inside the perimeter fence and 21 wells are outside the fence line. Wells are monitored 1 to 3 times per year depending on the location relative to the refinery. Groundwater quality across the site meets the uranium standard set out in table 3 of the Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*, published by the Ministry of the Environment, Conservation and Parks (MECP). The average concentration of uranium in groundwater for 2024 was 1.4 µg/L which is well below the MECP standard of 420 µg/L. It should also be noted that groundwater in the area flows southwest towards the Mississauga River, and there are no groundwater wells for drinking water purposes located downstream of the site.

Surface water monitoring

Cameco continues to monitor surface water for uranium, nitrate, radium-226, and pH at the location of BRR's outfall diffuser in Lake Huron. The concentrations of uranium, nitrate, radium-226, and the pH levels in the lake remained well below the Canadian Council of Ministers of the Environment (CCME) guidelines. Table K-3 provides surface water monitoring results.

Table K-3: Surface water monitoring results at outfall diffuser in Lake Huron, Blind River Refinery, 2024

Parameter	Average	CCME Guideline*
Uranium (µg/L)	<0.7	**15**
Nitrate (mg/L as N)	0.2	**13**
Radium-226 (Bq/L)	0.0007	**N/A**
pH	7.8	**6.5–9.0**

Bq/L = becquerel per litre; mg/L = milligram per litre; µg/L = microgram per litre;
*CCME = Canadian Council of Ministers of the Environment *Canadian Water Quality Guidelines for the Protection of Aquatic Life*
Note: Results below the detection limit are denoted as "<".

Soil monitoring

Cameco collects soil samples at a depth of 0 to 5 cm each year and 5 to 15 cm every 5 years to monitor uranium concentrations in surface soil. The purpose is to monitor the long-term effects of air emissions on soil quality resulting from the deposition of airborne uranium on soil in the vicinity of the BRR facility. The 2024 soil monitoring results remained consistent with the respective concentrations measured in previous years, as shown in table K-4.

The average concentrations of uranium in soil measured near the BRR facility were below Ontario's natural background levels (2.5 µg/g) and well below 23 µg/g, which is the most restrictive soil quality guideline set by the CCME for uranium (for residential and parkland land use). This data demonstrates that the current BRR operations do not contribute to the accumulation of uranium in the surrounding soil and no adverse consequences to human and environmental receptors are expected.

Table K-4: Soil monitoring results (0–5 cm depth), Blind River Refinery, µg/g, 2024

Parameter	Average Concentration	CCME Guideline*
Uranium (within 1,000 m)	1.4	**23**
Uranium (outside 1,000 m)	0.7	**23**

cm = centimetre; m = metre; µg/g = microgram per gram;
*CCME = Canadian Council of Ministers of the Environment *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health*

Gamma monitoring

A portion of public dose from BRR operations is due to gamma radiation sources. Consequently, monitoring of gamma radiation effective dose rates at the fence line of the BRR main site and the nearby golf course (the critical receptor location) is essential to ensuring that levels of potential gamma radiation exposure are maintained ALARA. The land immediately outside the perimeter fence continues to be owned and controlled by Cameco. Therefore, Cameco has set an action level for gamma dose rates of 0.25 µSv/h at the north fence only because the critical receptor location for the gamma component of dose to the public is the neighbouring golf course north of the BRR site. Cameco uses environmental thermoluminescent dosimeters (TLDs) that are replaced monthly to measure the effective dose rates for gamma radiation. The Annual Monthly Average Results were as follows:

- East location measured 2.15 µSv/h (no action level is in place)
- North location measured 0.04 µSv/h (Cameco's action level is 0.25 µSv/h)
- South location measured 0.95 µSv/h (no action level is in place)
- West location measured 1.02 µSv/h (no action level is in place)

These measurements indicate that gamma dose rates are controlled and that the environment is protected.

Port Hope Conversion Facility

Atmospheric emissions

Cameco monitors uranium, fluoride and ammonia released from PHCF stacks. Table K-5 provides air monitoring data for 2024. The annual averages have remained consistently below their respective licence limits for 2024 and demonstrates that atmospheric emissions from the facility continued to be effectively controlled.

Table K-5: Air emission monitoring results (annual daily average), Port Hope Conversion Facility, kg/h, 2024

Location	Parameter	Annual Daily Average	Licence Limit
UF_6 plant	Uranium	0.0022	**0.280**
	Hydrogen Fluoride	0.015	**0.650**
UO_2 plant	Uranium	0.0006	**0.240**
	Ammonia	0.0019	**58**

UO_2 = uranium dioxide; UF_6 = uranium hexafluoride; kg/h = kilogram per hour

Liquid effluent

Cameco's PHCF collects and evaporates its process wastewater effluent. Its operating licence does not allow for any process wastewater effluent to be discharged from PHCF and there were no process liquid discharges from PHCF in 2024.

In compliance with the requirements of other regulators that have jurisdiction, Cameco's PHCF monitors releases of the following point source discharges that are non-process liquid effluent: combined facility sanitary sewer discharge and storm sewer. In 2024, the cooling water pump house intake line and the UF6 plant cooling water returning piping was abandoned because of the implementation of the closed loop cooling water system.

There were no sanitary sewer action level exceedances in 2024. The uranium loading in 2024 was 0.76 kg, which is a decrease compared to the uranium loading in 2023 of 7.0 kg. Cameco is continuing to repair and to replace sections of the sanitary sewer network as part of the Vision in Motion project. CNSC staff concluded that in 2024, Cameco met its licence requirement to not discharge process wastewater effluent and to keep the sanitary sewer discharges below their respective release limits.

Uranium in ambient air

Cameco monitors ambient air at several locations around the PHCF site to measure air quality using high-volume air sampling of total suspended particles (TSP) (uranium from the air is collected on a filter and analyzed) to ensure that the impact of the facility's emissions to the environment is minimized. In 2024, the highest annual average concentration of uranium in TSP in ambient air was 0.005 µg/m^3 for a 24-hour period, which is consistent with values for the years 2019 to 2023. This value is well below the O.Reg 419/05: Air Pollution – Local Air Quality standard for an upper risk threshold of uranium of 1.5 µg/m^3 for a 24-hour period.

Groundwater monitoring

Cameco is in compliance with CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*.

The PHCF long-term groundwater monitoring program includes groundwater level monitoring and groundwater sampling at select wells. Cameco samples groundwater quality at the PHCF in the following monitoring wells:

- 12 active pumping wells monthly
- 56 monitoring wells in the overburden (soil) on a quarterly basis
- 16 monitoring wells in the bedrock on an annual basis

Groundwater quality across the site in 2024 was generally consistent with that reported in previous annual monitoring reports from the licensee. Similarly, groundwater flow patterns were consistent with what was observed historically, flowing southeast towards the turning basin.

The pump-and-treat wells have been performing as expected. The operation of the pump-and-treat system has resulted in capture of contaminant plumes originating under the footprints of the current and original UF_6 plants, as well as the UO_2 plant. The mass of contaminants removed by these pumping wells (shown in table K-6) is slightly lower than in previous years. These results are either within historical ranges of fluctuation, or attributable to lower contaminant concentrations in pumped groundwater.

Table K-6: Mass of contaminants removed by pumping wells, Port Hope Conversion Facility, 2024

Parameter	Mass Removed (kg)
Uranium	18
Fluoride	27
Ammonia and ammonium	18

Nitrate	23
Arsenic	0.5

kg=kilogram

Surface water monitoring

The surface water quality in the harbour near the PHCF site has been monitored since 1977 through the analysis of samples collected from the south cooling water intake near the mouth of the Ganaraska River. The trend of surface water quality over time shows improvement since 1977 and very low uranium levels.

Surface water in the harbour is historically sampled at 13 locations on a quarterly basis with samples collected at depths slightly below the water surface and slightly above the sediment layer. Beginning in 2018, however, these sampling locations were restricted due to CNL's remedial harbour activities and therefore the surface water monitoring program was suspended. However, from 2018 to 2023 PHCF continued to monitor the cooling water intake since this is a good indication of the overall water quality under routine and baseline conditions, where routine refers to typical water quality conditions during facility operations and baseline refers to water quality conditions before this facility was in operation. In 2024, monitoring of the cooling water intake was discontinued because of the implementation of the closed loop cooling water system.

Soil monitoring

Cameco's annual soil monitoring program at PHCF consists of 2 monitoring locations at 3 different soil depths beyond the facility's fence line. One of these locations is within a 0 to 500 m radius from the facility, while the remaining location is within a 1,000 to 1,500 m radius from the facility.

In 2024, the average uranium in soil concentrations for the 0-5 cm depth, 5-10 cm depth and 10-15 cm depth were 4.5 µg/g, 4.6 µg/g and 4.0 µg/g respectively. All results were well below soil guidelines for residential and parkland set by the CCME in its *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* and are within the range of natural background levels for Ontario (2.5 µg/g). The results suggest that current PHCF operations and their uranium emissions do not significantly contribute to the accumulation of uranium in soil.

Cameco PHCF will review and modify soil monitoring locations as appropriate following the completion of the Port Hope Area Initiative.

Fluoride monitoring

The impact of fluoride emissions on the local environment from PHCF facility operations is determined by monitoring fluoride concentrations and visible foliar damage in vegetation at sampling locations adjacent to the facility and in the surrounding community. The vegetation monitoring program, conducted in coordination with the Ontario Ministry of the Environment, Conservation and Parks (MECP), was modified to sample clusters of trees rather than single

trees (starting in 2018). It was further modified in 2021 to remove 4 sampling sites, which was consistent with MECP feedback that these locations were not adding value to the monitoring program. Additionally, some trees previously monitored needed to be replaced with others due to downed trees and CNL's remedial work in the area. In 2024, the average and maximum values are 8 µg/g and 32 µg/g respectively, which are below the MECP's Ambient Air Quality Criteria (AAQC) value for fluoride in dry forage of 35 µg/g.

Gamma monitoring

A portion of radiological public dose from PHCF operations is from gamma radiation sources. PHCF monitors gamma radiation effective dose rates at the fence line of the 2 sites to ensure that potential exposure levels remain ALARA. The gamma radiation effective dose rates for both sites are measured with environmental TLDs supplied by a licensed dosimetry service.

The 2024 maximum monthly doses for gamma radiation are shown in table K-7. In 2024, the maximum monthly gamma measurements were all below the respective derived release limits for this facility and remained consistent with values from previous years. The measurements indicate that gamma dose rates are controlled, and the public is protected.

Table K-7: Gamma monitoring results, maximum monthly, Port Hope Conversion Facility, µSv/h, 2024

Station number and site	Maximum Monthly Gamma	DRL
Station 2 - Sites 1 and 2	0.17	**0.57**
Station 13/10 - Site 1	0.03	**0.40**
Station 21 - Site 2	0.05	**0.26**

µSv/h= microsievert per hour; DRL = Derived Release Limits

Cameco Fuel Manufacturing Inc.

Atmospheric emissions

Cameco continued to monitor uranium released as atmospheric emissions from the CFM facility. The monitoring data in table K-8 demonstrates that stack and building exhaust ventilation emissions from the facility continued to be effectively controlled, as annual averages remained consistently well below their licence limits in 2024.

Table K-8: Air emission monitoring results, Cameco Fuel Manufacturing, g/hr, 2024

Parameter	Total Uranium Discharge	Licence Limit
Total uranium discharge through stacks	0.0001	**1.2**
Total uranium discharge through building exhaust ventilation	0.12	**1.2**

kg= kilogram
Note: CFM's licence limit changed from 10.5kg/yr to 1.2 g/hr in March 2023.

Liquid effluent

After liquid effluent generated from the production process is collected, an evaporator process is used to remove the majority of the uranium. The condensed liquid is sampled and analyzed prior to a controlled release to the sanitary sewer line. Cameco continues to monitor uranium released as liquid effluent from the facility. The average concentration of uranium discharged to sewer for 2024 was 0.01 mg/L. The monitoring data demonstrates that liquid effluent from the facility in 2024 remained consistently well below the licence limit and continued to be effectively controlled.

Uranium in ambient air

Cameco operates high-volume air samplers to measure the airborne concentrations of uranium at points of impingement of stack plumes. The samplers are located on the east, north, southwest and northwest sides of the facility. In 2024, the results from these samplers showed that the highest annual average concentration of uranium in ambient air (among the sampling stations) was 0.0003 µg/m^3. All of the values are well below the O.Reg 419/05: Air Pollution – Local Air Quality standard for uranium of 0.03 µg/m^3.

Groundwater monitoring

Cameco is in compliance with CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*.

CFM has a network of 80 monitoring wells. Groundwater has been monitored at the site twice per year since 1999 and up to 10 pumping wells and 2 sumps were in operation during 2024.

