



CMD 26-H3 - CNSC Staff Submission

Application to Renew the Class 1B Nuclear Fuel Facility Operating Licence for Port Hope Conversion Facility in Port Hope, Ontario

Classification	UNCLASSIFIED
CMD Type	Original
CMD Number	26-H3
Reference CMD(s)	N/A
Type of Licensing CMD	A Licence Renewal
Hearing	Commission Public hearing: one-part (CNSC staff and applicant and public intervention)
Date of Hearing	November 3 – 5, 2026
SharePoint ID Word	3KEUWM3NAEAP-1467035006-366
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Summary	This Commission Member Document (CMD) presents information about the following matters of regulatory interest with respect to the request by Cameco Corporation (Cameco) to: Request to renew the Class 1B fuel facility licence FFOL-3631.00/2027 to operate the Port Hope Conversion Facility (PHCF) for a period of 20 years.
Actions required	CNSC staff recommend that the Commission take the following actions: Renew the nuclear fuel facility licence to authorize Cameco to operate the PHCF until February 28, 2047, with a requirement for the licensee to provide 1 performance update to the Commission during the licence term.



- Authorize the delegation of authority as set out in section 5.5 of this CMD.

The following items are attached:

- the proposed licence FFL-3631.00/2047
- the draft licence conditions handbook
- the current licence FFOL-3631.0/2027



CMD 26-H3 - Mémoire du personnel de la CCSN

Demande de renouvellement du permis d'exploitation d'une installation de combustible nucléaire de catégorie I pour l'installation de conversion de Port Hope, à Port Hope (Ontario)

Classification	NON CLASSIFIÉ
Type de CMD	Original
Numéro de CMD	26-H3
CMD(s) de référence	S.O
Type de CMD relatif à une décision de permis	Renouvellement d'un permis
Audience	Audience publique de la Commission: Audience en une seule partie (personnel de la CCSN, demandeur et interventions du public)
Date d'audience	Du 3 au 5 novembre 2026
ID SharePoint Word	3KEUWM3NAEAP-1467035006-366
ID SharePoint PDF	3KEUWM3NAEAP-1467035006-631
Sommaire	Le présent document à l'intention des commissaires (CMD) présente des renseignements sur les questions d'intérêt réglementaire suivantes concernant la demande de l'installation de conversion de Cameco Corporation (Cameco) visant à : • Renouveler le permis d'installation de combustible nucléaire de catégorie IB, FFOL-3631.00/2027 afin d'exploiter l'Installation de conversion de Port Hope (ICPH) pour une période de 20 ans



Actions requises

Le personnel de la CCSN recommande que la Commission prenne les mesures suivantes :

- Renouveler le permis d'installation de combustible nucléaire afin d'autoriser Cameco à exploiter l'ICPH jusqu'au 28 février 2047, avec l'exigence pour le titulaire de fournir une mise à jour du rendement à la Commission au cours de la période de validité du permis.
- Autoriser la délégation de pouvoirs énoncée à la section 5.5 du présent CMD.

Les documents suivants sont annexés :

- le permis proposé FFL-3631.00/2047
- l'ébauche du guide des conditions de permis
- le permis actuel FFOL-3631.0/2027



CMD 26-H3

Application to Renew the Class 1B Nuclear Fuel Facility Operating Licence for Port Hope Conversion Facility in Port Hope, Ontario

Signed by:

X

Karen Owen-Whitred

Director General

Directorate of Nuclear Cycle and Facilities Regulation

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Land acknowledgement

The Canadian Nuclear Safety Commission acknowledges that the Port Hope Conversion Facility lies within the traditional lands and waters of the Michi Saagiig Anishinaabeg, the Gunshot Treaty (1787-88), the Williams Treaties (1923), and the Williams Treaties Settlement Agreement (2018). The facility is in Port Hope, Ontario, which is along the Northern shore of Lake Ontario, approximately 100 km East of Toronto.

Plain Language Summary

Cameco Corporation (Cameco), operates the Port Hope Conversion Facility (PHCF), a Class IB nuclear fuel facility under the [Class I Nuclear Facilities Regulations](#). The PHCF is located at 2 sites in the Municipality of Port Hope. PHCF Site 1 (main site) is located at 1 Eldorado Place and the PHCF Site 2 is located at 158 Dorset Street East in Port Hope, Ontario.

PHCF converts uranium trioxide (UO_3) powder produced by Cameco's Blind River Refinery (BRR) facility into uranium dioxide (UO_2) and uranium hexafluoride (UF_6). UO_2 is used in the manufacture of CANDU reactor fuel, whereas UF_6 is exported for further processing into fuel for light water reactors.

Pursuant to subsection 24(2) of the [Nuclear Safety and Control Act](#) (NSCA), the Commission renewed PHCF's operating licence in February 2017 for a 10-year term that began on March 1, 2017, and will expire on February 28, 2027. CNSC staff have presented the licensee's compliance performance to the Commission in annual Regulatory Oversight Reports for uranium and nuclear substance processing facilities throughout the period of the current operating licence.

On September 29, 2025, Cameco submitted an application for the renewal of its operating licence. In its application, Cameco requested a 20-year licence to continue operating the PHCF with no changes to the authorized activities or production limits. Cameco also plans to complete the Vision in Motion (VIM) project to carry out clean-up, remediation and renewal work at the PHCF within the first 3 years of the requested 20-year licence period.



The purpose of this Commission Member Document (CMD) is to provide the results of CNSC staff's assessment of Cameco's application, including conclusions and recommendations, to inform the Commission decision on Cameco's request to renew its operating licence.

CNSC staff have evaluated the licensee's compliance with the requirements of the NSCA and its regulations.

This CMD provides information on CNSC staff's review, with focused highlights on:

- relevant safety and control areas (SCAs)
- other matters of regulatory interest

CNSC staff's assessment of the licensee's regulatory performance concludes that:

- the environmental and radiological risks remain low
- effluent quality and radiation doses are effectively controlled and kept well below regulatory limits
- hazards and risks are managed and that activities are conducted safely

Further, CNSC staff conclude that:

- the application complies with regulatory requirements
- the licensee's performance during the licensing term was satisfactory and met regulatory requirements.

CNSC staff recommend that the Commission:

1. Find, pursuant to paragraph 24(4)(a) and (b) of the NSCA, that Cameco:
 - i. is qualified to carry on the activities authorized by the licence.
 - ii. will make adequate provisions for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
2. Renew the proposed 20-year licence for operation of the PHCF facility, effective March 1, 2027 to February 28, 2047 with a requirement for Cameco to provide a



comprehensive performance update to the Commission at the mid-point of the licence term.

3. Delegate authority as set out in section 5.5 of this CMD.

The appendices of this CMD provide licensing-related documentation pertaining to this hearing, such as the current licence, the proposed licence changes and the proposed licence. A draft licence conditions handbook is also included for information only.

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



CMD Structure

This Commission Member Document (CMD) includes the following:

- An overview of the matter being presented
- Overall conclusions and overall recommendations
- General discussion pertaining to the safety and control areas (SCAs) that are relevant to this submission
- Discussion about other matters of regulatory interest
- Appendices material that complements items 1 through 4
- Current licence
- Any proposed changes to the conditions, licensing period, or formatting of an existing licence
- Proposed licence
- Draft licence conditions handbook

1 Overview

1.1 Background

Cameco operates the PHCF, a Class IB nuclear facility in Port Hope, Ontario under a nuclear fuel facility operating licence FFOL-3631.00/2027 [1].

The PHCF converts uranium trioxide (UO_3) powder produced by the Blind River Refinery facility, to uranium dioxide (UO_2) and uranium hexafluoride (UF_6). UO_2 is used in the manufacture of CANDU reactor fuel, whereas UF_6 is exported for further processing into fuel for light water reactors.

PHCF Location and Layout

The PHCF is located at 2 sites in the Municipality of Port Hope (figure 1). The Municipality of Port Hope, ON is situated on the north shore of Lake Ontario approximately 100 km east of Toronto.

PHCF Site 1 (figure 2) consists of the main site property located at 1 Eldorado Place. The main site occupies an area of 9.6 hectares. PHCF's main site property is used for operations, with the UF_6 plant (Building 50) at the north end of the site and the UO_2 plant (Building 24) at the south end of the site. Other support buildings on site include an administration building, analytical laboratories, waste recovery, a power plant, emergency response vehicle storage, and warehouses. There are also storage areas for UO_2 and UF_6 final product drums and cylinders.

PHCF Site 2 (figure 3) is located at 158 Dorset Street East in the Municipality of Port Hope. It contains 2 warehouse buildings and is used for the storage of various products, equipment and waste. PHCF site 2 occupies an area of approximately 2.2 hectares and is located 1.5 km north-east of PHCF Site 1.

Figure 1: PHCF Site 1 and Site 2 properties, located in the Municipality of Port Hope, ON.



Figure 2: PHCF Site 1 (looking north), located at 1 Eldorado Place in the Municipality of Port Hope, ON.



Image courtesy of Cameco Corporation, used with permission.

Figure 3: PHCF Site 2 (looking south), located at 158 Dorset Street East in the Municipality of Port Hope, ON.



Image courtesy of Cameco Corporation, used with permission.

PHCF Operations

Cameco is authorised to operate its facility to convert UO_3 powder produced by BRR into UO_2 and UF_6 . Under the current licence PHCF's UO_2 plant may produce 2,800 tonnes of uranium as UO_2 annually. PHCF's UF_6 plant may produce 45 tonnes of uranium as UF_6 daily and 12,500 tonnes of uranium as UF_6 annually.

UF_6 production occurs in Building 50 at the PHCF Site 1 main site property located at 1 Eldorado Place. In the UF_6 process, UO_3 is pulverized and treated in fluidized bed reactors with hydrogen gas to produce UO_2 . The UO_2 powder is subsequently reacted with hydrofluoric acid (HF) to form uranium tetrafluoride (UF_4) slurry. After drying and calcining processes, UF_4 powder is reacted with fluorine gas to produce UF_6 . The UF_6 in the gaseous form is condensed and then transferred into cylinders where it is solidified prior to being shipped offsite. The fluorine gas utilized in this plant is produced onsite using electrolytic cells to dissociate the HF into hydrogen and fluorine.

UO_2 production occurs in Building 24 at the PHCF Site 1 main site property located at 1 Eldorado Place. In the UO_2 process, UO_3 powder is dissolved in nitric

acid to produce uranyl nitrate. The solution is diluted with water and subsequently reacted with aqua ammonia to precipitate ammonium diuranate (ADU). The ADU solids are dewatered, dried and reduced in a hydrogen environment to produce UO_2 powder. The liquid portion of the ADU slurry is recovered and treated to produce an ammonium nitrate solution which is sold to a local agricultural supply company for use as fertilizer.

The PHCF has operated in accordance with CNSC regulatory requirements and within uranium production limits as set out in the LCH associated with the current licence.

1.2 Highlights

Cameco's Licence Application Request

The current Class IB Nuclear Fuel Facility Operating Licence FFOL-3631.0/2027, expires on February 28, 2027.

On September 29, 2025, Cameco submitted an application [2] for the renewal of its Class IB Nuclear Fuel Facility Operating Licence FFOL-3631.0/2027 for the PHCF facility for a term of 20 years with no changes to the authorized activities. On November 18, 2025, at the request of CNSC staff, PHCF submitted a supplemental submission [3] with additional justification for the proposed 20-year licence term. The requested 20 year licence term is from March 1, 2027, to February 28, 2047.

Cameco's current licence allows it to:

- (i) operate the Cameco Corporation Port Hope Conversion Facility located in the Municipality of the Town of Port Hope, Ontario;
- (ii) possess, transfer, use, import, process, package, transport, manage, store and dispose nuclear substances, other than enriched uranium compounds, that are required for, associated with, or arise from the activities described in (i);
- (iii) possess and use prescribed equipment and prescribed information that are required for, associated with, or arise from the activities described in (i);
- (iv) possess, use, process, store and dispose enriched uranium compounds for experimental and developmental purposes;
- (v) store and dispose enriched uranium compounds contained in legacy waste material and in historically contaminated buildings.



Cameco is not requesting any changes from the activities authorized under the current operating licence, including the following:

- The annual production limit of 2800 tonnes of uranium as uranium dioxide from the UO_2 plant;
- The annual production limit of 12500 tonnes of uranium as uranium hexafluoride from the UF_6 plant; and
- 45 tonnes of uranium as uranium hexafluoride daily production limit for the UF_6 plant.

Vision in Motion

In the upcoming licence term, Cameco plans to complete the Vision in Motion (VIM) project, to carry out clean-up, remediation and renewal work at the PHCF. The original project description was submitted to the CNSC in 2006 under the name Vision 2010 Project. The Vision 2010 project was assessed and approved under the *Canadian Environmental Assessment Act* (CEAA 1992) where it was concluded that the project, taking into account the implementation of mitigation measures, is not likely to cause significant adverse environmental effects.

The Vision 2010 project was rebranded with a reduced scope into the Vision in Motion project in 2012. Cameco plans to complete VIM activities by 2029. The VIM project is further discussed later in the CMD under the Safety and Control Areas (SCAs) of Physical Design (section 3.5), Environmental Protection (section 3.9) and Waste Management (section 3.11).

CNSC Staff Assessment of PHCF's Licence Application

CNSC staff reviewed Cameco's licence renewal application with the requested authorization to operate the PHCF facility and determined that the application complies with regulatory requirements. The results of this assessment form the basis of this CMD.

Throughout the current licence period, CNSC staff have used desktop reviews of Cameco's submissions, including quarterly and annual compliance reports, event reviews, and results of CNSC inspections to monitor PHCF's performance. CNSC staff have determined that Cameco's performance during the licensing term was satisfactory and consistently met regulatory requirements.

Licence Condition Handbook

The draft licence conditions handbook (LCH) associated with the proposed licence provides compliance verification criteria to determine whether the conditions listed in the licence are met. The draft PHCF LCH can be found in Appendix C of this CMD.

1.3 Overall conclusions

CNSC staff have reviewed Cameco's licence renewal application and supporting documents. CNSC staff's assessment determined that the application complies with the regulatory requirements and that PHCF's performance during the current licence term was satisfactory and consistently met regulatory requirements.

1.4 Overall recommendations

CNSC staff recommend that the Commission:

1. **Find**, pursuant to paragraphs 24(4)(a) and (b) of the [*Nuclear Safety and Control Act*](#) in that Cameco:
 - a) **is qualified** to carry on the activities authorized by the licence
 - b) **will make adequate provision** for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
1. **Renew** the proposed 20-year Nuclear Fuel Facility Licence FFL-3631.00/2047 for operation of the PHCF facility, effective March 1, 2027, to February 28, 2047, with a requirement for PHCF to provide a comprehensive performance update to the Commission at the mid-point of the licence.
2. **Delegate** authority as set out in section 5.5 of this CMD.

2 Environmental protection review

CNSC staff reviewed the licence renewal application to identify which type of environmental review was required to be conducted, if applicable. As part of this process, CNSC staff must assess whether a federal lands review under the Impact Assessment Act is required. For this licence renewal application, a federal lands



review is not required because the application does not include activities that meet the definition of a project on federal lands.

CNSC staff conduct environmental protection reviews (EPRs) for all licence applications with potential environmental interactions, in accordance with the CNSC's mandate under the NSCA and associated regulations. The EPR informs the Commission's conclusion on whether the proposal provides adequate protection of the environment and the health of people.

An EPR was conducted for this licence renewal application. CNSC staff's assessment included a review of Cameco's licence renewal application and supporting documents, including PHCF's 2025 ERA revalidation, annual compliance monitoring reports, and past environmental performance for the facility. As mentioned in section 3.9, CNSC staff have found that the information provided by Cameco regarding environmental protection is sufficient to meet the applicable regulatory requirements under the NSCA and associated regulations.

Additionally, CNSC staff prepared an EPR report for the PHCF that summarizes the environmental performance of the PHCF from 2020 – 2024. The report also includes information about the CNSC's Independent Environmental Monitoring Program (IEMP), which took samples from the PHCF and surrounding areas in 2014, 2015, 2017, 2020 and 2024. The report is available on the [Open Government](#) website and in Appendix E.

CNSC staff will continue to verify and ensure that, through ongoing licensing and compliance activities and reviews, the environment and the health of persons are protected and will continue to be protected over the proposed licence period.

3 General assessment of SCAs

CNSC staff review and assess an applicant's proposed measures and controls, and, if applicable, a licensee's past performance in each SCA. Although CNSC's staff assessment of the application considers all SCAs, only those that are most relevant in providing a good overall indication of how regulatory requirements will be met by applicants and the past safety performance of the licensees are covered in this CMD.



CNSC staff may also choose to combine multiple SCAs together to provide a more integrated picture of the licensee's performance over the licensing period. A list of all SCAs and their corresponding definitions and safety performance rating levels can be found on the CNSC website at Safety and Areas and Rating Definitions.

The specific areas that comprise the SCAs for PHCF are identified in Appendix A.4. If specific areas are listed for an SCA in section 3, then related regulated activities/information about them are provided in Appendix A to this document. If specific areas are not listed for a given SCA in section 3, then a decision has been made to encompass them in an overall approach to that SCA.

3.1 Management System

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

The specific areas that comprise this SCA at PHCF include:

- management system
- organization
- performance assessment, improvement and management review
- change management
- safety culture
- records management
- supply and contractor management

3.1.1 Trends

The following table indicates the overall rating trends for the Management System SCA over the current licensing period:

TRENDS FOR MANAGEMENT SYSTEM				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
BE	SA	SA	SA	SA

Comments

Cameco has a management system in place which includes elements to address Safety Culture. CNSC staff conclude that the Management System SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period, with the exception of 2017 which is discussed below.

TRENDS FOR MANAGEMENT SYSTEM**Overall Compliance Ratings**

2022	2023	2024	2025	
SA	SA	SA	SA	

Comments

No additional comments.

3.1.2 Discussion

Management System

CNSC staff have verified Cameco's implementation of its management system at PHCF in accordance with CSA N286-12, *Management System Requirements for Nuclear Facilities* [4] through various inspections and desktop reviews during the current licence period.

As identified in the overall compliance trend, PHCF was rated as "Below Expectations" in the 2017 licensing period. On May 5, 2017, Cameco reported a small release of hydrogen fluoride (HF) at the UF₆ plant while an employee was performing maintenance work. The employee was directed to PHCF's medical department where he received precautionary medical attention due to exposure to HF. The worker was not injured and there were no environmental impacts as a result of this event. This release event is discussed further in Section 3.3 Operating Performance.

Cameco's investigation found that the employee did not have the necessary work clearances and permits; however, they were allowed to perform the work. This was identified as an ongoing occurrence for various Cameco employees since 2014, as a result CNSC staff issued an administrative monetary penalty (AMP). In response to the incident and uncovering of deeper management system issues, PHCF implemented several corrective actions, including the

review of documentation and practices, assessment of programs and procedures, and ensuring work control requirements are being met across the organization. CNSC staff specifically assessed and verified these corrective actions via an onsite inspection held in November 2018.

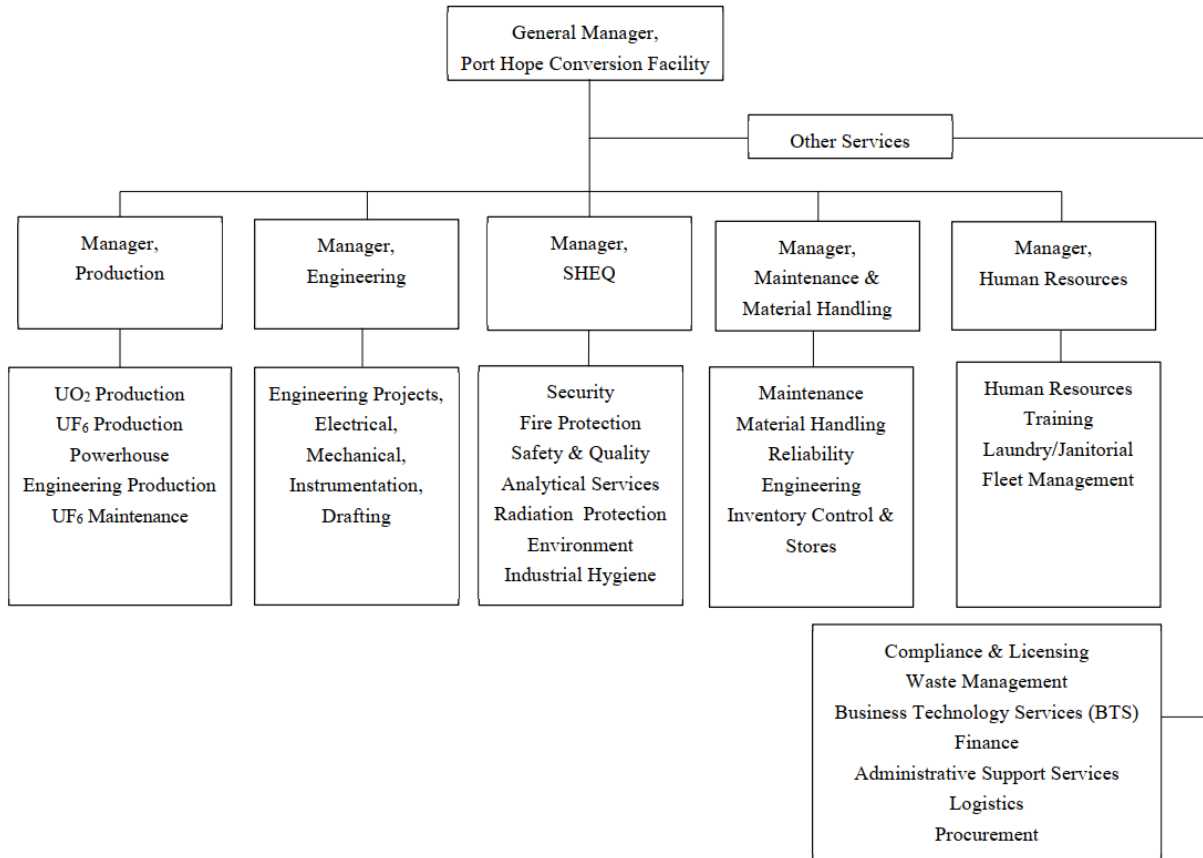
Throughout the current licence period, CNSC staff also verified that Cameco successfully implemented its management systems across significant projects and events at PHCF. This included the Vision in Motion (VIM) project, routine shutdowns and start-ups of the UF₆ plant, and the COVID-19 pandemic.

As part of ongoing compliance activities, CNSC staff will continue to verify Cameco's implementation and continual improvement of its management system at PHCF in accordance with CNSC regulatory requirements.

Organization

Cameco's organizational structure for PHCF's defined roles and responsibilities are documented in its *Management Systems Program Manual (MSPM)* and *Facility Licensing Manual*. More detailed responsibilities are described in lower tier documentation, such as procedures and work instructions. The Vice-President, Fuel Services Division, directs the operation of and maintains corporate responsibility for the PHCF. The responsibility for operating the PHCF resides with the General Manager, PHCF, who reports to the Vice-President, Fuel Services Division. This person is accountable for ensuring that the PHCF *MSPM* meets the licence requirements and for ensuring the implementation and effectiveness of PHCF's management system. Department-specific operational responsibilities are then delegated to each department manager. PHCF's organizational structure is shown in Figure 4.