Groundwater flow at the CFM site is generally from the west and northwest towards the east and southeast in 2024, consistent with historical observations. Groundwater quality across the site in 2024 was recorded at or below the MECP's Table 3 uranium standard of 420 µg/L with 1 exception. The concentration of dissolved uranium in groundwater exceeded the MECP Table 3 Standard of 420 µg/L in 1 of the 79 monitoring wells sampled. Groundwater quality met the MECP's Table 9 uranium standard of 330 µg/L at the 2 on-site well locations less than 30 metres

from West Gage Creek. Concentrations of dissolved uranium in groundwater ranged from <0.1 µg/L to a maximum value of 1000 µg/L across the site. This exceedance relates to historic waste management practices. The soil impact is confined to a small area. The groundwater monitoring results confirmed that current operations are not contributing to the concentrations of uranium in groundwater on the licensed property. Concentrations of uranium in groundwater were well below the Table 3 standard at off-site monitoring well locations in 2024. Groundwater below and immediately downstream of the CFM facility is not used for drinking water purposes.

Surface water monitoring

In 2024, Cameco collected surface water samples at 9 locations in May, July, and September. Three of the sampling locations are drainage features where water is only intermittently present in the spring following rain events. All sample locations were on or adjacent to the licensed site and were analyzed for uranium. Table K-9 provides average uranium in surface water in 2024.

Table K-9: Surface water quality monitoring results, Cameco Fuel Manufacturing, µg/L, 2024

Parameter	Maximum Concentration	CCME Guideline*
Uranium in the West Gage Creek	1.8	**15 (long-term)**
Uranium in the Intermittent Drainage Feature	9.2	**33 (short-term)**

µg/L = microgram per litre; *CCME = Canadian Council of Ministers of the Environment *Canadian Water Quality Guidelines for the Protection of Aquatic Life*

For all 2024 surface water sampling locations, the total uranium concentrations were below the applicable CCME guidelines. The maximum uranium concentration for surface water samples taken for intermittent drainage locations was 9.2 µg/L, which is below the CCME's short-term uranium guideline of 33 µg/L. The maximum uranium concentration for all other locations was 1.8 µg/L, which is below the CCME's long-term uranium guideline of 15 µg/L.

CNSC staff will continue to oversee Cameco's monitoring at locations around the vicinity of CFM to confirm that uranium concentrations remain at safe levels in surface water.

Soil monitoring

At least every 3 years, Cameco collects soil samples at various depths from 23 locations surrounding the CFM facility. Soil samples were last collected in 2022 and analyzed for uranium content. Results from 2010 to 2022 can be found in Regulatory Oversight Report for Uranium and Nuclear Processing Facilities in Canada: 2023. The next soil sampling event will occur in 2025.

Gamma monitoring

For the CFM facility, a portion of radiological public dose is due to gamma radiation sources. Consequently, monitoring of gamma radiation effective dose rates at the fence line of the CFM site is essential to ensuring that levels of potential gamma radiation exposure are maintained ALARA. The gamma radiation effective dose rates for the site are measured with environmental TLDs supplied by a licensed dosimetry service. Gamma monitoring results are shown in table K-10.

In 2024, the gamma measurements were all below the respective derived release limits for this facility and remain consistent with values from previous years.

Table K-10: Annual average gamma monitoring results, Cameco Fuel Manufacturing, µSv/hr, 2024

Location	Average Gamma	DRL
1	0.00	**4.96**
2	0.04	**0.46**
3	0.00	-
4	0.00	-
5	0.00	-
6	0.00	-
7	0.00	-
8	0.00	-
9	0.03	-
10	0.00	-
11	0.24	-
12	0.29	**1.35**

µSv/hr = millisievert per hour

DRL = Derived release limit

These measurements indicate that gamma dose rates are controlled and that the public is protected.

BWXT Nuclear Energy Canada Inc. – Toronto and Peterborough

Atmospheric emissions

To ensure compliance with licence limits, air emissions from the BWXT NEC facilities are filtered and sampled prior to release into the atmosphere. Table K-11 provides BWXT NEC Toronto's annual maximum uranium emissions in 2024. Table K-12 provides BWXT NEC Peterborough's annual maximum uranium and beryllium emissions in 2024. The annual emissions remained well below the licence limits for both facilities. The results demonstrate that air emissions of uranium and beryllium were being controlled effectively.

Table K-11: Air emission monitoring results, BWXT NEC Toronto, µg/m³, 2024

Parameter	Stack	Maximum Emissions	Licence limit
Uranium	Rotoclone	0.051	**65**
Uranium	6H-68	0.025	**47**
Uranium	4H-48	0.022	**97**
Uranium	Furnace #1	0.490	**437**
Uranium	Furnace #2/4	0.117	**55**
Uranium	Furnace #5/6	0.089	**52**

µg/m³= microgram per cubic metre

Table K-12: Air emission monitoring results, BWXT NEC Peterborough, µg/m³, 2024

Parameter	Stack	Maximum Emissions	Licence Limit
Uranium	R2 Decan	0.005	**410**
Beryllium	North	0.000	**2.6**
Beryllium	South	0.001	**2.6**
Beryllium	Acid	0.000	**2.6**

µg/m³= microgram per cubic metre

Liquid effluent

To ensure compliance with licence limits, wastewater from the BWXT NEC Toronto and Peterborough facilities is collected, filtered, and sampled prior to its release into sanitary sewers. Table K-13 provides BWXT NEC's annual maximum concentrations of uranium and beryllium released to the sanitary sewers in 2024. In 2024, the releases continued to be well below the licence limits and the results demonstrate that liquid effluent releases were being controlled effectively.

Table K-13: Liquid effluent monitoring results, BWXT NEC, mg/L, 2024

Facility	Parameter	Maximum Concentration	Licence Limit
BWXT NEC Toronto	Uranium	2.41	**1000**
BWXT NEC Peterborough	Uranium	0.01	**2500**
BWXT NEC Peterborough	Beryllium	0.0014	**26**

mg/L = milligram per litre

Uranium in ambient air

BWXT NEC Toronto operates 5 high-volume air samplers to measure airborne concentrations of uranium at points of impingement of stack plumes. The results from these samplers show that the annual average concentration of uranium (among the sampling stations) in ambient air measured around the facility in 2024 was below the minimum detection limit and the results are well below the *O.Reg 419/05: Air Pollution – Local Air Quality* standard for uranium of 0.03 µg/m^3. The average uranium concentration in boundary air monitoring for BWXT NEC Toronto in 2024 was 0.000 µg/m^3. The highest value recorded for uranium in air was 0.001 µg/m^3.

BWXT NEC Peterborough does not monitor uranium in ambient air because the atmospheric emissions discharged from the facility already meet the *O.Reg 419/05: Air Pollution – Local Air Quality* standard for uranium of 0.03 µg/m^3 at the point of release, thus eliminating the need for additional ambient air monitoring.

Soil monitoring

BWXT NEC conducts soil sampling for uranium at its Toronto facility as part of its environmental program. In 2024, 35 soil samples were taken and analyzed for uranium content. The samples were collected from the residential lands located around the BWXT NEC Toronto site. In 2024, the average uranium in soil concentration for residential locations was 0.6 µg/g. The samples taken from all 35 locations were below Ontario's background concentrations for uranium of up to 2.5 µg/g and well below the applicable CCME, *Canadian Soil Quality Guidelines for the*

Protection of Environmental and Human Health for uranium for industrial, commercial, and residential/parkland land use.

BWXT NEC conducts soil sampling for uranium and beryllium near its Peterborough facility as part of its environmental program. In 2024, soil samples were taken from 13 locations; the samples were collected from parks in Peterborough and background surface soil samples were collected approximately 19 km from the facility. The sampling methodology used was based on the MECP Guidelines on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, December 1996. The minimum detectable concentration of uranium was 1.0 ppm (1.0 µg/g) and the minimum detectable concentration of beryllium was 0.5 ppm (0.5 µg/g). The results of the soil sampling program were compared to the CCME guideline (23 µg /g for uranium and 4.0 µg/g for beryllium). The average concentration of uranium in the soil sampled was less than 1.0 µg/g and the average concentration of beryllium in the soil sampled was less than 0.50 µg/g; therefore, both results were less than the minimum detectable concentrations and well below the CCME guideline. Based on these results, there is no evidence that uranium or beryllium used at the BWXT NEC Peterborough facility has had any impact on soils in the surrounding environment.

Gamma monitoring

A portion of radiological public dose from both the BWXT NEC Toronto and Peterborough facilities is due to gamma radiation sources. BWXT NEC monitors the gamma radiation effective dose rates at the fence line of the Toronto site and at the Peterborough facility boundary to ensure that levels of potential gamma radiation exposure are maintained ALARA.

In 2024, the annual radiation dose from direct gamma radiation measured at each facility was as follows:

- 137.81 µSv at the BWXT NEC Toronto site
- 0.0 µSv at the BWXT NEC Peterborough site

These estimates indicate that the gamma dose from both BWXT NEC facilities is controlled and was well below the 1 mSv (1,000 µSv) per year effective dose limit to a member of the public.

SRB Technologies (Canada) Inc.

Atmospheric emissions

SRBT monitors tritium releases from its facility stacks and reports the monitoring data on an annual basis. The monitoring data for 2024 is provided in table K-14 and demonstrates that atmospheric emissions from the facility remained well below their regulatory limits.

Table K-14: Atmospheric emissions monitoring results, SRB Technologies, GBq/year, 2024

Parameter	Result	Licence limit
Tritium as HTO	13,628	**67,200**
Total tritium as HTO + HT	45,868	**448,000**

GBq = gigabecquerels; HTO = hydrogenated tritium oxide; HT = tritium gas

Liquid effluent

SRBT continues to control and monitor tritium released as liquid effluent from the facility. The liquid effluent monitoring results for water soluble tritium release to sewer for 2024 was 1.78 GBq/year which is well below SRBT's licence limit of 200 GBq/year.

Tritium in ambient air

SRBT maintains 40 passive air samplers to monitor tritium in air, and 35 of which are located within a 250 m to 2 km radius from the facility. These samplers represent tritium exposure pathways for inhalation and skin absorption and are used to calculate public dose. The 2024 air monitoring results from these samplers demonstrated that tritium levels in ambient air near SRBT remain low.

Groundwater monitoring

SRBT is in compliance with CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*.

Groundwater is currently sampled at 29 groundwater monitoring wells (sampled on a quarterly basis), 2 nearby business locations (sampled twice annually), and 5 residential drinking water wells (sampled twice annually). From the 2024 sampling results, the highest tritium concentration was reported for monitoring well MW06-10 (23,701 Bq/L). This is the only well where tritium exceeds the Canadian Drinking Water Guideline value of 7,000 Bq/L and it is located directly beneath the area where the active ventilation stacks are found. This well is a dedicated, engineered groundwater monitoring well which is located very near to the facility within a secured area and is not available to be used as a source of water consumption. The elevated tritium concentration in this well is from historical practices before 2006. SRBT continues to minimize tritium emissions during operation. Tritium concentrations in all monitoring wells are exhibiting consistently decreasing concentrations in recent years.

Of the 5 nearby residential wells around the site, none are in the groundwater flow pathway. The closest well, RW-2, is 1,100 metres away from SRBT. The maximum tritium concentration for all the residential wells monitored in 2024 was 33 Bq/L.

Nordion (Canada) Inc.

Atmospheric emissions

Nordion controls and monitors radioactive releases from its facility to prevent unnecessary releases of radioisotopes to the atmosphere.

The radioactive air emissions monitoring results for Co-60 at Nordion in 2024 was 0.00018 GBq/year, which is well below the regulatory limit of 250 GBq/year.

Liquid effluent

Nordion collects its liquid effluent in delay tanks and analyzes it before discharging to the sanitary sewer system.

Table K-15 below provides Nordion's monitoring results for radioactive liquid emissions in 2024. The monitoring data demonstrates that authorized radioactive liquid effluent releases from this facility in 2024 remained well below their DRLs.

Table K-15: Liquid effluent monitoring results for releases to the sanitary sewer, Nordion, GBq/year, 2024

Parameter	Result	DRL
Cobalt-60	0.0285	**35.4**
Niobium-95	0.0009	**3,250**
Zirconium-95	0.0010	**2,060**
Cesium-137	0.0006	**24.8**

GBq = gigabecquerels; DRL = derived release limit

Groundwater monitoring

There are currently 5 groundwater monitoring wells on the Nordion site. Nordion monitors the groundwater for radioactive and non-radioactive contaminants. Cobalt-60 is the main radionuclide of concern in airborne emissions from Nordion's operations. The radioactive contaminant monitoring results from 2024 show that radioactivity was below detection limits. The non-radioactive monitoring results demonstrate that there were no significant changes in the groundwater in 2024 when compared to previous years and that contaminant concentrations remained below the applicable limits in the MECP Table 3 standard for non-potable groundwater conditions.