FIGURE 4: PHCF ORGANIZATIONAL STRUCTURE [PHCF LICENCE RENEWAL APPLICATION]



Safety Culture

Cameco performs self-assessment of their safety culture at PHCF as per the requirements in [REGDOC-2.1.2, Safety Culture](#). CNSC staff maintain awareness of Cameco's efforts to foster a healthy safety culture, as well as the results of their self assessment and continuous improvements in this regard, through a combination of desktop reviews, on-site inspections, and reviews of event reports and corrective action records. CNSC staff assessed, through these oversight activities, that Cameco has demonstrated their commitment to meeting the requirements of [REGDOC-2.1.2](#) and are aligned with CSA N286-12 [4].

During the current licence period, the licensee continued to maintain formal processes to foster, assess, and monitor safety culture, including periodic safety culture assessments at a frequency of approximately once every 5 years, worker engagement mechanisms, and management oversight.



Cameco's commitment to fostering a healthy safety culture is described within key management system documents, including the Quality Management Program Manual and the Facility Licensing Manual. Cameco assesses and monitors the safety culture through different means, including safety culture committees, safety culture reviews, and the conduct of safety culture surveys.

CNSC staff continue to review and monitor the results of safety culture activities and associated corrective/preventative action plans. CNSC staff verified that identified improvement actions were tracked and addressed by the licensee. As part of the CNSC's ongoing compliance verification process, CNSC staff conducted 1 reactive, and 1 baseline inspection, focusing on safety culture, in 2022 & 2025 respectively, to verify on-going alignment with CNSC regulatory requirements. These inspections resulted in no enforcement actions; however, 1 recommendation was identified pertaining to the Cameco Safety Steering Committee (CSSC) documentation process.

CNSC staff concluded that Cameco's efforts regarding safety culture at PHCF have been satisfactory and have demonstrated their commitment to meeting the requirements of [REGDOC-2.1.2](#) and are aligned with CSA N286-12 [4] during this licence cycle. CNSC staff will continue to monitor performance through regulatory oversight activities pertaining to this SCA over the next compliance cycle to ensure continued compliance with regulatory requirements.

Performance assessment, improvement and management review

Cameco has a self-assessment program and audit program for PHCF, each of which support the continued assessment and improvement of the site management system and other programs. CNSC staff have assessed and will continue to assess Cameco's self-assessment and audit programs to ensure they meet CNSC regulatory requirements and are being adequately implemented. CNSC staff are made aware of the outcome of assessments including audits within the Audit Summary Report, and CNSC staff confirm PHCF is taking proper corrective actions when necessary.

Self Assessments

Cameco's self-assessment program ensures that the management system and site programs for PHCF are reviewed, assessed, and monitored. PHCF's *Management System Program Manual* lists the self-assessments that are currently enforced and implemented as part of the program. These self-assessments range from informal "self-checks" to formal management reviews.



All methods credited as self-assessments serve to ensure that all site programs are being assessed, monitored, and improved upon.

As a part of the self-assessment program, Cameco conducts an annual management review of the PHCF programs, which serves the purpose of ensuring adequacy, effectiveness, and continuing suitability of the management system among all other programs. To supplement the annual review that covers overall programs, the site management team establishes site objectives and monitors the status of the objectives on a minimum annual basis. Monitoring and discussion of results by the management team is executed routinely through regularly scheduled site leadership meetings or site management meetings. The management team is to ensure appropriate actions are taken to address those objectives for which progress is less than expected.

Audits

Cameco conducts audits to confirm compliance and assess the effectiveness of licensed programs and associated documentation. Mandated corporate safety, health, environment, and quality (SHEQ) audits provide an independent and objective assessment of the implementation and effectiveness of the corporate integrated SHEQ management system. The audit process is controlled through planning, documentation, auditing methods, personnel responsibility, and the independence of personnel from the work being assessed, among other variables. PHCF mandates that all various site program elements be audited on a minimum 3-year frequency. This is a part of the internal audit process, which supplements the external audits and inspections performed at PHCF by regulators and external parties, such as the CNSC.

To ensure that all findings from audits are addressed and resolved, each individual finding is tracked in the Cameco Incident Reporting System (CIRS) until deemed implemented successfully, and each corrective action has been reviewed for effectiveness. On an annual basis, Cameco submits to the CNSC a PHCF Audit Summary Report which outlines the audits performed for the year, as well as the tracking and status of corrective actions. CNSC staff reviews this report to ensure adequate implementation and compliance.

Change Management

Cameco's change and design control process at PHCF facilitates successful planning, implementation, and assessment of temporary and permanent changes to systems, structures, and components. Within the scope of this



program, changes are guided by a risk-graded approach, evident from the varying levels of classification.

Cameco has taken corrective measures to adequately implement improvements to its change and design control program at PHCF as a result of onsite inspections and desktop reviews performed by CNSC staff. These measures and changes were assessed and found to be satisfactory by CNSC staff, who routinely verify proper implementation of the change and design control process as part of ongoing compliance activities.

Records Management

Cameco is required to produce and control records for applicable work, as per regulatory requirements and/or internal documentation. Records provide objective evidence to demonstrate that work is planned, performed, and/or reviewed to meet applicable requirements. Through various compliance activities, CNSC staff assess the characteristics of records to ensure they are readable, complete, identifiable, traceable to the related items and work, retrievable, preserved, and retained as specified. Cameco manages the use of records adequately against these characteristics and meets regulatory requirements. CNSC staff will continue to monitor the management of records through future compliance activities.

Supply and Contractor Management

Cameco purchases materials and services from external parties to aid in the execution of its operations. Materials are procured for various purposes ranging from administrative to safety-significant components. All items are to have defined requirements that must be met at different stages such as manufacturing, fabrication, delivery, and receiving. Cameco is responsible for ensuring that all procured items and attached documentation are inspected and assessed against applicable requirements to demonstrate functionality and safety. Another aspect of this program is the management of contractors. External parties are awarded contracts from Cameco for various projects and purposes. Cameco is responsible for managing the entire process, from defining the work to be contracted, to oversight of contractors performing the work, and to verification at various stages of work completion. Cameco is accountable for ensuring regulatory requirements are continuously met. A mandatory factor in ensuring continuous adherence to requirements is the oversight of contractors, which is performed by Cameco.

The purchasing of materials and services requires a thorough and well documented program to ensure applicable regulatory requirements are being adhered to by all parties involved, which is ultimately the responsibility of the licensee. CNSC staff have assessed Cameco's supply and contractor management program at PHCF through various on-site inspections and conclude that regulatory requirements are being met, and requirements are extended to external parties, where applicable.

3.1.3 Summary

A summary of the licensee's past performance, challenges and proposed improvements is presented in the following subsections.

3.1.3.1 Past Performance

Through the conduct of various compliance activities during the current licence period, CNSC staff conclude that Cameco's management system at PHCF meets CNSC regulatory requirements and that non-compliances leading to the "Below Expectations" rating given in 2017 have been addressed. In years since, Cameco has implemented an acceptable management system while addressing non-compliances in a timely and effective manner.

During the current licence period, CNSC staff have inspected elements of Cameco's management system at PHCF on 4 separate occasions. Management system review topics assessed included:

- record and document control
- self-assessments and independent assessments of the management system
- contractor and supply chain management
- work planning and control, including maintenance
- problem identification and resolution
- change and design control; organization
- business continuity
- operating experience; communication
- use of experience, and
- continual improvement.

All areas met CNSC staff expectations either initially or following successful implementation of corrective actions. All findings from these inspections were

considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

Cameco conducts safety culture assessments (at least) every 5 years; the latest of which was completed in 2021, where the results confirmed that the licensee site has a strong commitment to safety. Cameco plans to conduct a safety culture assessment at PHCF in 2026.

CNSC staff's compliance verification activities conducted during the current licence period concluded that Cameco has maintained a framework of processes and programs to foster a healthy safety culture at PHCF in compliance with CNSC regulatory requirements.

3.1.3.2 Regulatory Focus

CNSC staff will continue to monitor Cameco's performance with respect to their management system at PHCF through regulatory oversight activities focusing primarily on compliance with CSA N286-12[4], including a focus on the implementation of safety culture initiatives and continuous improvement measures. CNSC staff will continue to monitor Cameco's progress on addressing areas for improvement identified through Safety Culture assessments.

3.1.3.3 Proposed Improvements

No safety-significant improvements are required at this time. The licensee is expected to continue to implement improvement activities based on its results of periodic safety culture assessments, consistent with CSA N286-12 [4] and associated CNSC regulatory requirements.

3.1.4 Conclusion

CNSC staff have assessed Cameco's application, supporting documents and past performance under the Management System SCA. CNSC staff conclude that Cameco has met applicable regulatory requirements and has maintained and implemented a satisfactory management system program.

One licence condition is included in the proposed licence for this SCA. Licence condition 1.1 requires the licensee to implement and maintain a management system. Compliance verification criteria for this licence condition are included in the draft LCH.



3.2 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 these personnel have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.

The specific areas that comprise this SCA at PHCF include:

- human performance program
- personnel training
- work organization and job design
- fitness for duty

3.2.1 Trends

The following table indicates the overall rating trends for the Human Performance Management SCA over the current licensing period:

TRENDS FOR HUMAN PERFORMANCE MANAGEMENT				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments Cameco has an established systematic approach to training (SAT) that continues to be implemented and maintained for its training programs. CNSC staff conclude that the Human Performance Management SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR HUMAN PERFORMANCE MANAGEMENT				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments No additional comments.				

3.2.2 Discussion

The regulatory requirements in the human performance management SCA are under paragraphs 12(1)(a) and (b) of the [General Nuclear Safety and Control Regulations](#) (GNSCR) and section 6 of the [Class I Nuclear Facilities Regulations](#) (CINFR). Details of CNSC staff's assessment of this SCA are presented in the following sections.

Human Performance Program

Cameco maintains programs and procedures that support the SCA Human Performance Management at PHCF. Cameco considers aspects of human factors in its development and continual improvement of site management system programs, work instructions, engineering and operations activities, change control and the corrective action processes.

Cameco uses a variety of tools associated with the various programs and systems that support PHCF's quality management program to develop and reinforce behaviours that support human performance at PHCF. These include error-reduction processes such as Job Hazard Analysis, Hazards and Operability reviews for each production unit, and the CIRS for incident reporting and investigation.

CNSC staff assessed the licensee's human performance program through multiple compliance activities as part of ongoing regulatory oversight activities, such as reviews of event investigations and corrective action records. These activities confirmed that the licensee integrates human performance considerations into procedures, work planning, and supervision, consistent with CNSC regulatory expectations.

CNSC staff confirmed that Cameco did not report any safety-significant events that had a root cause in human performance throughout the current licence term and concluded that Cameco's human performance program supports safe operations and contributes positively to overall safety performance at PHCF.

Fitness for Duty

CNSC staff confirmed that Cameco maintains health and safety procedures (*Alcohol and Substance Program*) for Fitness for Duty for PHCF, which require all

employees to work in a safe and productive manner, and not impaired by drugs or alcohol, consistent with CNSC regulatory expectations.

Work Organization and Job Design

Paragraphs 12(1)(a) and 12(1)(b) of the [GNSCR](#) require that a licensee shall ensure the presence of a sufficient number of qualified workers to carry on the licensed activity safely and in accordance with the Act, the regulations made under the Act and the licence; and shall train the workers to carry on the licensed activity in accordance with the Act, the regulations made under the Act and the licence.

CNSC staff confirmed that Cameco maintains the minimum complement of sufficient personnel to safely operate the PHCF and to ensure adequate emergency response capability, consistent with CNSC regulatory expectations.