The groundwater monitoring results indicate that releases of radioactive and hazardous substances from Nordion have had no measurable impact on groundwater quality. Additionally, groundwater is not used as a source of potable water in the vicinity of the site.

Soil sampling

In 2024, Nordion conducted its annual soil sampling campaign and collected 19 soil samples from around the facility. All 19 soil samples measured below the lab's minimum detectable amount and no radionuclides attributable to their licensed activities were detected.

Gamma monitoring

Nordion uses TLDs to monitor environmental gamma radiation from the facility. These devices are placed at locations that cover the points of a compass and are preferentially placed east of the facility to receive prevailing winds. TLDs are also placed in the residences of Nordion employees and local businesses near the facility and, in 2024, the highest offsite TLD measurement of these locations was 0.095 mSv. The 2024 annual monitoring results show that gamma radiation levels at offsite monitoring locations were in the range of natural background, which indicates that Nordion's operations are not contributing to the public's gamma radiation exposure.

Best Theratronics Ltd.

Effluent and emissions control (releases)

There are no radiological releases (liquid or airborne) from the BTL facility that require controls or monitoring since it uses radioactive sealed sources that are not produced on-site and do not result in any radioactive releases.

BTL safely manages hazardous liquid effluents from routine operations. They are collected, temporarily stored on-site, and regularly removed for disposal by a certified third-party contractor. Lubricating oil for on-site boring and milling machines is recovered and recirculated. Therefore, there are no hazardous waterborne releases into the environment requiring controls or effluent monitoring.

Hazardous airborne emissions from BTL are related to the exhausting of the lead pouring, paint booth, fire torching and sand blasting areas. Engineering controls, such as filters and ventilation, are in place to reduce or eliminate emissions generated during operations. As a result, BTL does not have an effluent monitoring program or an environmental monitoring program.

Assessment and monitoring

BTL does not conduct environmental monitoring around its facility as there are no radiological releases that require controls or monitoring. Hazardous airborne emissions pertain to the exhaust associated with the lead pouring area. BTL submits a report on lead and its compounds to the National Pollutant Release Inventory and maintains annual compliance with the *Toxics Reduction Act*. There were no environmental occurrences at BTL in 2024 to report.

BWXT Medical

Atmospheric emissions

BWXT Medical performs weekly air exhaust stack sampling and continuously monitors their process ventilation, exhausts ductwork, and stack emissions using in-situ detectors, samplers, and computerized recording. As a result of weekly air sampling, there were no detectable airborne releases of radioactive substances. For non-radiological hazardous substances, the airborne emissions from BWXT Medical were well below the limits in its Environmental Compliance Approval from the MECP.

Liquid effluent

BWXT Medical collects its wastewater from their active areas in underground delay tanks and analyzes it before discharging to the sanitary sewer system. In 2024, all radionuclide analysis results from liquid effluent at BWXT Medical were below the laboratory's detection limits and the values were well below their regulatory release limits.

Soil sampling

In 2024, soil was sampled around the BWXT Medical facility at 19 locations and there were no gamma-emitting radionuclides detected in the samples.

Gamma monitoring

BWXT Medical monitors gamma radiation at the facility using environmental TLDs. TLDs are also placed in residences of BWXT Medical employees and businesses located near the facility and the highest offsite TLD measurement in 2024 was 0.095 mSv. This shows that the gamma radiation levels at offsite monitoring locations were in the range of natural background, which indicates that BWXT Medical’s operations are not contributing to the public’s gamma radiation exposure.

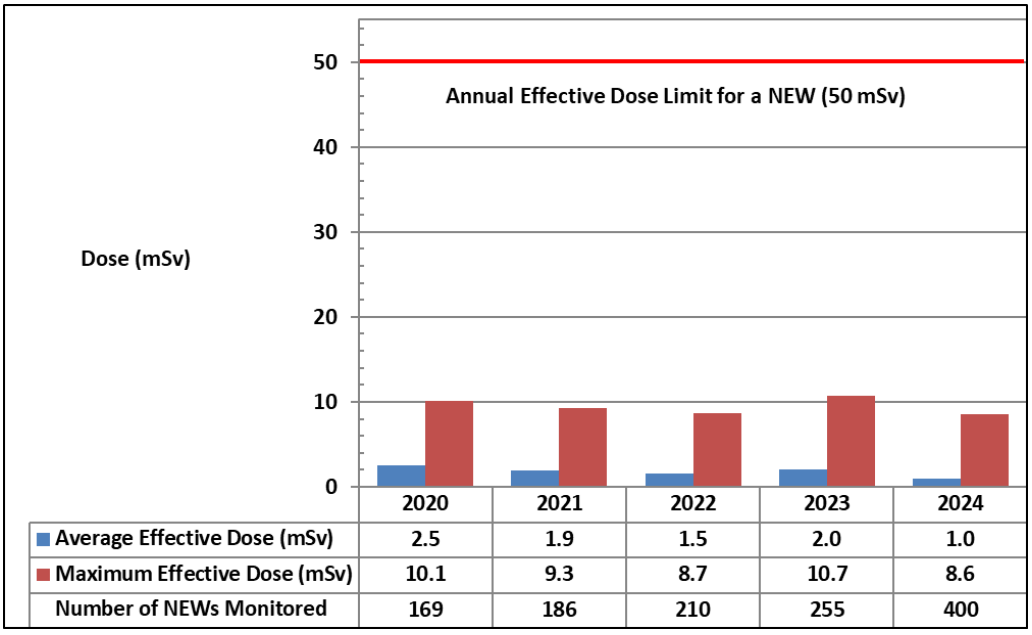
Appendix L: Worker Dose Data

This appendix presents information on doses to NEWs and non-NEWs at the UNSPFs. Note that all averages include zero doses.

Blind River Refinery

Figure L-1 provides the average and maximum effective doses for NEWs at BRR between 2020 and 2024. The maximum effective dose received by a NEW in 2024 was 8.6 mSv, which is approximately 17% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period. Average and maximum effective doses over this 5-year period are reflective of the work activities at BRR and influenced by factors such as production levels and number of operating days. The average and maximum effective doses are consistent with previous years.

Figure L-1: Effective dose statistics for NEWs, Blind River Refinery, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	2.5	1.9	1.5	2.0	1.0
Maximum Effective Dose (mSv)	10.1	9.3	8.7	10.7	8.6
Number of NEWs Monitored	169	186	210	255	400

Average and maximum equivalent dose results for skin and extremities (hands) of NEWs, from 2020 to 2024, are provided in tables L-1 and L-2. In 2024, the maximum individual skin dose received by a NEW at BRR was 38.9 mSv, which is approximately 8% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period. The maximum individual extremity dose received by a NEW at BRR was 29.5 mSv, which is approximately 6% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period.

Table L-1: Equivalent (skin) dose statistics for NEWs, Blind River Refinery, mSv, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average skin dose	5.1	4.4	3.8	3.7	2.0	N/A
Maximum individual skin dose	39.1	39.9	34.2	32.6	38.9	500

mSv = millisievert; N/A = not applicable

Table L-2: Equivalent (extremity) dose statistics for NEWs, Blind River Refinery, mSv, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average extremity dose	3.4	5.2	2.7	4.3	3.9	**N/A**
Maximum individual extremity dose	14.5	27.2	20.2	26.6	29.5	**500**

mSv = millisievert; N/A = not applicable

The general classification system for inhaled compounds by their solubility or retention in the human body classifies compounds as type F (fast), type M (medium), and type S (slow). At BRR, the uranium products have solubilities of types F, M and S. Cameco's Fuel Services Division holds a CNSC dosimetry service licence, which authorizes Cameco to provide in-house internal dosimetry services to BRR. The lung counting program is used for assigning worker doses from routine monitoring assuming a chronic pattern of inhalation intakes of uranium products of type M and S. This is a conservative approach for workers exposed to a combination of chronic and acute (short term) inhalation intakes. The urine analysis program assesses the dose from acute intakes of type F material and is also used for monitoring the toxic effects of uranium.

Workers are placed on either a bi-weekly or a monthly urine sampling schedule. Samples may be collected outside of the routine urine sampling schedule, such as when there is a suspected unplanned intake of uranium or following a specific work activity; these are referred to as non-routine samples. The urine analysis program includes graduated responses to increasing uranium in urine concentrations, with potential chemical toxicity of uranium to the kidneys considered.

At BRR, the following action levels for NEWs have been implemented:

- The action level for bi-weekly urine samples is 65 µg U/L, which is the concentration of uranium in urine that results in a potential dose of 1 mSv and represents the chemical toxicity reference limit of 3 µg U/g kidney tissue, assuming the intake occurred at the mid-point of the sampling period.
- The action level for monthly urine samples is 44 µg U/L, which is set at the concentration of uranium in urine that results in a potential dose of 1 mSv and represents the chemical toxicity reference limit of 3 µg U/g kidney tissue, assuming the intake occurred at the mid-point of the sampling period.

In 2024, 10,135 urine samples were analyzed, and no routine sample reached an action level. There is a notable increase in the number of urine samples analyzed due to an increased number of contractors on site in 2024.

Table L-3 provides the distribution of uranium in urine results from workers' urine samples collected over 2020-2024.

Table L-3: Urine analysis results for NEWs, Blind River Refinery, µg U/L, 2020-2024

Parameters	2020	2021	2022	2023	2024
Total number of samples analyzed	3,795	4,192	4,215	5,537	10,135
Number of samples at or above the action level	0	0	0	0	0
Maximum routine sample result (µg U/L)	15.7	14.0	12.3	12.6	12.4
Maximum non-routine sample result (µg U/L)	45	180	145	94.8	40

µg U/L = microgram Uranium per Litre

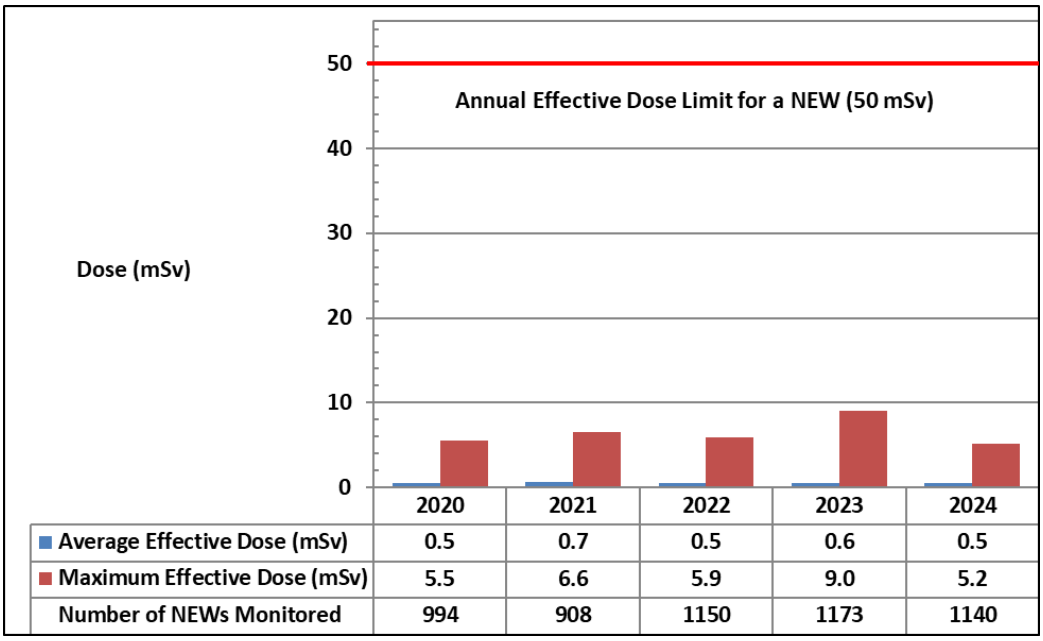
Non-NEWs at the BRR

Site visitors and contractors who are not considered NEWs are issued external dosimetry to monitor their radiological exposures while at BRR. In 2024, the maximum individual effective dose received by a site visitor or contactor who was not a NEW was 0.17 mSv, which is well below the CNSC's regulatory effective dose limit of 1 mSv per calendar year for a person who is not a NEW.

Port Hope Conversion Facility

Figure L-2 provides the average and maximum effective doses for NEWs at PHCF between 2020 and 2024. The maximum individual effective dose received by a NEW in 2024 was 5.2 mSv, which is approximately 10% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period. The maximum individual dose in 2024 is the lowest when compared to the previous 4 years.

Figure L-2: Effective dose statistics for NEWs, Port Hope Conversion Facility, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	0.5	0.7	0.5	0.6	0.5
Maximum Effective Dose (mSv)	5.5	6.6	5.9	9.0	5.2
Number of NEWs Monitored	994	908	1150	1173	1140

Average and maximum equivalent dose results for the skin of NEWs, from 2020 to 2024 are provided in table L-4. In 2024, the maximum individual skin dose received by a NEW at PHCF was 18.3 mSv, which is approximately 4% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period. The average and maximum skin doses over this 5-year period have been relatively steady. Extremity dosimetry is not routinely used at the PHCF as extremities are not typically preferentially exposed during routine work activities.