Personnel Training

[REGDOC-2.2.2, *Personnel Training*](#), sets out requirements and guidance for the analysis, design, development, implementation, evaluation, documentation and management of training at nuclear facilities within Canada, including the essential principles and elements of an effective Systematic Approach to Training (SAT) system. Cameco's TP-01 "Port Hope Training Plan" describes the SAT training program implemented at PHCF which includes the processes, procedures, work instructions, personnel responsibilities, records, etc. to ensure workers are trained and qualified to carry out the licensed activities.

CNSC staff verified that Cameco's training system processes and procedures demonstrated compliance with [REGDOC-2.2.2](#). CNSC staff are satisfied with PHCF's progress regarding the implementation of its SAT based training system as it continues to comply with the regulatory requirements.

3.2.3 Summary

A summary of the licensee's past performance, challenges, regulatory focus and proposed improvements are presented in the following subsections.

3.2.3.1 Past Performance

CNSC staff have rated Cameco's overall performance for the Human Performance management SCA for PHCF as satisfactory (SA) for the current



licence period, based on regulatory oversight activities, pertaining to this SCA, conducted by CNSC staff. CNSC staff conclude that the licensee's human performance program met regulatory requirements and effectively supported safe conduct of licensed activities.

Over the licensed period, CNSC staff conducted personnel training focused inspections in 2017, 2021 and 2024. These inspections verified whether Cameco's training program, documented training processes and training procedures at PHCF complied with CNSC regulatory requirements. All personnel training findings identified during these inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

3.2.3.2 Regulatory Focus

CNSC staff continue to monitor Cameco's performance in this SCA through regulatory oversight activities including inspections and desktop reviews of relevant program documentation. CNSC staff will focus on monitoring compliance of the PHCF Human Performance program, including trending of events, implementation of corrective actions, and integration of human performance principles into operations.

3.2.3.3 Proposed Improvements

The current programs at PHCF for this SCA are considered adequate and no improvements within this SCA are proposed. CNSC staff expects Cameco to continue reinforcing human performance through ongoing enhancements to its program and associated procedures and processes.

3.2.4 Conclusion

CNSC staff have assessed PHCF Human Performance program compliance under the Human Performance management SCA through regulatory oversight activities during the current licence period and have found it to meet regulatory requirements.

CNSC staff also concluded that Cameco meets the requirements of [GNSCR](#) paragraphs 12(1)(a) and (b) and [CINFR](#) section 6 and has implemented and maintained a satisfactory training program to ensure that workers are trained and qualified to carry out the licensed activities.



Two licence conditions are included in the proposed licence for this SCA. Licence condition 2.1 requires the licensee to implement and maintain a human performance program. Licence condition 2.2 requires the licensee to implement and maintain a training program. Compliance verification criteria for both licence conditions are included in the draft LCH.

3.3 Operating Performance

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

The specific areas that comprise this SCA at PHCF include:

- conduct of licensed activity
- procedures
- reporting and trending

3.3.1 Trends

The following table indicates the overall rating trends for the Operating Performance SCA over the current licensing period:

TRENDS FOR OPERATING PERFORMANCE				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that the Operating Performance SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR OPERATING PERFORMANCE				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments				

No additional comments.

3.3.2 Discussion

Cameco is required through the NSCA and its regulations to ensure policies, programs, methods and procedures are in place for the safe operation and maintenance of its licensed nuclear facilities. The occupational and industrial safety aspects of Cameco's operations at PHCF are regulated under the [Canada Labour Code](#), and its associated [Canada Occupational Health and Safety Regulations](#). [REGDOC-3.1.2, Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills](#), is also a governing document dealing with reporting.

CNSC staff verify Cameco's compliance with the requirements of this SCA through compliance activities ranging from desktop reviews of annual and quarterly reports, reviews of event reports, related corrective actions and inspections. CNSC staff confirmed through these compliance verification activities that Cameco has implemented and maintained an effective operating performance program at PHCF to ensure licensed activities are conducted safely and in compliance with regulatory requirements.

3.3.3 Summary

A summary of the licensee's past performance, challenges and proposed improvements is presented in the following subsections.

3.3.3.1 Past Performance

Conduct of Licensed Activity

Cameco has operated PHCF in compliance with CNSC regulatory requirements. Since 2017, CNSC staff carried out compliance verification activities on operations at PHCF, including onsite inspections, review of management system documents, annual compliance reports and event reports. Non-compliances identified during inspections or desktop reviews were addressed by Cameco in a timely manner and in accordance with corrective action plans that were reviewed and accepted by CNSC staff.

Cameco's licence imposes daily production limits for UF₆ and annual production limits for UF₆ and UO₂ which are documented in the LCH associated with the

current operating licence for PHCF. Production at PHCF has remained below its production limits for the current licence period. As part of the licence renewal, Cameco requested no change to the current production limits.

In accordance with the current LCH, Cameco continues to provide information regarding the operating performance of the PHCF in annual and quarterly compliance reports submitted to CNSC staff. CNSC staff evaluated the information provided in these reports to ensure Cameco remains in compliance with regulatory requirements.

Procedures

Cameco's management system at PHCF consists of high-level program documents supported by lower-level procedures and work instructions. Cameco maintains a comprehensive suite of procedures across all programs at the PHCF.

CNSC staff review procedural-level documents as part of ongoing compliance verification activities to ensure proper maintenance of procedures to reflect actual practices as well as procedural adherence by PHCF personnel. Based on these reviews, CNSC staff concluded that Cameco adequately maintains its procedures and there were no significant changes to operating procedures with the potential to affect the safe operation of the facility.

Reporting and Trending

In February 2018, CNSC staff requested Cameco submit an implementation plan for [REGDOC-3.1.2](#) for PHCF. Cameco completed implementation of [REGDOC-3.1.2](#) in December 2018. Prior to the implementation of [REGDOC-3.1.2](#), detailed requirements for reporting unplanned situations or events were included in the LCH for PHCF and were based on the general reports submitted pursuant to section 29 of the [GNSCR](#). Cameco has complied with the requirements for submission of these reports throughout the licence period. Table 1 lists the number of events reported to the CNSC by the licensee over the licence period.

Table 1: Events reported by PHCF during the current licence period

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total	9	10	13	9	7	6	5	8	7

CNSC staff review all reported events to identify if there are any regulatory concerns and report significant events to the Commission at public meetings of the Commission. Reported significant events included transport incidents,



environmental spills/releases, emergency response team (ERT) activations, interior release events, and a fall injury. One event that occurred during the licence period is discussed below. It is included in the operating performance SCA since it is a significant event that impacted multiple SCAs. Other reportable events during the licence period are discussed later in this report under the appropriate SCAs.

2017 hydrogen fluoride release event

On May 5, 2017 Cameco reported a small release of hydrogen fluoride (HF) at the PHCF UF₆ plant. During the night shift an employee was performing maintenance work on a differential pressure transmitter for the HF transfer tank and HF gas was released. The emergency ventilation system was activated by a local HF detector. Upon arriving at the affected area, PHCF's emergency response team secured the connection to the impulse line of the pressure transmitter. The employee was directed to PHCF's medical department where he received precautionary medical attention due to exposure to HF. The worker was not injured and there were no environmental impacts as a result of this event.

As per CNSC reporting regulatory requirement, Cameco reported the incident to the CNSC Duty Officer and implemented a detailed investigation of this reportable event. Cameco submitted a final report for review by CNSC staff. Based on Cameco's investigation into the event, they determined that the required work clearance and permits were not obtained by the junior technician prior to the start of the maintenance work. Furthermore, Cameco determined that the junior and senior technicians were performing this maintenance activity without the necessary work clearances and permits for an unspecified period of time.

This practice was known to the UF₆ production supervisor. CNSC staff had previously identified non-adherence to this procedure in a 2014 inspection and noted non-compliances to Cameco's management system for PHCF since 2014. CNSC staff assessed the release event and Cameco's compliance history with respect to procedural adherence and determined that PHCF failed to verify whether work was being performed correctly and according to approved procedures, as required by PHCF's management system.

An Administrative Monetary Penalty (AMP) was issued to Cameco by a CNSC Designated Officer on September 6, 2017 in accordance with section 6(1)(b) of the CNSC's [Administrative Monetary Penalties Regulations](#), for the violation of



failure to comply with licence condition 2.1 “licensees shall implement and maintain a management system” in accordance with paragraph 48(c) of the NSCA. The purpose of the AMP was to promote compliance with Cameco’s licensing basis documents found as part of their management system and deter future violations. Cameco requested a review of the AMP by the Commission which was held in March 2018. In May 2018, the Commission rendered its decision on the review of the AMP and determined that Cameco committed the violation. The release event is discussed further in section 3.1 Management System.

In accordance with [REGDOC-3.1.2](#), Cameco continues to provide information on its operating performance by submitting annual compliance reports. CNSC reviewed these reports and are satisfied with Cameco’s performance during this licence period.

CNSC staff conducted 5 planned compliance inspections in 2017, 2019, 2020, 2024 and 2025. The 2017, 2020 and 2024 inspections were focused inspections of this SCA. The 2019 and 2025 inspections were general inspections with elements of operating performance. CNSC staff classified most findings from these inspections as low safety significance. There was 1 medium significance finding in an inspection in 2024. The finding was related to reviewing event reporting practices. All enforcement actions associated with these inspections are closed to CNSC staff’s satisfaction.

PHCF reactive inspection and issuance of warning letter

CNSC staff conducted a reactive inspection at PHCF from December 7-9, 2022. During the inspection, CNSC staff witnessed that certain Cameco staff chose to stop the inspection and advised others to not speak to or answer questions from the CNSC inspection team. After being advised of the potential repercussions by the CNSC inspection team, Cameco subsequently complied in a timely fashion and the onsite portion of the inspection was completed by the inspection team without further interventions.

After further review, CNSC staff determined that this conduct by Cameco was in contravention of section 36 of the [NSCA](#) and on May 11, 2023, a warning letter was issued to Cameco based on CNSC’s graded enforcement approach. As requested by CNSC staff in the warning letter, Cameco responded with planned actions to ensure that Cameco personnel are aware of their obligations under the [NSCA](#) during the conduct of an inspection. On December 5, 2023, Cameco

submitted an update that all actions had been completed. CNSC staff were satisfied with the response and the actions taken by Cameco.

3.3.3.2 Regulatory Focus

CNSC staff continue to monitor Cameco's performance in this SCA through regulatory oversight activities including inspections and desktop reviews of relevant program documentation. CNSC staff will focus on procedural adherence and maintenance of the operating limits and safety envelope with compliance verification focus on the safe conduct of licensed activities.

3.3.3.3 Proposed Improvements

Improvements to operations, equipment and programs are identified on an ongoing basis and implemented as part of continuous improvement. There are no major changes anticipated in the near future for this SCA.

3.3.4 Conclusion

Based on CNSC staff assessment of Cameco's application, supporting documents and past performance, CNSC staff conclude that Cameco continues to implement and maintain an effective operating program at PHCF in accordance with regulatory requirements.

Two licence conditions are included in the proposed licence for this SCA. Licence condition 3.1 requires the licensee to implement and maintain an operating program, which includes a set of operating limits. Licence condition 3.2 requires the licensee to implement and maintain a program for reporting to the Commission or a person authorized by the Commission. Compliance verification criteria for both licence conditions are included in the draft LCH.

3.4 Safety Analysis

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

The specific areas that comprise this SCA at PHCF include:

- deterministic safety analysis
- hazard analysis
- nuclear criticality safety

3.4.1 Trends

The following table indicates the overall rating trends for the Safety Analysis SCA over the current licensing period:

TRENDS FOR SAFETY ANALYSIS				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments PHCF's Safety Analysis Report effectively identifies facility hazards and items relied on for safety to control or mitigate these hazards. CNSC staff conclude that the Safety Analysis SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR SAFETY ANALYSIS				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments for this SCA.				