Table L-4: Equivalent (skin) dose statistics for NEWs, Port Hope Conversion Facility, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average skin dose	0.5	0.7	0.5	0.7	0.5	N/A
Maximum individual skin dose	17.0	16.3	12.0	16.0	18.3	500

mSv = millisievert; N/A = not applicable

At PHCF, uranium products have solubilities of types F, M and S. Cameco's Fuel Services Division holds a CNSC dosimetry service licence, which authorizes Cameco to provide in-house internal dosimetry services to PHCF. The lung counting program is used for assigning

worker doses from routine monitoring assuming a chronic pattern of inhalation intakes of uranium products of type M and S. This is a conservative approach for workers exposed to a combination of chronic and acute (short term) inhalation intakes. The urine analysis program primarily focuses on assessing the dose from acute intakes of type F material and is also used for monitoring the toxic effects of uranium.

The routine urine sampling frequency ranges from daily to monthly, depending on the work group. Samples may also be collected outside of the routine urine sampling schedule, such as when there is a suspected unplanned intake of uranium or following a specific work activity; these are referred to as post-shift (non-routine) urine samples. The urine analysis program includes graduated responses to increasing uranium in urine concentrations, with potential radiation doses and chemical toxicity of uranium to the kidneys considered.

At PHCF, the following action levels for NEWs have been implemented:

- The action level for bi-weekly urine samples is 65 µg U/L, which is the concentration of uranium in urine that results in a potential dose of 0.5 mSv and represents the chemical toxicity reference limit of 3 µg U/g kidney tissue, assuming the intake occurred at the mid-point of the sampling period.
- The action level for monthly urine samples is 25 µg U/L, which is set at the concentration of uranium in urine that results in a potential dose of 0.4 mSv and represents the chemical toxicity reference limit of 3 µg U/g kidney tissue, assuming the intake occurred at the mid-point of the sampling period.
- The action level for daily urine samples is 80 µg U/L, which is set at the concentration of uranium in urine that results in a potential dose of 0.10 mSv and represents a potential kidney burden of 0.98 µg U/g kidney tissue, assuming the intake occurred within 24 hours of the sample being taken.
- The action level for all post-shift (non-routine) urine samples is strictly for monitoring for potential kidney toxicity, and is 500 µg U/L, which represents a potential kidney burden of 0.25 µg U/g kidney tissue, assuming the intake occurred within 12 hours of the sample being taken.

Additionally, an action level of 40 µg U/L has been set for daily urine samples submitted by persons not considered as NEWs. This concentration of uranium in urine results in a potential dose of < 0.05 mSv and represents a potential kidney burden of 0.49 µg U/g kidney tissue, assuming the intake occurred within 24 hours of the sample being taken.

In 2024, 46,738 urine samples were analyzed, and one sample reached an action level. Details of this action level exceedance are discussed in the Radiation Protection section of this report. The elevated result was found to have been due to a contaminated urine sample and not due to an intake received by the worker.

Table L-5 provides the distribution of uranium in urine results from workers' (NEWs and persons not considered as NEWs) urine samples collected over 2020-2024.

Table L-5: Urine analysis results for NEWs, Port Hope Conversion Facility, µg U/L, 2020-2024

Parameters	2020	2021	2022	2023	2024
Total number of samples analyzed	28,761	28,855	46,531	55,900	46,738
Number of samples at or above the action level	0	0	0	1	1
Maximum routine sample result (µg U/L)	9.6	14	18	18	120
Maximum non-routine sample result (µg U/L)	390	120	82	340	420

µg U/L = microgram Uranium per Litre

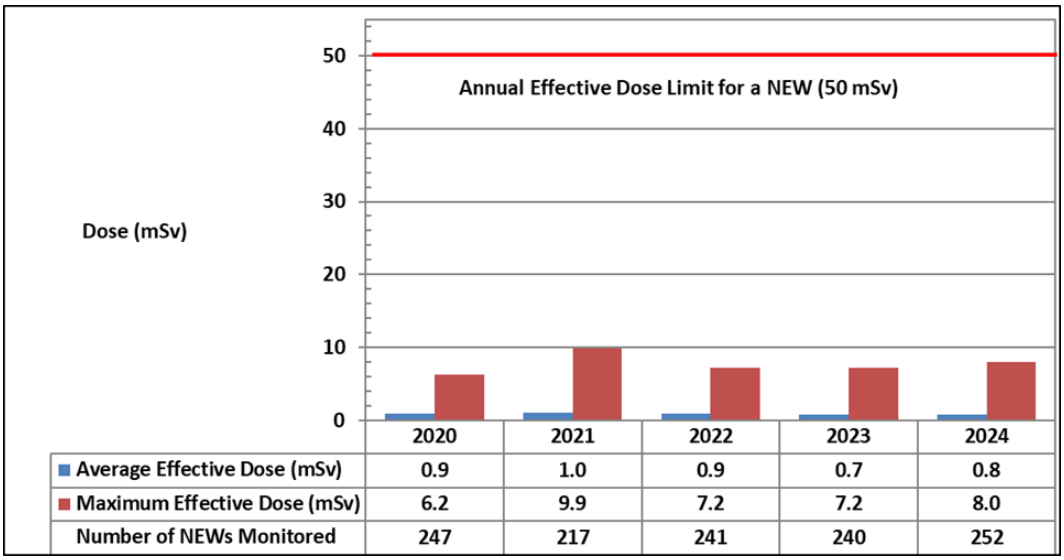
Non-NEWs at the PHCF

Cameco employees, site visitors and contractors whose work activities do not require NEW status may be issued whole-body dosimeters and may participate in the internal dosimetry program to monitor their radiological exposures while at PHCF. In 2024, there were no measurable doses recorded on dosimeters issued to persons who are not NEWS.

Cameco Fuel Manufacturing Inc.

Figure L-3 provides the average and maximum effective doses for NEWs at CFM between 2020 and 2024. The maximum individual effective dose received by a NEW in 2024 was 8.0 mSv, which is approximately 16% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period. The average total effective doses over this 5-year period have remained steady.

Figure L-3: Effective dose statistics for NEWs, Cameco Fuel Manufacturing, 2020-2024



Average and maximum equivalent dose results for the skin and extremities (hands) of NEWs, from 2020 to 2024, are provided in tables L-6 and L-7. In 2024, the maximum skin dose received by a NEW at CFM was 47.3 mSv, which is approximately 9% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period. The average and maximum equivalent doses have been steady or decreasing over this 5-year period.

Table L-6: Equivalent (skin) dose statistics for NEWs, Cameco Fuel Manufacturing, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average skin dose	3.1	3.5	2.8	3.1	2.9	N/A
Maximum individual skin dose	55.3	40.9	47.4	48.6	47.3	500

mSv = millisievert; N/A = not applicable

Table L-7: Equivalent (extremity) dose statistics for NEWs, Cameco Fuel Manufacturing, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average extremity dose	17.9	8.4	7.0	7.0	7.0	N/A
Maximum individual extremity dose	65.6	41.9	39.4	39.4	39.4	500

mSv = millisievert; N/A = not applicable

CFM has been estimating workers' extremity doses using historical data since 2022. A dose assessment conducted in 2021 determined that use of licensed dosimetry is not required for extremity doses, since doses are below the threshold of 50 mSv in a 1-year dosimetry period. The average and maximum extremity doses from 2021 have been used for extrapolating the estimates over the years 2022-2024. If there is a change in processing techniques or work configurations that would impact workers' extremity doses, then an assessment is required to determine if the threshold for use of licensed dosimetry is reached. Going forward, CNSC staff will only report if the extremity doses are beyond what is bounded by the estimation method.

At CFM, the input to the pellet manufacturing process is ceramic grade UO_2. UO_2 has a solubility of type S, which clears slowly from the body, and has a retention time in the body of years. The lung counting program is used for assigning worker doses from routine monitoring, assuming a chronic pattern of inhalation intakes. This is a conservative approach for workers exposed to a combination of chronic and acute (short term) inhalation intakes. Cameco's Fuel Services Division holds a CNSC dosimetry service licence, which authorizes Cameco to provide in-house internal dosimetry services to CFM.

To complement the lung counting program, routine biweekly urine samples are collected from workers for monitoring of acute inhalation or accidental ingestion of UO_2. Samples may be collected outside of the routine urine sampling schedule, such as following non-routine work or an elevated air monitoring result in a work area. The urine analysis program at CFM includes graduated responses to increasing uranium in urine concentrations. Cameco developed tables of urine excretion rates for various monitoring intervals and

corresponding concentration levels for uranium compounds, which may indicate that the chemical toxicity reference limit of 3 µg U/g of kidney tissue has been exceeded.

At CFM, an action level of 10 µg U/L is implemented for all urine samples. This translates to a range of 0.008 to 0.435 µg U/g of kidney tissue, well below the chemical toxicity reference limit of 3 µg U/g of kidney tissue.

In 2024, 1,777 urine samples were analyzed, and no sample reached the action level.

Table L-8 provides the urine analysis results for NEWs at CFM during from 2020-2024. As shown, there have been no exceedances of CFM's action level for urine analysis samples over these years.

Table L-8: Urine analysis results for NEWs, Cameco Fuel Manufacturing, µg U/L, 2020-2024

Parameters	2020	2021	2022	2023	2024
Total number of samples analyzed	1,685	1,565	1,564	1,667	1,777
Number of samples at or above the action level	0	0	0	0	0
Maximum sample result (µg U/L)	2.0	1.5	2.2	1.8	1.6

µg U/L = microgram Uranium per Litre

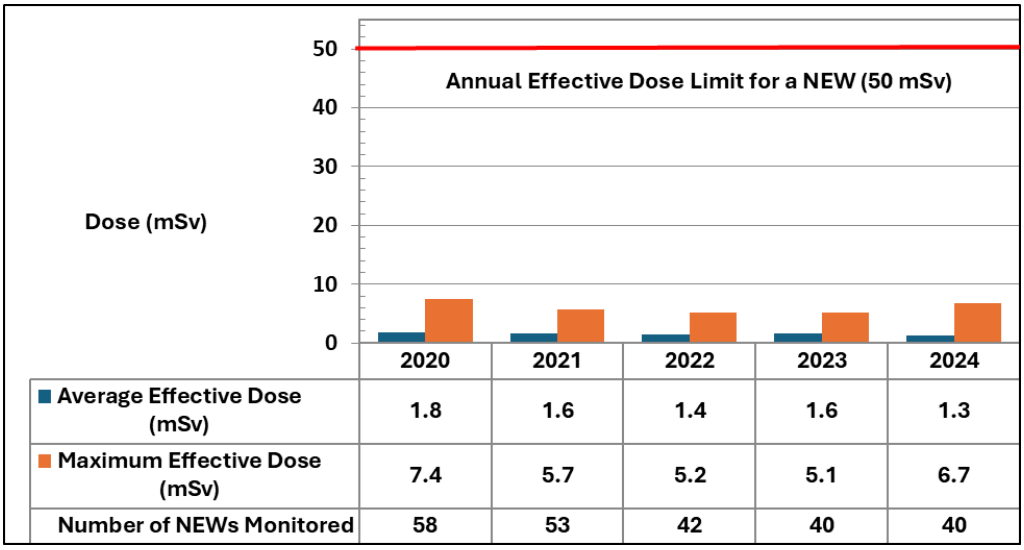
Non-NEWs at CFM

Visitors and contractors that are not considered as NEWs are issued dosimeters to monitor their radiological exposures while at CFM. In 2024, there were no measurable doses recorded on dosimeters issued to persons who are not NEWs.

BWXT Nuclear Energy Canada Inc. – Toronto and Peterborough

Figure L-4 provides the average and maximum effective dose for NEWs at BWXT NEC's Toronto facility between 2020 and 2024. The maximum effective dose received by a NEW in 2024 at the Toronto facility was 6.7 mSv, or approximately 13% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period.

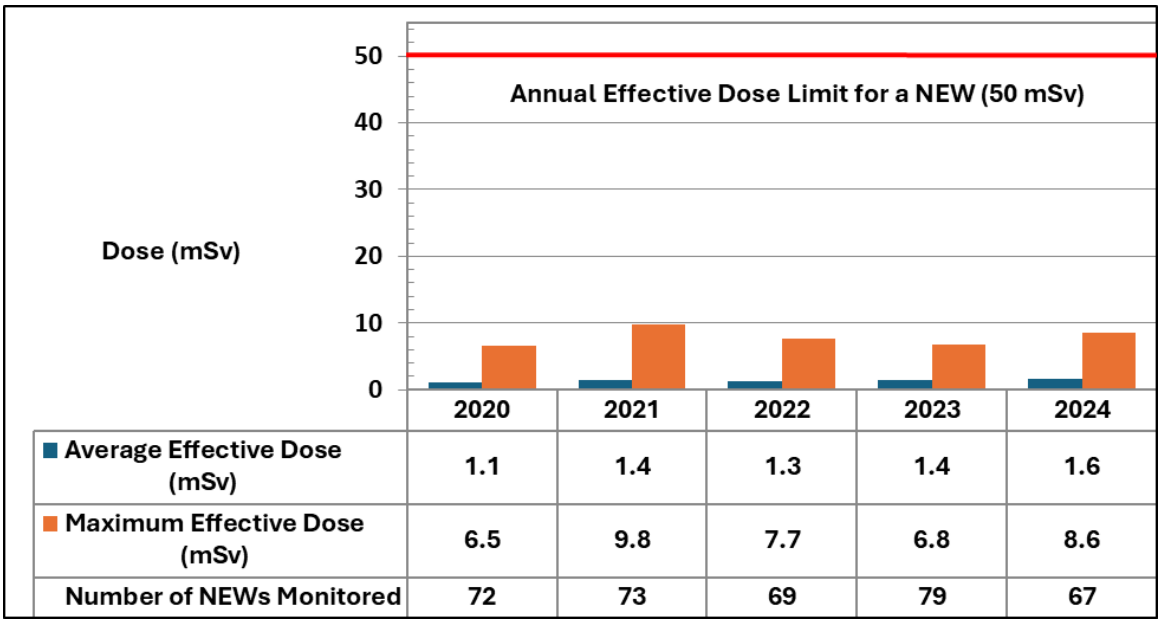
Figure L-4: Effective dose statistics for NEWs, BWXT NEC Toronto, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	1.8	1.6	1.4	1.6	1.3
Maximum Effective Dose (mSv)	7.4	5.7	5.2	5.1	6.7
Number of NEWs Monitored	58	53	42	40	40

Figure L-5 provides the average and maximum effective doses for NEWs at BWXT NEC's Peterborough facility between 2020 and 2024. The maximum effective dose received by a NEW in 2024 at the Peterborough facility was 8.6 mSv, or approximately 17% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period.

Figure L-5: Effective dose statistics for NEWs, BWXT Peterborough, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	1.1	1.4	1.3	1.4	1.6
Maximum Effective Dose (mSv)	6.5	9.8	7.7	6.8	8.6
Number of NEWs Monitored	72	73	69	79	67

Annual average and maximum equivalent doses to the skin and extremities (hands) of NEWs from 2020 to 2024 are provided in tables L-9 through L-12.

In 2024, the maximum individual equivalent skin dose at the Toronto facility was 32.6 mSv and 25.8 mSv at the Peterborough facility.

Table L-9: Equivalent (skin) dose statistics for NEWs, BWXT NEC Toronto, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average skin dose	8.9	7.9	5.8	7.3	6.6	N/A
Maximum individual skin dose	39.1	37.2	28.7	27.5	32.6	500

mSv = millisievert; N/A = not applicable

Table L-10: Equivalent (skin) dose statistics for NEWs, BWXT NEC Peterborough, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average skin dose	2.8	3.6	3.5	4.1	3.7	**N/A**
Maximum individual skin dose	19.0	30.9	21.7	25.2	25.8	**500**

mSv = millisievert; N/A = not applicable

Table L-11: Equivalent (extremity) dose statistics for NEWs, mSv/yr, BWXT NEC Toronto, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average extremity dose	25.4	22.2	21.1	15.9	20.1	N/A
Maximum individual extremity dose	115.5	66.1	68.6	53.4	62.1	500

mSv = millisievert; N/A = not applicable

Table L-12: Equivalent (extremity) dose statistics for NEWs, BWXT NEC Peterborough, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average extremity dose	18.8	23.7	15.6	18.4	17.6	N/A
Maximum individual extremity dose	43.2	59.0	52.0	63.8	40.3	500

mSv = millisievert; N/A = not applicable

The maximum individual equivalent dose to the skin of 32.6 mSv was received at the Toronto facility and represents approximately 6.5% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period. The maximum individual equivalent dose to an extremity of 62.1 mSv was received at the Peterborough facility and represents approximately 12% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period. Over the past 5 years, average equivalent extremity and skin doses have been relatively stable at both facilities.

BWXT's facilities handle ceramic grade UO_2. UO_2 has a solubility of type S, and clears slowly from the body, with a retention time in the body of years. The measurement of uranium in the urine is used as a screening method for assessing whether inhalation of airborne UO_2, or accidental ingestion has occurred. At the Toronto facility, workers are placed on a routine weekly or monthly urine sampling schedule. Workers at the Peterborough facility are on a routine quarterly urine sampling schedule. Samples may be collected outside of the routine urine sampling schedules, such as following non-routine work or an elevated air monitoring result in a work area.

An action level of 10 µg U/L is implemented for all urine samples. This translates to a range of 0.008 to 0.3 µg U/g of kidney tissue at BWXT Toronto, and a range of 0.008 to 0.732 µg U/g of kidney tissue at BWXT Peterborough, well-below the chemical toxicity reference limit of 3 µg U/g of kidney tissue.

At BWXT Toronto in 2024, 1,146 urine samples were analyzed, and no sample reached the action level.

Table L-13 provides the distribution of uranium in urine results from workers' urine samples collected from 2020-2024 at BWXT Toronto.

Table L-13: Urine analysis results for NEWs, BWXT NEC Toronto, µg U/L, 2020-2024

Parameters	2020	2021	2022	2023	2024
Total number of samples analyzed	1,646	1,499	1,332	1,320	1,146
Number of samples at or above the action level	0	0	0	0	0
Maximum sample result (µg U/L)	4.0	2.7	2.7	5.1	5.1

µg U/L = microgram Uranium per Litre

At BWXT Peterborough in 2024, 101 urine samples were analyzed, and no sample reached the action level.

Table L-14 provides the distribution of uranium in urine results from workers' urine samples collected from 2020-2024 at BWXT Peterborough.

Table L-14: Urine analysis results for NEWs, BWXT NEC Peterborough, µg U/L, 2020-2024

Parameters	2020	2021	2022	2023	2024
Total number of samples analyzed	86	103	105	110	101
Number of samples at or above the action level	0	0	0	0	0
Maximum sample result (µg U/L)	0.4	0.1	0.2	0.1	0.9

µg U/L = microgram Uranium per Litre

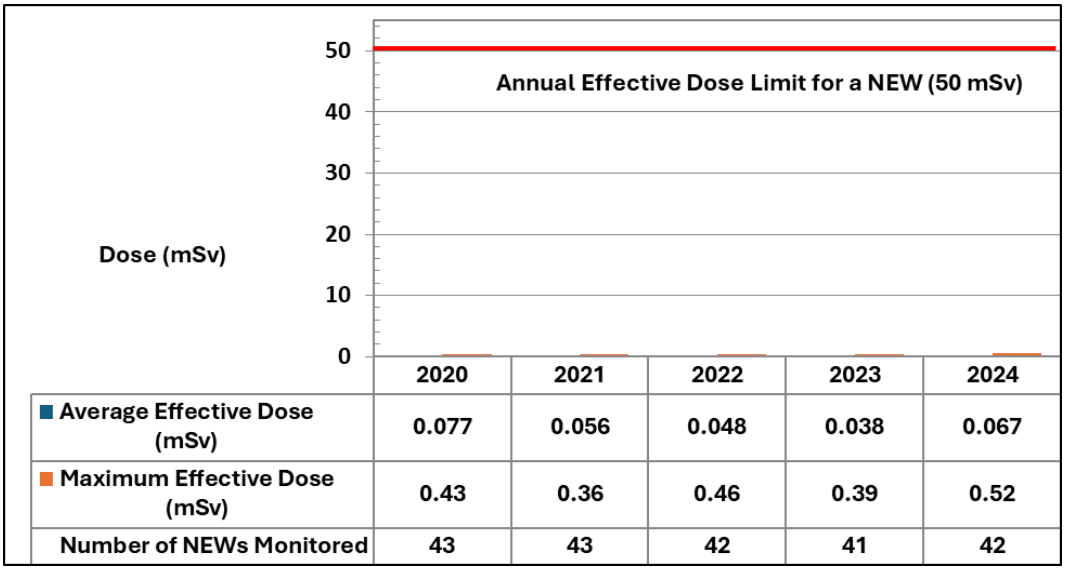
Non-NEWs at BWXT NEC

For both the Peterborough and Toronto facilities, visitors and contractors are all considered non-NEWs and are not directly monitored. Doses are estimated based on in-plant radiological conditions and occupancy factors, to ensure that radiation doses are controlled well-below the CNSC's regulatory effective dose limit of 1 mSv per calendar year for a person who is not a NEW.

SRB Technologies (Canada) Inc.

Figure L-6 provides the average and maximum effective doses for NEWs at SRBT from 2020 to 2024. The maximum effective dose received by a NEW in 2024 was 0.52 mSv, this is below 1.1% of the CNSC regulatory effective dose limit of 50 mSv in a 1-year dosimetry period. Over the past 5 years, annual effective doses at SRBT have remained stable and very low, with slight variations due to production volumes.

Figure L-6: Effective dose statistics for NEWs, SRB Technologies, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	0.077	0.056	0.048	0.038	0.067
Maximum Effective Dose (mSv)	0.43	0.36	0.46	0.39	0.52
Number of NEWs Monitored	43	43	42	41	42

Due to the uniform distribution of tritium in body tissues, equivalent skin doses are essentially the same as the effective whole-body dose provided in figure L-6 and are therefore not reported separately. For this same reason, extremity doses are not separately monitored for workers at SRBT.

Non-NEWs at SRBT

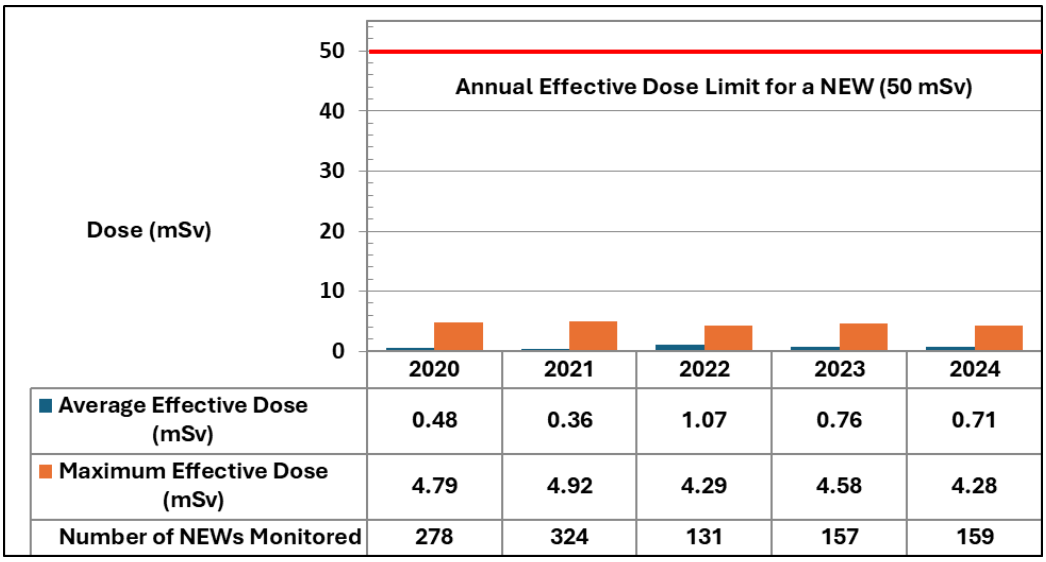
While contractors are not identified as NEWs, since they do not perform radiological work, their radiological exposures are monitored while they are at the SRBT facility to ensure that their doses remain ALARA and below the CNSC's regulatory dose limit of 1 mSv per calendar year for

a person who is not a NEW. In 2024, no contractors received a recordable dose that resulted from work activities performed at the facility.

Nordion (Canada) Inc.

Figure L-7 provides the average and maximum effective doses to NEWs at Nordion from 2020 to 2024. In 2018, Nordion sold its medical isotope business to BWXT Medical who operated as a contractor until receiving their own licence in November 2021. The Cobalt-60 operations drove the maximum doses at Nordion, so the trend in dose results over the reporting period is stable. The average effective dose increased in 2022 as the lower doses from the medical isotope operation were no longer included. Nordion reported that the maximum effective dose received by a NEW in 2024 was 4.28 mSv, approximately 8.6% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period. Average and maximum effective doses have been relatively stable over these years.