3.4.2 Discussion

Paragraph 5(f) of the [CINFR](#) requires that an application to construct a Class I nuclear facility include a preliminary Safety Analysis Report (SAR) and paragraph 6(c) requires that an application for a licence to operate include a final SAR. A safety analysis must include an analysis of the postulated sequences of events and the consequences of the conditions that could arise from initiating events and associated hazards.

The supporting documentation for the PHCF licence renewal application includes an updated SAR for PHCF. The SAR provides a description of the facility and building layouts, processes, operating limits, and scenarios based on hazards and postulated initiating events. In addition, the SAR provides an assessment of potential consequences and demonstrates the safety through application of the defence in depth concept.

CNSC staff evaluated the information provided in the SAR for PHCF and determined that Cameco has adequately assessed the hazards associated with the licensed activities and demonstrated an adequate level of protection over a broad range of operating conditions.

Cameco continues to maintain a nuclear criticality safety program for its site operations, in accordance with [REGDOC-2.4.3, Nuclear Criticality Safety](#). The operations with enriched uranium material are controlled by a criticality control committee and documented procedures. With respect to Cameco's nuclear criticality program, there have been no reportable events during the current licence period indicating any loss of control of this safety program. The enriched uranium material stored at the PHCF is associated with legacy wastes from past operations and Cameco is in the process of investigating methods for its safe disposal offsite.

CNSC staff concluded based on their review of the submitted application and supporting documents that the radiological and non-radiological risks associated with PHCF's operations are low. Cameco remains in compliance with regulatory requirements for the safety analysis SCA.

3.4.3 Summary

A summary of the licensee's past performance, challenges and proposed improvements is presented in the following subsections.

3.4.3.1 Past Performance

Cameco has a safety analysis report, which documents the results of deterministic safety analysis and hazard analysis for PHCF. The safety analysis report also includes a description of the facility and the measures in place to protect the safety of the workers, the public and the environment under normal operations, abnormal operations, and accident conditions. The safety analysis report is maintained in accordance with a procedure that establishes the



standard guidelines and criteria to be used, as well as the review and approval process.

During the current licence period, CNSC staff conducted several desktop reviews of the safety analysis documentation and program. CNSC staff also conducted a compliance inspection in March 2024, which included verification that the licensee has been adequately maintaining the safety barriers and protective systems as specified in the PHCF facility SAR.

CNSC staff require, in the PHCF LCH, that Cameco review its SAR at a minimum of every 5 years for accuracy and validity. In 2023, as part of such a review, PHCF performed a gap analysis of the 2023 SAR against CNSC [REGDOC-2.4.4, Safety Analysis for Class IB Nuclear Facilities](#) and conducted several related assessments to address the identified gaps. These assessments included, but were not limited to, re-assessment of impact of credible railway accidents on the facility. Consequently, a new revision to the SAR was submitted to CNSC staff in 2025 [5]. CNSC staff review of the current 2025 SAR indicates that Cameco has achieved a significant progress in implementation of the [REGDOC-2.4.4](#) and that the full implementation will be completed early in the next licence term.

In March 2024, CNSC staff conducted a focused inspection of Cameco's implementation of its safety analysis program at PHCF, which also included the nuclear criticality program. The inspection confirmed that Cameco remains in compliance with applicable provisions of [REGDOC-2.4.3](#). All findings from this inspection were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

3.4.3.2 Regulatory Focus

CNSC staff continue to monitor Cameco's performance in this area through regulatory oversight activities including on-site inspections and desktop reviews of Cameco's compliance reporting and revisions to relevant program documentation pertaining to this SCA.

3.4.3.3 Proposed Improvements

Cameco has committed to complete the full implementation of the CNSC [REGDOC-2.4.4](#), with the submission of the next SAR by June 30, 2027. As stated in section 3.4.3.1 above, the 2025 SAR is acceptable for documenting the PHCF



safety case but there are areas for improvement that will be addressed by fully implementing REGDOC 2.4.4.

3.4.4 Conclusion

Cameco has a process in place to identify and evaluate potential safety hazards associated with the operation of the facility. CNSC staff have assessed Cameco's documentation and analyses under the Safety Analysis SCA and have found it to be acceptable.

Three licence conditions are included in the proposed licence for this SCA. Licence condition 4.1 requires the licensee to implement and maintain a safety analysis program. Licence condition 15.2 requires the licensee to not exceed the limit for a small quantity of fissionable material. Licence condition 15.3 requires the licensee to implement and maintain a nuclear criticality safety program. Compliance verification criteria for these 3 licence conditions are included in the draft LCH.

3.5 Physical Design

The Physical Design SCA relates to activities that impact 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.

The specific areas that comprise this SCA at PHCF include:

- design governance
- site characterization
- facility design
- structure design
- system design

3.5.1 Trends

The following table indicates the overall rating trends for the Physical Design SCA over the current licensing period:

TRENDS FOR PHYSICAL DESIGN



Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments Cameco has maintained the pressure boundary program and has in place a formal service agreement with an Authorized Inspection Agency in accordance with CNSC regulatory requirements over this licence period. CNSC staff conclude that the Physical Design SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR PHYSICAL DESIGN				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments for this SCA.				

3.5.2 Discussion

A summary of Cameco's performance in the Physical Design SCA at PHCF over the current licence period follows.

Design Program

Cameco is required to implement and maintain a physical design program such that the design of facilities and changes made to its facilities are managed and within the licence basis. The requirements under this SCA are provided by national codes and standards including the National Building Code of Canada (NBCC) [6] and the National Fire Code of Canada (NFCC) [7] for structural design.

CNSC staff verified Cameco's compliance with regulatory requirements and that all operational changes are assessed, managed and documented through implementing and maintaining a change control program and related procedures under its management system. In addition, Cameco is required to notify the CNSC of significant changes to its fire protection program and submit an accompanying third-party assessment of the potential impact of these changes.



Any physical design changes outside of the licence basis would require Commission approval.

CNSC staff confirmed that Cameco has implemented and maintained an adequate physical design program with appropriate change control. CNSC staff concluded that PHCF's physical design measures meet regulatory requirements and when design changes are made within the licensing basis, the licensee has adequate resources in place to manage them and to ensure safety.

Pressure Boundary Program

Cameco is required to implement and maintain a pressure boundary program and have in place a formal agreement with an Authorized Inspection Agency.

Cameco maintains a documented pressure boundary program for PHCF that ensures all pressure boundary activities are conducted in accordance with the requirements of CSA B51-19, *Boiler, Pressure Vessel, and Pressure Piping Code* [8]. Cameco also maintains a formal agreement with an Authorized Inspection Agency (AIA)—the Technical Standards and Safety Authority (TSSA)—to provide services as per the agreement, including registration, inspections, and other activities related to pressure boundary systems.

In 2020, following a CNSC staff request for an implementation plan addressing selected updated CSA standards issued in November 2019, Cameco conducted a gap analysis comparing CSA B51-19 with its existing pressure boundary program and practices based on CSA B51-14, *Boiler, Pressure Vessel, and Pressure Piping Code*. Cameco subsequently updated its pressure boundary program at PHCF to address all gaps identified through this review.

Throughout the current licence period, CNSC staff have verified Cameco's compliance through desktop reviews and inspections. Based on these oversight activities, CNSC staff confirm that Cameco continues to implement and maintain the pressure boundary program in accordance with regulatory requirements.

3.5.3 Summary

A summary of the licensee's past performance, challenges, regulatory focus and proposed improvements are presented in the following subsections.

3.5.3.1 Past Performance

Design Governance

The CNSC requires Cameco to implement and maintain design programs in accordance with applicable codes and standards set out in the LCH. Cameco has an established Process and Design Change Control procedure which describes the management and documenting of changes to processes, physical plant design and systems design at PHCF.

CNSC staff have reviewed documents and records of Cameco's change control process during onsite inspections and have confirmed Cameco's compliance with regulatory requirements. All changes are assessed, managed and documented through implementation and adherence to a change control program and related procedures under its management system.

Site Characterization

Cameco's Safety Analysis Report for PHCF provides information on site characterization, including details on the geology, seismology, meteorology, hydrology, etc. This information is taken into consideration in the safety assessment and design of the facility. The PHCF LCH requires that the SAR and underlying risk assessments are reviewed at a minimum 5-year frequency to ensure any new risks and lessons learned are considered. In accordance with this requirement, the current PHCF SAR was most recently updated and reviewed by CNSC staff in the fall of 2025 and was confirmed to meet expectations regarding site characterization.

Facility, Structure and System Design

A description of the PHCF facility's various systems and components is documented in the SAR. The SAR also outlines general design aspects such as safety objectives of the facility design, design principles, defence in depth, and measures to ensure conformance with design criteria (e.g., design and change control processes and third-party reviews).

Over the licence term, no significant changes to facility design requiring CNSC approval were proposed. However, Cameco implemented several notable modifications which have positively impacted operations and safety. Examples include:

- replacing the once through cooling water system with a closed loop system in 2023.



- Vision in Motion (VIM) has removed contaminated soil in several areas of the site, deconstructed Buildings 14, 15, 27, 40, 41, and 43, and removed the liquid hydrogen system north of Building 27 and constructed a new liquid hydrogen system to the south of Building 24.
- During relicensing in 2016, the Commission approved the VIM removal of Centre Pier as a licensed area once Cameco completed building demolition activities and ceased operational activities. Cameco submitted documentation following the demolition of all Centre Pier buildings, the removal of all demolition and stored waste to convey their intent to terminate all operational activities at Centre Pier. After verifying Cameco's actions via an onsite inspection in June 2019, Centre Pier was officially removed from the PHCF licensed area drawing, a document referenced in the PHCF Licence Conditions Handbook (LCH). At present, Centre Pier is under the care and control of CNL. It will undergo further remediation of historically contaminated soils and is being used to support Port Hope Harbour remedial activities.

Cameco documents facility modifications and improvements in its annual compliance report submissions.

Cameco carried out Code Compliance Reviews (CCR), in accordance with applicable requirements. Prior to the implementation of any proposed modification with the potential to impact fire protection elements, Cameco submits the proposed modification for third-party CCR. Throughout the licence term, CNSC staff reviewed several third party CCRs submitted by Cameco and are satisfied that the depth and scope of these reviews ensure safety. Cameco continues to implement and maintain its fire protection program in accordance with the current licence and associated compliance verification criteria as outlined in the LCH.

CNSC staff conducted 2 planned compliance inspections in 2023 and 2024. These inspections were general inspections with elements of physical design. CNSC staff classified most findings from these inspections as low safety significance. There was 1 medium significance finding in the 2024 general inspection. The finding related to developing and implementing a cleanup process of visible contamination in processing areas. All enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

Pressure Boundary Program



During the current licence period, Cameco implemented a pressure boundary program and maintained a formal agreement with the Technical Standards and Safety Authority (TSSA). The TSSA provides design registration, inspection services, and other activities related to pressure boundary systems in accordance with the requirements of CSA B51. Cameco also held valid TSSA-issued Certificates of Authorization for performing pressure boundary activities at PHCF.

CNSC staff conducted 2 planned compliance inspections in 2017 and 2020. These inspections were to verify compliance with licence requirements related to the implementation of the pressure boundary program and the associated AIA service agreement. CNSC staff classified all findings from these inspections as low safety significance. All enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

Through document reviews and onsite inspections, CNSC staff monitor Cameco's implementation of physical design SCA requirements in accordance with CNSC regulatory requirements. Based on the above capabilities and past performance, CNSC staff are satisfied with the licensee's overall performance in this SCA.

3.5.3.2 Regulatory Focus

CNSC staff continue to monitor Cameco's performance in this SCA through regulatory oversight activities including onsite inspections and desktop reviews of relevant program documentation.

3.5.3.3 Proposed Improvements

The licensee has committed to conduct a gap analysis between CSA B51-24 [9] and the existing pressure boundary program and to provide a strategy for implementing the CSA B51-24 requirements. The licensee has committed to complete this work by December 2026.