Figure L-7: Effective dose statistics for NEWs, Nordion, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	0.48	0.36	1.07	0.76	0.71
Maximum Effective Dose (mSv)	4.79	4.92	4.29	4.58	4.28
Number of NEWs Monitored	278	324	131	157	159

The equivalent doses to the skin of NEWs at Nordion are typically equal to the effective dose due to the nature of exposure, as provided in figure L-7.

Annual average and maximum equivalent doses to the extremities (hands) of NEWs from 2020 to 2024 are provided in table L-15. In 2024, the maximum equivalent extremity dose for a NEW in the active area was 7.03 mSv. This dose represents approximately 1.4% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period.

Table L-15: Equivalent (extremity) dose statistics for NEWs, Nordion, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average extremity dose	0.93	1.56	1.52	1.96	1.67	N/A
Maximum individual extremity dose	16.48	7.73	4.29	4.58	7.03	500

mSv = millisievert; N/A = not applicable

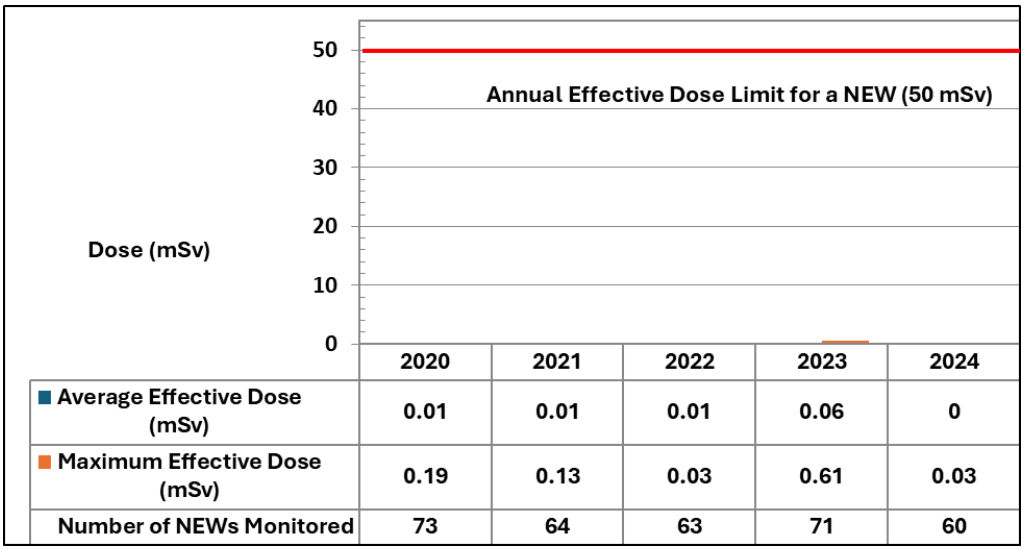
Non-NEWs at Nordion

At Nordion, there may be occasions where workers who are not classified as NEWs enter the active area but do not perform any radiological work. Nordion monitors non-NEWs as required and provides relevant training to ensure that their doses are kept ALARA. In 2024, Nordion monitored 80 non-NEWs with the maximum effective dose of 0.18 mSv, which is well-below the CNSC's regulatory effective dose limit of 1 mSv per calendar year for a person who is not a NEW.

Best Theratronics Ltd.

At BTL, employees are classified as NEWs if they are expected to have a reasonable probability of receiving an annual occupational dose greater than 1 mSv. Figure L-8 provides the average and maximum effective doses for NEWs at BTL between 2020 and 2024. In 2024, the maximum effective dose received by a NEW at BTL was less than 0.03 mSv, or less than approximately 0.06% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period. Over the past 5 years, annual effective doses at BTL have remained stable and very low, with slight variations due to production volumes.

Figure L-8: Effective dose statistics for NEWs, BTL, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	0.01	0.01	0.01	0.06	0
Maximum Effective Dose (mSv)	0.19	0.13	0.03	0.61	0.03
Number of NEWs Monitored	73	64	63	71	60

Annual average and maximum equivalent doses to the extremities (hands) of NEWs from 2020 to 2024 are provided in table L-16. The maximum equivalent extremity dose for a NEW in 2024 was 0.12 mSv, which is approximately 0.02% of the CNSC's regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period. Over the past 5 years, average equivalent doses to the extremities have remained very low.

Table L-16: Equivalent (extremity) dose statistics for NEWs, Best Theratronics Ltd., mSv/yr, 2020-2024

Dose Data (mSv)	2020	2021	2022	2023	2024	Regulatory Limit (mSv/year)
Average extremity dose	0.15	0.06	0.02	1.19	0.02	N/A
Maximum individual extremity dose	2.4	0.47	0.13	4.42	0.12	500

mSv = millisieverts; N/A = not applicable

The equivalent doses to the skin of NEWs are equal to the effective doses due to the nature of exposure, as provided in figure L-8.

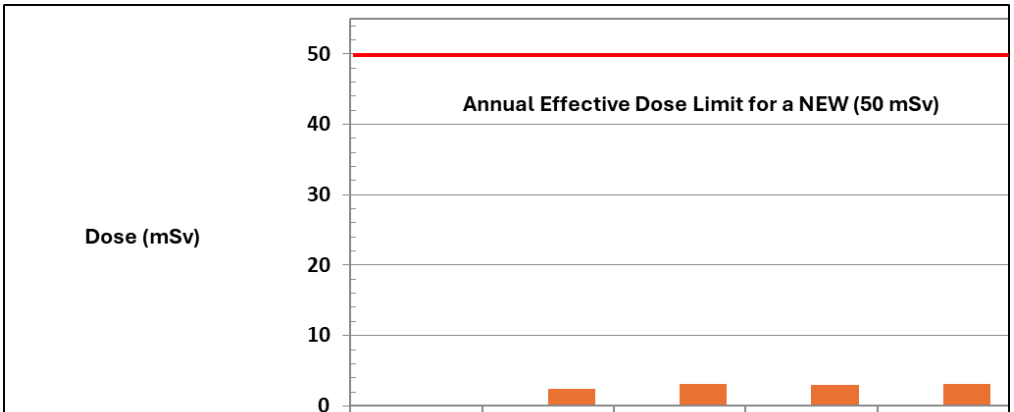
Non-NEWs at BTL

BTL workers identified as non-NEWs, such as administrative staff, are not permitted in controlled areas, and are therefore not occupationally exposed to radiation.

BWXT Medical

BWXT Medical took over the medical isotope facility at Nordion as a contractor in 2018. In November 2021, BWXT Medical received their own licence to perform this work. At BWXT Medical, employees are classified as NEWs if they are expected to have a reasonable probability of receiving an annual effective dose greater than 1 mSv. In 2024, the maximum effective dose received by a NEW at BWXT Medical was 3.14 mSv, or approximately 6.3% of the CNSC's regulatory effective dose limit of 50 mSv in a 1-year dosimetry period.

Figure L-9: Effective dose statistics for NEWs, BWXT Medical, 2020-2024



	2020	2021	2022	2023	2024
Average Effective Dose (mSv)	0	0.15	0.22	0.17	0.23
Maximum Effective Dose (mSv)	0	2.41	3.1	2.98	3.14
Number of non NEWs Monitored	0	266	291	241	214

Annual average and maximum equivalent dose results for skin and extremities (hands) of NEWs in 2024 are provided in tables L-18 and L-19. The maximum equivalent skin dose for 2024 was 3.19 mSv, and the maximum equivalent extremity dose for a worker in the active area was 12.80 mSv. These doses represent approximately 0.6% and 2.6%, respectively, of the CNSC's regulatory equivalent dose limits of 500 mSv in a 1-year dosimetry period.

Table L-18: Equivalent (skin) dose statistics for NEWs, BWXT Medical, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average skin dose	N/A	0.15	0.17	0.17	0.23	N/A
Maximum individual skin dose	N/A	2.44	3.13	3.00	3.19	500

mSv = millisievert; N/A = not applicable

Table L-19: Equivalent (extremity) dose statistics for NEWs, BWXT Medical, mSv/yr, 2020-2024

Dose data (mSv)	2020	2021	2022	2023	2024	Regulatory limit (mSv/year)
Average extremity dose	N/A	0.56	0.63	0.65	0.80	N/A
Maximum individual extremity dose	N/A	12.58	9.87	45.44	12.80	500

mSv = millisievert; N/A = not applicable

Non-NEWs at BWXT Medical

At BWXT Medical, all contractors are classified as non-NEWS. BWXT Medical monitors non-NEWs as required and provides relevant training to ensure that their doses are kept ALARA. In 2024, 7 non-NEWs (including contractors and employees) were monitored. BWXT Medical reported that the maximum effective dose received by a non-NEW was 0.03 mSv, which is 3% of the CNSC's regulatory effective dose limit of 1 mSv per calendar year for a person who is not a NEW.

Appendix M: Health and Safety Data

This appendix contains information on lost-time injury (LTI) statistics for LTIs incurred as a result of a licensed activity at the UNSPFs. An LTI is an injury that takes place at work where the worker is unable to return to work for a period of time. The accident severity rate measures total number of days lost to injury for every 200,000 person-hours worked. Severity = [(# of days lost in last 12 months) / (# of hours worked in last 12 months)] x 200,000. The accident frequency rate measuring the number of LTIs for every 200,000 person-hours worked at the site. Frequency = [(# of injuries in last 12 months) / (# of hours worked in last 12 months)] x 200,000.

Table M-1: LTI statistics for Uranium Processing Facilities, 2024

Statistic	BRR	PHCF	CFM	BWXT NEC
LTI	0	3	0	0
Severity rate	0	21.26	0	0
Frequency rate	0	0.65	0	0

Table M-2: LTI statistics for Nuclear Substance Processing Facilities, 2024

Statistic	BWXT Medical	Nordion	BTL	SRBT
LTI	1	1	0	0
Severity rate	2.14	2.55	0	0
Frequency rate	0.43	0.51	0	0

Appendix N: Reportable Events

Reportable Events + LTI's + Action level exceedances = Number of Events

Facility	Number of Events
BRR	7
CFM	1
PHCF	11
BWXT NEC Toronto	0
BWXT NEC Peterborough	3
SRBT	1
Nordion	6
BWXT Medical	5
BTL	1

Appendix O: Indigenous Nations, Communities and Organizations that have Traditional and/or Treaty Territories within proximity to UNSPF engaged by CNSC during the reporting period

BRR
• Mississauga First Nation • Métis Nation of Ontario (Region 4) • Sagamok Anishnawbek Nation • Serpent River First Nation • Thessalon First Nation
PHCF, CFM, BWXT NEC Toronto/Peterborough
• Williams Treaties First Nations, which include: - Alderville First Nation - Curve Lake First Nation - Hiawatha First Nation - the Mississaugas of Scugog Island First Nation - the Chippewas of Beausoleil First Nation - the Chippewas of Georgina Island First Nation - the Chippewas of Rama First Nation • Mississaugas of the Credit First Nation • Métis Nation of Ontario (Region 6 and 8) • Mohawks of the Bay of Quinte

SRBT, Nordion, BTL, BWXT Medical
• Algonquin Anishinabeg Nation Tribal Council • Algonquin Nation Secretariat • Algonquins of Barriere Lake • Algonquins of Ontario • Algonquins of Pikwàkanagàn First Nation • Conseil de la Première Nation Abitibiwinni • Kebaowek First Nation • Kitcisakik First Nation • Kitigan Zibi Anishinabeg • Conseil de la Nation Anishnabe de Lac Simon • Long Point First Nation • Métis Nation of Ontario (Regions 5 and 6) • Mohawks of the Bay of Quinte • Timiskaming First Nation • Wahgoshig First Nation • Wolf Lake First Nation

Appendix P: Summary of engagement in relation to CNSC's Terms of Reference for Long-term Engagement and Associated Workplans

CNSC staff have formalized 11 Terms of Reference Terms of Reference (ToRs) for long-term engagement. Existing ToRs with Indigenous Nations and communities with an interest in UNSPF sites and activities include: Algonquins of Pikwàkanagàn First Nation (AOPFN), Curve Lake First Nation (CLFN), Hiawatha First Nation (HFN), Kebaowek First Nation (KFN), Mississaugas of Scugog Island First Nation (MSIFN), and Métis Nation of Ontario (MNO). The CNSC is open to developing ToR for long-term engagement with other interested Indigenous Nations and communities as appropriate.

A summary of engagement conducted in relation to each ToR for each Indigenous Nation and community can be found below.

The Algonquins of Pikwàkanagàn First Nation - CNSC Long-term Engagement Terms of Reference

As committed to in the ToR for long-term engagement, CNSC prepared the below summary on the progress and related outcomes of the collaboration activities under the ToR and yearly workplan and presented it to AOPFN for review. AOPFN representatives' internal capacity was limited, and they were unable to conduct a meaningful review. This update was drafted by the CNSC based on previous conversations with the Nation, and with key elements selected from the co-drafted workplan, which was created and agreed upon by both parties. AOPFN may provide revisions and comments to the summary as part of their intervention.