3.5.4 Conclusion

CNSC staff have assessed Cameco's application, supporting documents and past performance under the Physical Design SCA. CNSC staff conclude that PHCF continues to implement and maintain programs for physical design and pressure boundary in accordance with regulatory requirements.

Two licence conditions are included in the proposed licence for this SCA. Licence condition 5.1 requires the licensee to implement and maintain a design program.



Licence condition 5.2 requires the licensee to implement and maintain a pressure boundary program and have in place a formal agreement with an Authorized Inspection Agency. Compliance verification criteria for both licence conditions are included in the draft LCH.

3.6 Fitness for Service

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

The specific areas that comprise this SCA at PHCF include:

- equipment fitness for service / equipment performance
- maintenance
- aging management
- periodic inspection and testing

3.6.1 Trends

The following table indicates the overall rating trends for the Fitness for Service SCA over the current licensing period:

TRENDS FOR FITNESS FOR SERVICE				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that the Fitness for Service SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR FITNESS FOR SERVICE				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	

Comments

There are no additional comments.

3.6.2 Discussion

Cameco is required to implement and maintain a fitness for service program to cover activities that affect the physical condition of structures, systems and components (SSCs) to ensure that they remain effective over time. The requirements under this SCA are provided under paragraph 6(f) the [CINFR](#), the National Building Code of Canada (NBCC) [6] and the National Fire Code of Canada (NFCC) [7]. Specific aspects of CSA N286-12, *Management System Requirements for Nuclear Facilities* [4] are also applicable for this SCA.

Cameco's Management System Program Manual and Asset Management and Reliability Program Manual (PHF-MAN-AMR) details its preventative maintenance, in-service inspection, and periodic inspection and testing requirements for equipment.

CNSC staff conclude, based on assessment of Cameco's governing documents for the conduct of maintenance, and onsite verification activities, that Cameco's fitness for service program for PHCF meets regulatory requirements.

3.6.3 Summary

A summary of the licensee's past performance, challenges, regulatory focus and proposed improvements and presented in the following subsections.

3.6.3.1 Past Performance

Equipment fitness for service / equipment performance

Cameco has an Asset Management and Reliability Program for the facility, which includes a program for the periodic inspection and testing of equipment. This SCA includes programs that ensure all equipment is available to perform its intended design function when called upon to do so. Cameco has also identified the safety-significant SSCs at the PHCF and implemented a preventive maintenance program to ensure that SSCs remain effective over time.

Maintenance



The CNSC requires Cameco through its regulations to have processes in place to maintain all equipment as well as SSCs. All preventative maintenance work at PHCF is initiated and documented through work notification software. Staff at PHCF periodically review and update preventative maintenance plans for safety-significant SSCs. The site maintenance program ensures that equipment functions as designed over its lifetime so that safety systems remain available, meet the design intent in the safety report and that equipment failures are minimized. This is accomplished by completion of corrective and preventative maintenance activities along with routine inspections on system components to ensure that they remain in good operating condition.

Aging management

Cameco does not have a separate aging management program. Cameco acknowledges asset aging and manages this and other failure mechanism categories through its Asset Management and Reliability program. This program requires the development and execution of asset-specific maintenance plans commensurate with risk, including, and specifically for, safety-significant SSCs. The maintenance plans for safety-significant SSCs are reviewed periodically by PHCF to ensure they remain effective and are being completed as required. Cameco's longer term plans include implementation of a formalized structural integrity program to supplement the ad hoc structural inspections currently completed.

Periodic inspection and testing

Cameco has an in-service inspection program that applies to the piping and vessels in the safety significant systems at PHCF. PHCF technicians performing the inspection are certified in accordance with the Canadian General Standards Board. Inspection methods have been selected based on the historical record of operation and inspection at the PHCF and are considered the most appropriate for detecting potential problems and for revealing the type of deterioration most likely to occur as a result of the service conditions to which the equipment is subjected.

Fire protection systems are tested according to an established schedule using the National Building Code and the National Fire Code. Reviews of aspects of the fire protection systems are completed as required by CSA N393-22: *Fire protection for facilities that process, handle or store nuclear substances* [10].

During the current licence period, CNSC staff verified through compliance activities that Cameco continues to implement its fitness for service program



through its preventive maintenance programs, in-service inspection program, and periodic inspection and testing for fire protection systems.

CNSC staff conducted 2 focused inspections in 2018 and 2024, and 6 onsite general inspections since 2017, which included fitness for service. CNSC staff verified that in-service inspections of safety related structures are carried out by Cameco, safety related equipment is maintained in good working order, and components requiring calibration are tested at the required frequency. All findings from these inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

Cameco has acceptable preventative maintenance and in-service inspection programs in place at its facility. PHCF's performance in this SCA is satisfactory.

3.6.3.2 Regulatory Focus

CNSC staff continue to monitor Cameco's performance in this SCA through regulatory oversight activities including inspections and desktop reviews of relevant program documentation.

3.6.3.3 Proposed Improvements

The current programs at PHCF for this SCA are considered acceptable and no improvements within this SCA are proposed.

3.6.4 Conclusion

Based on CNSC staff assessment of Cameco's application, supporting documents and past performance, CNSC staff conclude that PHCF continues to implement and maintain an effective fitness for service program in accordance with regulatory requirements.

One licence condition is included in the proposed licence for this SCA. Licence condition 6.1 requires the licensee to implement and maintain a fitness for service program. Compliance verification criteria for this licence condition are included in the draft LCH.



3.7 Radiation Protection

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

The specific areas that comprise this SCA at PHCF include:

- application of ALARA
- worker dose control
- radiation protection program performance
- radiological hazard control

3.7.1 Trends

The following table indicates the overall rating trends for the Radiation Protection SCA over the current licensing period:

TRENDS FOR RADIATION PROTECTION				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments During the current licence period, no worker received a radiation dose in excess of regulatory limits as a result of the licensed activities conducted at the PHCF. CNSC staff conclude that the Radiation Protection SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR RADIATION PROTECTION				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments for this SCA.				

3.7.2 Discussion

A summary of Cameco's performance in the Radiation Protection SCA over the current licence period follows.

Regulatory Requirements

The [RPR](#) requires licensees to implement an RP program. As part of that program, licensees must also keep effective and equivalent doses received by and committed to persons ALARA, taking into account social and economic factors, through the implementation of: management control over work practices, personnel qualification and training, control of occupational and public exposures to radiation, and planning for unusual situations.

Cameco implements an RP program at PHCF which meets the requirements of the RPR. Focused highlights are provided for each specific area of the Radiation Protection SCA. CNSC staff's assessment of Cameco's performance by specific area considers indicators such as monitoring of performance data, event reviews and results of CNSC compliance inspections.

Application of ALARA

Cameco's application of ALARA is integrated within the PHCF's RP program, which includes management commitment and oversight, personnel qualification and training, and facilitation of ongoing dialogue and a culture of continuous improvement. Annually, Cameco establishes ALARA targets focused on worker dose reduction initiatives, in addition to key performance indicators for parameters such as RP training, personnel dosimetry results, and workplace monitoring data.

Worker Dose Control

During the current licence period, no worker at the PHCF received an effective or equivalent dose that exceeded the corresponding regulatory dose limits pursuant to the RPR.

Cameco uses a combination of action levels, staff training and qualification, and dose management tools (work planning and management oversight) to ensure radiation doses to workers are controlled and kept ALARA. Engineered and administrative controls such as shielding, mandatory use of personal protective



equipment (PPE) and designated respirator-use areas are also established to ensure protection of workers at the PHCF.

Radiological exposures and hazards to workers at the PHCF are due to alpha, beta and gamma radiation emitted by natural uranium and its radioactive progeny. Exposures to workers can result from beta and gamma radiation outside the body, and alpha, beta and gamma radiation from inside the body due to inhalation, ingestion or absorption of uranium through the skin. While radiation hazards that may give rise to both external and internal radiation exposures to workers are present at the PHCF, the control of uranium compounds that may be taken into the body is particularly important from a radiation safety point of view. The primary concerns are chemical damage to the kidney from intakes of soluble uranium compounds and radiation doses to the lungs from insoluble forms of uranium. Cameco implements a urine analysis program and a lung counting program to monitor for intakes of uranium by workers to ensure that chemical toxicity and radiotoxicity effects are avoided.

Cameco's dosimetry program for PHCF includes techniques for both external and internal dose assignment. The total effective dose assignment for workers is the sum of the external whole-body dose as measured by an optically stimulated luminescent dosimeter (OSLD), plus the internal dose determined from the concentration of uranium in urine, plus the internal dose determined from uranium in the lung (lung burden). Cameco's Fuel Services Division holds a CNSC dosimetry service licence which authorizes Cameco to provide in-house internal dosimetry services to the PHCF.

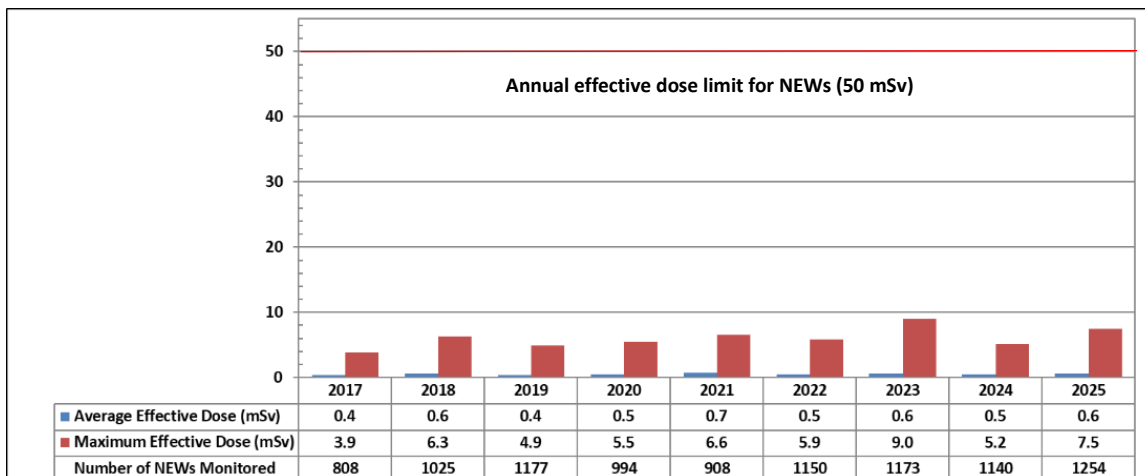
Workers conducting work that presents a reasonable probability of receiving an occupational dose greater than 1 mSv per year are considered nuclear energy workers (NEWs) at the PHCF. As required by the RPR, all NEWs are informed, in writing, of their status, of the risks associated with radiation that they may be exposed to in the course of their work and while carrying out their responsibilities during emergencies, and of the applicable effective and equivalent regulatory dose limits. Female NEWs are also informed, in writing, of their rights related to pregnancy and breastfeeding, and of the risks associated with the exposure of embryos and fetuses to radiation and the risks to breastfed infants from the intake of nuclear substances.

Cameco has consistently maintained doses to NEWs well below the regulatory dose limits during the current licence period. UF₆ plant operators are the work group that typically received the highest radiation doses. The maximum annual

effective dose received by a NEW during the current licence period was 9.0 mSv in 2023, which is 18% of the regulatory dose limit of 50 mSv in a 1-year dosimetry period. The majority of the NEW's dose was received because of an unplanned exposure event, where the NEW received a committed effective dose of 8.6 mSv. Details of this event, which resulted in an action level exceedance, were discussed in the [uranium and nuclear processing facilities ROR for 2023](#). The section below titled Action Levels contains additional information on established action levels and any action level exceedances. Overall, total effective doses to NEWs have been relatively stable during the current licence period.