On November 30, 2022, CNSC Staff and the AOPFN signed a ToR for long-term engagement, providing a formalized structure for ongoing dialogue on CNSC-regulated facilities and activities of interest in AOPFN's traditional territory. As part of the ToR, a yearly work plan is developed between the CNSC and AOPFN, which provides information on the scope of work, detailed activities, and timelines associated with work items for collaboration and engagement.

In 2024, the work plan included activities that CNSC staff and AOPFN collaborated on to implement throughout 2024 and beyond, including:

- participation in the CNSC's Independent Environmental Monitoring Program (IEMP)
- updates and discussions on specific projects and ongoing operations of existing nuclear facilities of interest

- information, communication and other topics (i.e., REGDOC updates, feedback on CNSC reporting and processes, and PFP opportunities)

In 2024, AOPFN and CNSC staff met regularly in monthly and quarterly meetings, including an in-person quarterly meeting in July 2024, and worked collaboratively to make progress on the agreed upon initiatives in the workplan. CNSC staff and AOPFN continued to track, collaboratively verify, and provide responses to key concerns and issues raised by AOPFN throughout 2024 including through AOPFN's submissions and interventions to the Commission. Topics of discussion related to Uranium and Nuclear Substances and Processes Facilities in AOPFN territory included updates and discussions related to Best Theratronics Ltd., Nordion Canada Inc., BWXT Medical Canada Inc., and SRB Technologies Inc.

In 2025, AOPFN and CNSC staff plan to continue monthly and quarterly meetings to work on agreed upon initiatives in the workplan. Some of the activities planned for 2025 include continued consultation and engagement activities for Uranium and Nuclear Substances and Processes Facilities in AOPFN territory, continued work on collaborating on enhancing the approach to weaving AOPFN's Algonquin Knowledge into CNSC staff's assessments and processes respecting AOPFN's Algonquin Knowledge Protocols for project assessments, engagement and collaboration on the IEMP sampling campaign and ongoing collaboration on the RIMNet initiative.

CNSC and AOPFN will also continue to work together on validating, responding to and addressing AOPFN's issues, concerns and recommendations raised in AOPFN's interventions to the Commission and identified through ongoing discussions and engagement.

CNSC staff and AOPFN continue to be committed to strengthening the relationship through ongoing, respectful dialogue to share knowledge, information on culture and history, and perspectives that help CNSC staff and AOPFN learn from each other. CNSC staff will also continue to look for ways to enhance the relationship with AOPFN and identify areas for ongoing improvement in the CNSC's approach to engagement and reporting. CNSC staff and AOPFN will also continue to have discussions on areas of interest and on issues or concerns related to existing and proposed CNSC-regulated nuclear activities of interest to AOPFN. CNSC staff will continue to collaboratively verify and provide responses to key concerns and issues raised by AOPFN throughout 2023 including through AOPFN's submissions and interventions to the Commission.

Kebaowek First Nation (KFN)-CNSC Long-term Relationship Arrangement and Project Terms of Reference

CNSC prepared the below summary on the progress and related outcomes of the collaboration activities under the Terms of Reference (ToR) for long term engagement between the CNSC and

Kebaowek First Nation (KFN) and shared it with KFN for validation. KFN cited funding and capacity restraints and were unable to review during the designated review window, however, KFN has reiterated their commitment to good faith engagement with the CNSC. This update was drafted by the CNSC based on previous conversations with the Nation, and with key elements selected from the co-drafted annual workplan. KFN may provide revisions and comments to the summary as part of their intervention.

In 2022, CNSC staff and KFN representatives started discussions to establish an arrangement for a long-term relationship (the Arrangement) as well as a Project Terms of Reference (ToR) for the Micro Modular Reactor (MMR), Nuclear Power Demonstration (NPD) Closure, and Near Surface Disposal Facility (NSDF) projects. The long-term relationship Arrangement was signed on September 29, 2022, providing a formalized structure for ongoing dialogue on CNSC-regulated facilities and activities where KFN has identified concerns in relation to a project's construction or existing operations on their rights, interests, culture, current and traditional uses of their territory. The Project Terms of Reference was signed on June 9, 2023, providing a mutually determined framework for consultation and Rights Impact Assessment on the MMR, NPD Closure, and NSDF projects.

As part of the Arrangement and ToR, a yearly work plan is being developed between the CNSC and KFN that provides information on the scope of work, detailed activities, and timelines associated with work items for collaboration, consultation, and engagement.

The work plan will include activities that CNSC staff and KFN will work to implement throughout 2025 and beyond, including:

- collaborative annual reporting to the Commission and to the KFN Chief and Council updates and discussions on specific projects and ongoing operations of licensed nuclear facilities of interest
- consultation opportunities, steps, and processes for the NPD Closure Project
- consultation opportunities, steps, and processes for the Global First Power MMR Project at the Chalk River Laboratories facility
- enhanced information sharing and communication between the CNSC and KFN members
- ongoing dialogue on the CNSC's approach to implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Government of Canada's approach to Free, Prior, and Informed Consent (FPIC) for hazardous and natural resource projects, currently in development at NRCan
- opportunities to comment on and review policies and regulations including those related to nuclear safety, non-proliferation, and Indigenous engagement.
- In the summer of 2024, KFN hosted a leadership meeting with CNSC in their community; the meeting's purpose was to restart the relationship, which had paused following the

Commission's January 2024 decision on the NSDF project. Following the meeting, KFN and CNSC resumed work on the annual workplan of activities under the signed Long-Term Relationship Arrangement.

The following facilities covered in this ROR are of interest in the to-be-developed work plan:

- SRB Technologies (Canada) Inc.
- Nordion (Canada) Inc.
- Best Theratronics Ltd.
- BWXT Medical Ltd.

CNSC staff and KFN are committed to continuing to strengthen the relationship through ongoing, respectful dialogue and the sharing of knowledge, information on culture and history, and perspectives that help CNSC staff learn from KFN. CNSC staff will also continue to have discussions on areas of interest and concern related to CNSC-regulated nuclear activities of interest to KFN.

Mississaugas of Scugog Island First Nation Long-term Engagement Terms of Reference

As committed to with the Mississaugas of Scugog Island First Nation (MSIFN) as part of the Terms of Reference (ToR) for long-term engagement with the CNSC, the update below was prepared in collaboration with MSIFN representatives.

In September 2021, CNSC staff started discussions with MSIFN to establish a formal long-term relationship with the Nation, and a ToR was signed between MSIFN and the CNSC in March 2022. As part of the ToR, a yearly work plan is developed between the CNSC and MSIFN, which provides information on the scope of work, detailed activities, and timelines associated with work items for collaboration and engagement. CNSC also provides funding and capacity support to the MSIFN through its Indigenous and Stakeholder Capacity Fund to support the meetings, engagement and collaboration work as per the ToR and engagement work plan.

In 2024, the work plan included:

- Long-term relationship meetings, engagement and issue-tracking
- Participation in the CNSC's Independent Environmental Monitoring Program (IEMP)
- Updates and discussions on specific projects and ongoing operations of licensed nuclear facilities of interest
- Discussions on CNSC's interpretation of and adherence to the UN Declaration on the Rights of Indigenous Peoples Act (UNDA)
- Participation in the CNSC Regulatory Oversight Reports (RORs) of interest
- Review of updates to CNSC REGDOC-3.2.2 and REGDOC-1.2.3
- Updates and discussion on other topics of interest such as Bill C-21, emergency management and preparedness, cumulative effects and risk assessment and Indigenous knowledge and land use data.

In 2024, MSIFN and CNSC staff continued to meet monthly and work collaboratively to make progress on a number of the agreed-upon initiatives in the work plan. CNSC staff and MSIFN continued to track, collaboratively verify, and provide responses to key concerns and issues raised by MSIFN throughout 2024. Alongside the regularly scheduled monthly meetings, additional topic-specific meetings were held with MSIFN and CNSC staff. Other relevant parties, including subject matter experts, proponents, licensees, and federal departments, were brought in to support discussions and explore matters of interest in greater detail. Some topic-specific meetings were inclusive of the larger Michi Saagiig Nations of the Williams Treaties First Nations (WTFN), including Curve Lake, Alderville, and Hiawatha.

MSIFN emphasizes the need for CNSC compliance with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), including Free, Prior, and Informed Consent (FPIC), and calls for the Crown to facilitate enforceable agreements with proponents, environmental protections, economic inclusion, and active participation in regulatory processes.

Topics of discussion related to Uranium and Nuclear Substance Processing Facilities in MSIFN's territory included updates and discussions related to the BWXT NEC facilities (Toronto and Peterborough), Port Hope Conversion Facility, and Cameco Fuel Manufacturing. In 2024, MSIFN participated in the IEMP sampling for the BWXT Peterborough and the Port Hope Conversion Facility/Cameco Fuel Manufacturing. Having MSIFN representatives participate in the sampling activities promotes a better understanding of sampling methods and improves input into future IEMP activities including the inclusion of MSIFN species of interest, valued components, and potential sampling locations.

In 2024, MSIFN submitted an intervention for the Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2023. CNCS staff remain committed to working collaboratively with MSIFN to address the issues and concerns raised in their intervention and to engage in meaningful dialogue to find constructive solutions.

Curve Lake First Nation - CNSC Long-term Engagement Terms of Reference

As committed to with Curve Lake First Nation as part of the Terms of Reference for long-term engagement with the CNSC, the update below was prepared in collaboration with Curve Lake First Nation representatives.

In February 2021, CNSC staff and Curve Lake First Nation signed a Terms of Reference (ToR) for long-term engagement, providing a formalized structure for ongoing dialogue on CNSC-regulated facilities and activities of interest in Curve Lake First Nation’s traditional and treaty territories. As part of the ToR, a yearly work plan is developed between the CNSC and Curve Lake First Nation that provides information on the scope of work, detailed activities, and timelines associated with work items for collaboration and engagement. In 2024 the work plan included activities that CNSC staff and Curve Lake First Nation collaborated on to implement throughout 2024 and beyond, including:

- Participation in the CNSC's Independent Environmental Monitoring Program (IEMP)
- Updates and discussions on specific projects and ongoing operations of existing nuclear facilities of interest
- Information, communication, and other topics (i.e. REGDOC updates, feedback on CNSC reporting and processes, funding opportunities, radiation monitoring and cumulative effects)
- Developing a plan for a Curve Lake First Nation Indigenous Knowledge Study

In 2024, due to capacity constraints and other priorities Curve Lake First Nation and CNSC were not able to initiate discussions on developing a plan for an Indigenous Knowledge study. However, Curve Lake First Nation and CNSC are committed to developing a plan for a Regional IK Study in 2025. Due to capacity constraints, despite best efforts by Curve Lake First Nation, and funding opportunities made available by CNSC, there are topics and issues that have not been adequately discussed and addressed. Both Curve Lake First Nation and CNSC are committed to an ongoing effort to close such gaps

In 2024, Curve Lake First Nation and CNSC staff continued to meet monthly and work collaboratively to make progress on the agreed upon initiatives in the work plan. Through monthly meetings and interactions, Curve Lake First Nation and CNSC have developed a good working relationship; one that has been conducive to open and direct communications.

Topics of discussion related to Uranium and Nuclear Substance Processing Facilities in Curve Lake First Nation's territory included updates and discussions related to the BWXT NEC facilities (Toronto and Peterborough), Port Hope Conversion Facility, and Cameco Fuel Manufacturing. Curve Lake First Nation participated in the IEMP sampling for the BWXT Peterborough site and the Port Hope sites. During the IEMP sampling campaign, CLFN had requested that CNSC staff test Manoomin (Wild Rice). As a result of this request, three representatives from CLFN guided CNSC staff on a Manoomin harvest by canoe on Chemong Lake in September of 2024. During the harvest, CLFN representatives explained the history and significance of Manoomin to CLFN. Following the sample collection, CLFN expressed further interest in the laboratory tests and requested pictures of the Manoomin in the CNSC lab, which was obliged. CNSC staff were appreciative of this opportunity, and CNSC is committed to working with Curve Lake First Nation to ensure that the IEMP reflects their Indigenous knowledge, land use and values, where possible.

Hiawatha First Nation - CNSC Long-term Engagement Terms of Reference

As committed to with Hiawatha First Nation (HFN) as part of the Terms of Reference (ToR) for long-term engagement with the CNSC, the update below was prepared and shared with HFN for review; however, no comments were received prior to finalization.

In May 2023, CNSC staff and Hiawatha First Nation signed a Terms of Reference (ToR) for long-term engagement, providing a formalized structure for ongoing dialogue on CNSC-regulated facilities and activities of interest in Hiawatha First Nation's traditional and treaty territories. As part of the ToR, a yearly work plan is developed between the CNSC and Hiawatha First Nation that provides information on the scope of work, detailed activities, and timelines associated with work items for collaboration and engagement. In 2024, the work plan included activities that CNSC staff and Hiawatha First Nation collaborated on implementing throughout 2024 and beyond, including:

- Participation in the CNSC's Independent Environmental Monitoring Program (IEMP)
- Updates and discussions on specific projects and ongoing operations of existing nuclear facilities of interest
- Information, communication, and other topics (i.e. REGDOC updates, feedback on CNSC reporting and processes, funding opportunities, radiation monitoring and cumulative effects)
- Developing a plan for a Hiawatha First Nation Indigenous Knowledge Study

Hiawatha First Nation and CNSC were not able to initiate discussions on developing a plan for an Indigenous Knowledge (IK) study. However, Hiawatha First Nation and CNSC are committed to developing a plan for a Hiawatha First Nation IK Study in 2025.

In 2024, Hiawatha First Nation and CNSC staff continued to meet monthly and work collaboratively to make progress on the agreed upon initiatives in the work plan. Through monthly meetings and interactions, Hiawatha First Nation and CNSC are progressing their working relationship.

Topics of discussion related to Uranium and Nuclear Substances and Processing Facilities in Hiawatha First Nation's territory included updates and discussions related to the BWXT NEC facilities (Toronto and Peterborough), Port Hope Conversion Facility, and Cameco Fuel Manufacturing. In addition, Hiawatha First Nation participated in the IEMP sampling for the BWXT Peterborough site. Having Hiawatha First Nation representatives participate in the sampling activities promotes a better understanding of sampling methods and improves input into future IEMP activities including the inclusion of Hiawatha First Nation species of interest, valued components, and potential sampling locations.

Métis Nation of Ontario - CNSC Long-term Engagement Terms of Reference

As committed to with the Métis Nation of Ontario as part of the terms of reference (ToR) for long-term engagement with the CNSC, the update below was prepared in collaboration with Métis Nation of Ontario representatives.

Following the licence renewal hearing for the Bruce Nuclear Generating Station in 2018, a ToR was agreed upon and signed on December 18, 2019, between CNSC staff and the MNO, which formally documents the engagement with their Nation. As the MNO is a province-wide organization, a specific engagement plan under the Terms of Reference was also signed in December 2019 with MNO Region 7.

In 2024, the engagement plans included:

- Participation in the CNSC's IEMP
- Sharing information on NWMO's Adaptive Phase Management initiative
- Sharing information on the Nuclear Power Demonstration (NPD) Closure project
- Sharing information on SMRs, and GFP's Micro Modular Reactor (MMR) project
- Sharing information on the Chalk River Laboratories site
- Sharing information on the Darlington Nuclear Generating Station and Waste management Facility
- Sharing information on the Darlington New Nuclear Project
- Sharing information on the Pickering Nuclear Generating Station and Waste management Facility
- Sharing information on the Port Hope Area Initiative
- Sharing information on the Cameco Fuel Manufacturing, Port Hope Conversion Facility, and Blind River Refinery
- Sharing information on the BWXT Facilities in Toronto, Peterborough, and Ottawa, ON
- Sharing information on the Best Theratronics facility
- Sharing information on the Nordion facility
- Sharing information on the SRB Technologies facility
- CNSC to support MNO capacity building through new Indigenous and Stakeholder Capacity Fund (ISCF), including the hiring of a community liaison to work with CNSC directly
- Communication with MNO citizens

MNO invited CNSC staff to attend a Metis and Energy Knowledge Symposium held by MNO Region 7 in June of 2024, where CNSC staff learned about Metis knowledge and culture and provided information about nuclear safety and regulation to Metis community members. MNO also invited CNSC staff to attend a Fish Fry held by the Great Lakes Métis Council in July of 2024 to participate in cultural learning, and the MNO Annual General Assembly in August of 2024 to learn about MNO governance and share information about nuclear safety and regulation to Metis community members.

CNSC staff notified MNO of the four Independent Environmental Monitoring Program (IEMP) campaigns that took place in Ontario over 2024 and invited them to participate in sampling activities. MNO did not participate in sampling in 2024 but remain interested in the IEMP. The

CNSC's IEMP is scheduled to sample near the Bruce Nuclear Generating Station in 2025. Late in 2024 as part of MNO Region 7 and CNSC's semi-annual meeting series, CNSC staff notified MNO that this sampling was scheduled and had initial conversations about MNO's interest in participating. The planning and sampling associated with this campaign are expected to continue into 2025.

As per the workplan, CNSC and MNO worked to identify areas of collaboration, including environmental monitoring through the IEMP, providing information relating to the MMR Project, the Chalk River Laboratories Site, and the NPD project, as well as MNO's potential participation in the FPIRT for this project. As per the ToR, CNSC staff continued to meet with MNO Lands Resources and Consultations branch on a monthly basis.

Appendix Q: Summary Table and Status of Issues, Concerns and Requests from Intervenors in the 2023 UNSPFs, Research Reactors and Class IB Accelerators ROR

In direct response to the Commission's action from the 2021 RORs, CNSC staff has established an internal CNSC issues, concerns, and comments tracking table for each intervening Indigenous Nation or Community. These tables also summarize and track CNSC's efforts to respond to and address intervenor requests concerns and comments, where feasible.

The purpose of this appendix is to provide a summary of information and data from the CNSC's issues tracking tables to the Commission. The tables below provide an overview of the issues raised in interventions in relation to the previous year's UNSPF ROR, and the proposed path forward to address them. Table Q-1 outlines the number of specific issues and concerns raised by each intervening Indigenous Nation and community and their related themes, as well as CNSC responses and proposed path forward. Tracking this thematic information will provide a baseline to help direct CNSC staff to focus their efforts on future engagements and consultations to areas that generate the most concerns.

Table Q-2 provides details regarding the number of specific issues and concerns raised in the interventions by Indigenous Nations and communities in relation to the 2023 UNSPF ROR, the number of thematic categories the issues and concerns are grouped by, and the status of the CNSC's approach to responding to and addressing each issue, concern or request raised in the interventions to date.

CNSC staff are committed to responding to and following up with the intervenors below with regards to their interventions and working collaboratively to identify options for a path forward to address the comments, where possible. For Indigenous Nations and communities that have a ToR for long-term engagement with the CNSC, requests, concerns and comments raised in relation to the ROR have been integrated into the engagement work plan and regular meetings with each Indigenous Nation or community, including sharing the specific issues and concerns tracking table with each Indigenous Nation and community in order to verify the data and discuss a path forward for addressing their comments.

In addition, CNSC staff have also followed up with Indigenous Nations and communities who the CNSC does not currently have a ToR for long-term engagement with, in order to follow up on or set a path forward on responding to and addressing their comments and issues.

Table Q-1: Issues and concerns raised in interventions from the 2023 UNSPFs ROR tracking and response table.

2023 UNSPF's ROR Interventions from Indigenous Nations and Communities	The number of Request /Concerns/Comments raised in the 2023 ROR Intervention	Request/Concerns /Comments responded to by CNSC staff	Notes
Algonquins of Pikwàkanagàn First Nation	18 (Across 8 categories)	18	The issues, concerns and recommendations raised by Algonquins of Pikwàkanagàn First Nation in their intervention for the 2023 UNSPF ROR are being addressed and discussed with Algonquins of Pikwàkanagàn First Nation through an issues tracking table designed by CNSC staff, as well as through regular meetings as part of AOPFN and CNSCs TOR. CNSC staff reached out to the Algonquins of Pikwàkanagàn First Nation to offer to have a specific meeting and discussions to address their concerns, comments, and recommendations in relation to the 2023 UNSPF ROR. This meeting occurred on July 8th, 2024. The themes of the issues and concerns raised span from CNSC regulatory oversight, funding programs and more.
Kebaowek First Nation	7 (Across 5 categories)	8	The issues, concerns and recommendations raised by Kebaowek First Nation in their intervention for the 2023 UNSPF ROR are being addressed and discussed with

2023 UNSPF's ROR Interventions from Indigenous Nations and Communities	The number of Request /Concerns/Comments raised in the 2023 ROR Intervention	Request/Concerns /Comments responded to by CNSC staff	Notes
			Kebaowek First Nation through an issues tracking table designed by CNSC staff, as well as through regular meetings. CNSC staff reached out to Kebaowek First Nation to offer to have a specific meeting and discussions to address their concerns, comments, and recommendations in relation to the 2023 UNSPF ROR. CNSC staff looks forward to working with Kebaowek First Nation to address their comments and recommendations. The themes of the issues and concerns raised span from environmental monitoring, CNSC regulatory oversight, waste management, UNDRIP and more.
Mississaugas of Scugog Island First Nation	3 (Across 2 categories)	3	The issues, concerns and recommendations raised by Mississaugas of Scugog First Nation in their intervention for the 2023 UNSPF ROR are being addressed and discussed with Mississaugas of Scugog Island First Nation through an issues tracking table designed by CNSC staff, as well as through regular meetings. CNSC staff reached out to Mississaugas of Scugog Island First Nation to

2023 UNSPF's ROR Interventions from Indigenous Nations and Communities	The number of Request /Concerns/Comments raised in the 2023 ROR Intervention	Request/Concerns /Comments responded to by CNSC staff	Notes
			offer to have a specific meeting and discussions to address their concerns, comments, and recommendations in relation to the 2023 UNSPF ROR. CNSC staff looks forward to working with Mississaugas of Scugog First Nation to address their comments and recommendations. The themes of the issues and concerns raised span from UNDRIPA and UNDA to FPIC

Table Q-2 provides an overview of the key thematic categories raised in interventions from Indigenous Nations and Communities in relation to the 2023 UNSPF ROR and the number of times each theme or topic was raised in total. In total for this ROR last year there were 3 Indigenous intervenors. The categories included in table Q-2 have been ordered from most frequently raised to least. The thematic categories are derived from the review of the 2023 interventions and CNSC staff's analysis of the issues and topics raised.

CNSC staff are committed to continuing to follow up and work with each Indigenous Nation in table Q-1, as well as other repeat individuals and civil society organizations who intervened to continue discussions on how best to address these themes and areas of interest identified in their interventions.

Table Q-2: Overview of key thematic categories

Request/Concerns/Comments Category in the intervention for the 2023 UNSPF ROR	Number of times the topic category was raised across 2023 UNSPF's ROR Interventions	Number of interventions who raised the topic in intervention
Improvements to ROR process and ROR content (e.g., requests related to: improving accessibility, providing additional information or clarification in specific sections of the report, providing information about the performance rating system and improving the format of the report)	5	2
CNSC implementation of UNDA, fulfillment of CNSC's Duty to Consult, and CNSC's approach to an FPIC process	4	3
Participant Funding Program, Indigenous and Stakeholder Capacity Fund, General Funding (e.g., requests for more funding to support participation in regulatory activities)	4	2
CNSC's Consultation and Engagement activities (Indigenous and interested parties) (e.g., suggestions for improvements to the approach to consultation and engagement and request for meaningful responses to issues raised)	4	2
CNSC Regulatory Oversight Activities in Relation to Proponents (e.g., suggestions for strengthening regulations and	3	2

Request/Concerns/Comments Category in the intervention for the 2023 UNSPF ROR	Number of times the topic category was raised across 2023 UNSPF's ROR Interventions	Number of interventions who raised the topic in intervention
engagement requirements for proponents)		
Proponent activities and Engagement (e.g., suggestions for improving proponent's engagement with Indigenous Nations and communities)	3	2
Environmental Monitoring (e.g., requests to be included in the development of monitoring plans and for additional monitoring to occur)	3	2
Other (examples: Nation-specific concerns, comments relating to waste, access to information)	2	2
Indigenous Knowledge (e.g., requests to clarify how Indigenous Knowledge has been considered and incorporated)	2	1

Conclusion

CNSC staff take the issues and concerns raised by intervenors seriously and CNSC staff will continue to work with each intervenor identified in tables Q-1 who have raised issues and concerns on identifying approaches to addressing the different topic areas, requests and comments raised as appropriate. Furthermore, the CNSC is committed to continuously improving the quality of data included in RORs, and the ROR reporting process. CNSC acknowledges that the 2 main themes of issues raised in the 2023 UNSPF ROR were "Improvements to the ROR process" and "CNSC's implementation of UNDA" and has made it a priority to further discuss and address these issues, where feasible.

The CNSC is dedicated to continuous improvement and actively works to identify meaningful ways and approaches for addressing the concerns, comments and recommendations made by intervenors identified in the RORs, where appropriate. In instances where issues and concerns are raised that the CNSC and the intervenor may disagree the CNSC is open to having dialogue and working towards finding solutions and building consensus around key issues within the CNSC's mandate and authority.