Figure 5 displays the maximum and average individual effective doses to NEWs at the PHCF from 2017 through to 2025.

Figure 5: Effective dose statistics for NEWs at the PHCF, 2017-2025



The regulatory dose limit for NEWs includes a limit of 100 mSv effective dose over a 5-year dosimetry period. The RPR defines the 5-year dosimetry period as a fixed 5-year period. The 5-year dosimetry periods that are applicable over this licence period are 2016 to 2020, and 2021 to 2025. The maximum individual effective dose for a NEW during each of these periods is shown in table 2. The effective doses are well below the regulatory dose limit of 100 mSv per 5-year dosimetry period for NEWs.

Table 2: Maximum effective dose for a NEW during the 5-year dosimetry periods, 2016-2020 and 2021-2025

5-year Dosimetry Period	2016-2020	2021-2025
Maximum Individual Effective Dose for a NEW	20.6 mSv	24.1 mSv

Table 3 provides the equivalent dose to the skin statistics for NEWs at the PHCF, during the current licence period. The maximum annual equivalent dose to the skin that was received by a NEW at the PHCF during the current licence period was 20.1 mSv occurring in 2019, representing approximately 4% of the regulatory equivalent dose limit of 500 mSv in a 1-year dosimetry period.

Table 3: Equivalent dose to the skin statistics for NEWs at the PHCF, 2017-2025

	2017	2018	2019	2020	2021	2022	2023	2024	2025	Regulatory dose limit
Average skin dose (mSv)	0.6	0.7	0.5	0.5	0.7	0.5	0.7	0.5	0.5	--
Maximum individual skin dose (mSv)	13.7	14.9	20.1	17.0	16.3	12.0	16.0	18.3	19.6	500 mSv in a 1-year dosimetry period

Monitoring of exposures to workers' extremities is not routine and would be conducted using ring-type personal dosimeters depending on the nature of specific work activities being performed.

Radiation protection program performance

CNSC compliance activities

CNSC staff assessed Cameco's RP program performance over the current licence period through various CNSC staff compliance verification activities, including desktop reviews of quarterly and annual compliance reports. Aspects of the Radiation Protection SCA have been covered during numerous CNSC inspection activities. In addition, focused RP inspections at the PHCF occurred in 2018, 2023 and 2025. All findings from these inspections were considered to have low safety significance and Cameco established acceptable corrective actions to address all enforcement actions associated with these inspections.

CNSC staff's assessment of Cameco's RP program performance identified areas of strength and opportunities for improvement. Cameco implemented enhancements to the RP program and established appropriate corrective actions to address areas requiring improvement. Actions included updates to and



documenting of practices and procedures supporting the RP program, and improvements to adhering to contamination control requirements, managing radiation equipment and instrumentation, and storage of respirators in work areas. As a result of onsite inspection and desktop review activities, CNSC staff found that Cameco's RP program complies with CNSC regulatory requirements.

Action levels

For various radiological parameters, Cameco has established action levels that are set well below regulatory dose limits. Action levels, when reached, may be indicative of a potential loss of control for that specific parameter. Action levels have been established for external whole body and skin exposures, uranium-in-urine concentrations, and lung dose. These action levels serve as early warnings of conditions that warrant further investigation and, if reached or exceeded, require notification to the CNSC. The action levels are found in the current and proposed LCH. In addition, Cameco has established lower-tier internal administrative levels that are set below the action levels to provide proactive early warnings of potential concerns.

In 2025, Cameco conducted a comprehensive review of the radiological action levels for workers to ensure that they remain adequately sensitive indicators to detect the emergence of a potential loss of control of the PHCF's RP program elements. Cameco submitted the results of the review to CNSC staff, which confirmed the effectiveness of the current action levels implemented. CNSC staff are satisfied with the results of Cameco's review.

Over the current licence period, there were a total of 6 action level exceedances at the PHCF: 1 in each of the years 2018 and 2021 related to monthly whole body dose, 2 in the year 2023 related to a uranium-in-urine concentration of a daily sample and an annual lung dose, and 2 in the year 2024 related to monthly whole body dose and a uranium-in-urine concentration of a bi-weekly sample.

All action level exceedances were discussed in detail within the applicable [uranium and nuclear processing facilities RORs](#). Cameco's investigation into the bi-weekly uranium-in-urine action level exceedance in the year 2024 determined that it was the result of a contaminated urine sample and not due to an intake by a worker. All other action level exceedances were also investigated and confirmed to be authentic. Cameco implemented corrective actions intending to prevent reoccurrences, including additional controls for wearing of direct reading dosimeters by workers in work areas with elevated gamma dose rates, and improvements to the requirements for constructing enclosures of areas

while certain work activities with the potential for generating elevated airborne radiological hazards are conducted. CNSC staff are satisfied with Cameco's investigations, responses, and corrective actions taken to address the action level exceedances over the current licence period.

RP Program Improvements

Cameco revised their RP program and RP program documentation during the current licence period as part of their continual improvement activities, in response to amendments to the RPR in 2020, and as a result of findings arising from CNSC compliance verification activities. Several RP-related improvements were also implemented during the current licence period to strengthen the PHCF's RP program, including formalizing RP requirements for Site 2 (Dorset Street).

Radiological hazard control

Radiation and contamination control programs have been established at the PHCF to control and minimize radiological hazards and the spread of radioactive contamination. Methods of control include the use of radiation zone controls. The PHCF has been delineated into three zones (Zone 1, Zone 2 and Zone 3). The possibility of contamination increases with increasing zone numbers. Zone 3 represents processing areas of the PHCF where the likelihood of encountering contamination is highest, while Zone 1 represents clean areas such as the main entrance and lobby, the security office, the medical office area and the clean side of the change rooms. Zone 2 is referred to as the buffer zone.

Contamination limits are set for each zone. Boundaries between zones are clearly delineated by appropriate signage. Personnel contamination monitoring occurs at the boundaries between Zones 1 and 2 and upon exiting the PHCF. Radiological monitoring programs confirm the effectiveness of contamination control and include a combination of direct and indirect contamination monitoring of building areas, floors, footwear, work clothing and PPE. Airborne contamination monitoring, conducted in designated areas, provides timely notification of changing conditions related to possible compromises in equipment operation. Air contamination monitoring is augmented by providing containment systems such as dust collectors and fume hoods, well ventilated operating areas and the use of a plant wide vacuum system for cleaning up spills when they do occur. All these measures are in place to minimize the potential for intakes of uranium materials by workers.



CNSC staff are satisfied that radiological hazards have been adequately controlled at the PHCF over the current licence period.

3.7.3 Summary

A summary of the licensee's past performance, challenges and proposed improvements is presented in the following subsections.

3.7.3.1 Past Performance

Based on the review of the PHCF quarterly and annual compliance reports, and CNSC staff's routine compliance verification activities, CNSC staff rate the performance for the Radiation Protection SCA as satisfactory over the current licence period.

3.7.3.2 Regulatory Focus

CNSC staff will continue to monitor performance in the Radiation Protection SCA through regulatory oversight activities including inspections and desktop reviews of Cameco's compliance reporting and revisions to relevant program documentation.

3.7.3.3 Proposed Improvements

There are no other proposed improvements for the Radiation Protection SCA.

3.7.4 Conclusion

Cameco effectively implemented the RP program for the PHCF over the current licence period. CNSC staff conclude that Cameco meets applicable requirements and expectations for performance with respect to the Radiation Protection SCA.

One licence condition is included in the proposed licence for this SCA. Licence condition 7.1 requires the licensee to implement and maintain a radiation protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days. Compliance verification criteria for this licence condition are included in the draft LCH.

3.8 Conventional Health and Safety

The Conventional Health and Safety SCA relates to the implementation of a program to manage workplace safety hazards and protect workers.

The specific areas that comprise this SCA at the PHCF include:

- performance
- practice
- awareness

3.8.1 Trends

The following table indicates the overall rating trends for the Conventional Health and Safety SCA over the current licensing period:

TRENDS FOR CONVENTIONAL HEALTH AND SAFETY				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that the Conventional Health and Safety SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR CONVENTIONAL HEALTH AND SAFETY				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments.				

3.8.2 Discussion

Cameco is obligated under the NSCA and its associated regulations to have policies, programs, methods and procedures in place for the safe operation and

maintenance of its facilities. In addition to the NSCA and its associated regulations, Cameco's activities must comply with the Canada Labour Code, and the associated Canada Occupational Health and Safety Regulations. Cameco's occupational health and safety program for PHCF applies to all work performed by PHCF employees and contractors.

CNSC inspectors annually verify the conventional health and safety program at PHCF, by observing workers' compliance with requirements related to workplace safety, proper use of PPE, use of signage and barriers along with the general housekeeping of the facility.

Based on the above, CNSC staff concluded that the conventional health and safety SCA for PHCF met all applicable regulatory requirements and CNSC staff expectations.

3.8.3 Summary

A summary of the licensee's past performance, challenges, regulatory focus and proposed improvements and presented in the following subsections.

3.8.3.1 Past Performance

Performance

Conventional health and safety programs at uranium and nuclear substance processing facilities fall under the dual regulatory oversight of the CNSC and Employment and Social Development Canada. Cameco submits hazardous-occurrence investigation reports to both regulators, in accordance with their respective reporting requirements. CNSC staff monitor compliance with regulatory reporting requirements through various means including desktop reviews and inspections.

Licensees are required to report to the CNSC as set out under paragraph 29 (1) (h) of the GNSCR. These reports include serious illnesses or injuries incurred or possibly incurred as a result of a licensed activity.

Cameco uses several key performance indicators to assess performance of the licensed facility. Some of the indicators include first aid, medical consultations, near misses, number of workplace inspections and safety issues reported.

The key performance indicators typically reported to the Commission for conventional health and safety are the number of lost-time injuries (LTI) that occur per year, LTI severity and LTI frequency. LTI statistics for the PHCF are outlined in table 4. PHCF had 6 LTIs over the licence period (2017 – 2025).

Table 4: Lost-time injury statistics, PHCF, 2017 – 2025

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025
Lost-time injuries ¹	1	2	0	0	0	0	0	3	0
Severity rate ²	1.67	7.58	0.00	0.00	0.00	0.00	0.00	21.26	0.00
Frequency rate ³	0.28	0.49	0.00	0.00	0.00	0.00	0.00	0.65	0.00

¹ An injury or illness resulting in lost days beyond the date of injury as a direct result of an occupational injury or illness incident.

² The accident severity rate measures the total number of days lost to injury for every 200,000 person-hours worked at the site. Severity = [(# of days lost in last 12 months) / (# of hours worked in last 12 months)] x 200,000.

³ The accident frequency rate measures 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.

2024 Workplace Injury

On April 9, 2024, staff at PHCF reported that a worker had been injured after a fall from heights at PHCF's Site 2 (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).

Cameco notified the CNSC and the Municipality of Port Hope of this incident. 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.

Cameco also conducted an investigation in accordance with PHCF's Corrective Action Process, which identified 4 causal factors and 3 corrective actions which



were implemented. CNSC inspectors followed up on the corrective actions and are satisfied with the actions taken by Cameco.

This workplace injury was first reported to the Commission as an Event Initial Report in [CMD 24-M25](#) on May 22, 2024. An update was provided to the Commission in March 2025 in the 2024 [uranium and nuclear processing facilities ROR](#).

Fluoride in Urine Action Level exceedances

For fluoride toxicity PHCF has established action levels for urine analysis of 7 milligrams of fluoride per litre (mg F/L) for NEWs and 4 mg F/L for non-NEWs. These action levels serve as early warnings of conditions that warrant further investigation and, if reached or exceeded, require notification to the CNSC. Over the current licence period, there was 1 action level exceedance in 2021 of the urine analysis action level of 7 mg F/L for NEWs.

For the action level exceedance in 2021, the worker was performing work involving a significant amount of welding, using welding rods containing calcium fluoride. Cameco's investigation determined that the welding rods were the source of the fluoride exposure, as it was found that the worker removed their respirator periodically during welding activities. Corrective actions were implemented and included a stand-down with the contracted workers to share what was learned and to reinforce the importance of wearing a respirator. Additionally, extra ventilation in the work area was deployed, and signage posted reminding anyone entering the work area that respirator use is mandatory. This action level exceedance was discussed in detail in the 2021 [uranium and nuclear processing facilities ROR](#).

Practice

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](#). Cameco also maintains a respirator program for PHCF for workers in accordance with the requirements set out in CSA Z94.4-18, Selection, Use and Care of Respirators [11].

Cameco continues to maintain the site Conversion Safety Steering Committee (CSSC), which fulfills the requirement for both a policy health and safety committee, and a workplace health and safety committee.

Due to the activities conducted at PHCF, there are:

- radiological hazards associated with the various forms of uranium present at the refinery
- chemical hazards from process chemicals
- physical hazards.

Cameco has established tools for identifying and controlling hazards in the workplace. These tools include proper labelling, work instructions, procedures, job hazard analysis (JHA), safety clearances and hazard specific clearances. In addition, PPE is provided as necessary.

CNSC inspectors routinely verify Cameco's conventional health and safety program for PHCF, to observe workers' compliance with requirements related to workplace safety, proper use of PPE, use of signage and barriers along with the general housekeeping of the facility. Since 2017, all general inspections by CNSC staff included walkdowns of the PHCF. All findings from these inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

CNSC staff are satisfied with Cameco's past performance in the conventional health and safety SCA and that Cameco continues to meet regulatory expectations.

Awareness

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

Cameco delivers safety-related training courses to its employees and contractors at the PHCF. All site personnel have a general awareness of the occupational potential health and safety hazards that exist at the site and the various means of minimizing these risks. Additional job specific training is also provided in areas such as hot work, lock out / tag out and the use of a Workplace Hazardous Materials Information System.

During routine onsite inspections, CNSC staff verified that workers are trained to identify hazards at the PHCF. CNSC staff confirmed that Cameco has effectively implemented their conventional health and safety programs at the PHCF to keep workers safe.



CNSC staff are satisfied with Cameco's promotion of health and safety awareness.

3.8.3.2 Regulatory Focus

CNSC staff continue to monitor Cameco's performance in this SCA through regulatory oversight activities including inspections and desktop reviews of relevant program documentation.

3.8.3.3 Proposed Improvements

No improvements to this SCA are proposed.

3.8.4 Conclusion

Based on CNSC staff assessment of Cameco's application, supporting documents and past performance, CNSC staff conclude that Cameco continues to implement and maintain an effective conventional health and safety program at the PHCF in accordance with regulatory requirements and CNSC expectations.

One licence condition is included in the proposed licence for this SCA. Licence condition 8.1 requires the licensee to implement and maintain a conventional health and safety program. Compliance verification criteria for this licence condition are included in the draft LCH.

3.9 Environmental Protection

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

The specific areas that comprise this SCA at PHCF include:

- environmental risk assessment
- effluent and emissions control (releases)
- assessment and monitoring
- protection of people
- environmental management system (EMS)

3.9.1 Trends

The following table indicates the overall rating trends for the Environmental Protection SCA over the current licensing period:

TRENDS FOR ENVIRONMENTAL PROTECTION				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments During the current licence period, releases to the environment were well below the release limits specified in the licence. CNSC staff conclude that the Environmental Protection SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR ENVIRONMENTAL PROTECTION				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments.				

3.9.2 Discussion

Under the NSCA, Cameco is required to develop and implement environmental protection policies, programs and associated procedures that comply with all applicable federal and provincial regulatory requirements, in order to control the release of nuclear and hazardous substances into the environment, and to protect the environment and human health. Listed below are the environmental protection regulatory documents and standards that Cameco must implement under its PHCF licence for the proposed licence period.

PHCF has implemented the requirements of:

- CSA N288.1-20, *Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities* [15]

- CSA N288.4-10, *Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills* [16]
- CSA N288.5-11, *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills* [17]
- CSA N288.6-12, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills* [18]
- CSA N288.7-15, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills* [19]
- CSA N288.8-17, *Establishing and implementing action levels for releases to the environment from nuclear facilities* [20]
- CNSC's [REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures](#).
- CNSC's [REGDOC-2.9.2, Environmental Protection: Controlling Releases to the Environment](#)

New versions of some of these standards have been issued by the Canadian Standards Association (CSA). Cameco submitted a gap analysis and an implementation plan for CSA N288.0-22, CSA N288.4-19, CSA N288.5-22, CSA N288.6-22 and CSA N288.7-23 on June 25, 2026 which is under review by CNSC staff.

Cameco is required to abide by all provincial and federal requirements for the handling of nuclear and other hazardous substances. Cameco controls releases of nuclear and hazardous substances from the facility to the environment in accordance with CNSC regulatory requirements as well as requirements prescribed in the Environmental Compliance Approvals issued by the Ontario Ministry of the Environment, Conservation and Parks (MECP).

During the current licence period, CNSC staff verified Cameco's performance with respect to environmental protection through inspections and desktop reviews. In total, CNSC staff conducted 4 focused environmental protection inspections at the PHCF in 2016, 2018, 2022, and 2025. All findings from these inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

As a result of these compliance activities, CNSC staff conclude that Cameco's implementation of the environmental protection program meets CNSC's regulatory requirements and expectations.

3.9.3 Summary

A summary of the licensee's past performance, regulatory focus and proposed improvements are presented in the following subsections.

3.9.3.1 Past Performance

Environmental Risk Assessment

The CNSC's REGDOC-2.9.1, includes a requirement for an environmental risk assessment (ERA) in accordance with CSA N288.6, *Environmental Risk Assessments at Nuclear Facilities and Uranium Mines and Mills* [18], and outlines expectations that ERAs be updated every 5 years, or when a project moves to a new phase in the lifecycle or there is a significant change that could impact the risk profile of the facility. An ERA is a systematic process used by licensees to identify, quantify, and characterize the potential risks posed by radiological and non-radiological hazardous substances, as well as physical stressors in the environment on human and other biological receptors, including the magnitude and extent of the potential effects associated with an existing and/or proposed facility. Risks to human receptors are assessed through a human health risk assessment while ecological receptors (i.e., non-human biota) are addressed through an ecological risk assessment. An ERA can be predictive, retrospective, or include elements of both. The ERA serves as the basis for the development of site-specific environmental protection measures and the tool to determine whether the facility's environmental protection measures are effective. The environmental monitoring data, in turn, provide further updates to refine the ERA conclusions.

Under CSA N288.6-22 [21], if an ERA review identifies significant changes to the site or exposure conditions, a full ERA update is required. PHCF's Vision in Motion (VIM) project is a major initiative to clean up and modernize the PHCF and is expected to result in lower emissions and reduced operational risks. Concurrently, the Port Hope Area Initiative (PHAI) is remediating low-level radioactive waste within the Municipality of Port Hope. These dynamic activities have altered site conditions and exposure profiles for off-site receptors, which would normally trigger the requirement for a full ERA update. However, because remediation and construction activities remain ongoing, the new full-scale ERA will not be completed until these activities conclude. This approach was proposed by Cameco and accepted by CNSC staff. In the meantime, Cameco committed to submitting updated ERA related information to confirm that no



new risks have emerged and that the conclusions of the last full ERA remain applicable.

Cameco submitted a full ERA for the PHCF in 2016 [14], which was subsequently reviewed with new data available in 2023 [12] and 2025 [13].

The 2023 review [12], which incorporated monitoring data from 2015 to 2022, indicated that concentrations of radiological and non-radiological contaminants of potential concern (COPCs) had generally decreased compared to the values used in the 2016 ERA. As a result, the conclusion from the 2016 ERA of no undue risk to the environment or human health from PHCF operations was maintained.

The 2025 ERA review included updated COPC measurements in environmental media collected in 2023 and 2024. CNSC staff completed a detailed technical assessment of the 2025 ERA review and concluded that it is consistent with the methodology and review requirements of CSA N288.6-22 [21] and found that no new risks have emerged since the previous ERA. The conclusion of negligible risk to human health and the environment from exposure to PHCF related contaminants remains supported by updated monitoring data.

CNSC staff expect Cameco to submit the next full ERA early in the next licence period and within 2 years of the completion of VIM and PHAI remediation work. That ERA will incorporate comments from CNSC staff on the 2023 and 2025 reviews, which include accounting for updates to site infrastructure resulting from VIM activities (such as, demolition of buildings and remediation of subsurface infrastructure), a re-evaluation of exposure pathways—including consideration of traditional hunting and gathering territory for Williams Treaties First Nations—and an assessment of cumulative effects and climate change.

Effluent and emissions control (releases)

Cameco monitors and controls airborne emissions and liquid effluent to the environment from the PHCF by implementing their Environmental Protection Program. Cameco's effluent and emissions monitoring program is based on CSA N288.5-11, *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills* [17] and includes monitoring of radiological and hazardous substances and physical stressors.

Atmospheric Emissions

Cameco has an Environmental Compliance Approval (ECA) issued by the MECP for air and noise emissions at PHCF. The ECA requires Cameco to maintain an



emission summary and dispersion modelling report to demonstrate compliance against the limits in the ECA.

Cameco conducts monitoring at 3 stacks, the UF₆ main stack, the UO₂ main stack, and the UO₂ selective catalytic reduction (SCR) stack. The UF₆ main stack samples uranium emissions nearly continuously during operations using a TSI sampler. In addition, UF₆ main stack monitors HF emissions continuously using an on-line analyzer. The UO₂ main stack is sampled for uranium and ammonia using an impinger train. The UO₂ SCR stack is sampled during depleted UO₂ operations for nitrogen oxides and ammonia.

For key parameters, Cameco has established action levels that are set well below regulatory limits. Action levels, when reached, may be indicative of a potential loss of control of the environmental protection program. If reached, Cameco is required to take immediate actions to restore the effectiveness of the environmental protection program, notify the CNSC and to perform an investigation. The action levels are found in the current and proposed LCH.

During the licensing term, there were 4 action level exceedances for airborne emissions. In July 2019, there was an HF action level exceedance that was caused by a cell gland failure. The HF emission was 266 g Hf/hr, which exceeds the action level of 230 g Hf/hr. In July 2020, there was an HF action level exceedance. A burnout of a fluorine inlet valve resulted in a fluoride emission as HF of 273 g HF/hr, which exceeds the action level of 230 g Hf/hr. The UF₆ plant was shut down and an investigation was completed and documented. In both these events, the licence limit of 650 g HF/hr was not exceeded.

In June 2022, the main stack daily average for uranium emissions at the UF₆ plant exceeded the action level of 40 g U/h, at a value of 45 g U/h. The result remained well below the licence limit of 280 g U/h. An investigation determined that UF₄ bypassed a breached filter resulting in the elevated uranium emission. As a corrective action, Cameco replaced this filter.

In August 2022, the main stack daily average for fluoride emissions at the UF₆ plant exceeded the action level of 230 g HF/h, at a value of 236 g HF/h. The result remained well below the licence limit of 650 g HF/h. An investigation determined that this exceedance was a result of a fluorine leak in the UF₆ plant compressor room due to a failed inlet valve. As a corrective action, Cameco replaced the valve.



For all these action level exceedances, CNSC staff reviewed the corrective actions and Cameco's investigations and concluded that these events did not result in impacts on the environment, or on the health and safety of the public.

Table 5 shows the annual average and maximum airborne releases through stacks for the PHCF. The results show that the licensed release limits for air emissions were not exceeded during the current licensing period. Table 6 shows the total uranium loadings discharged through the stacks for the PHCF. The results show that total loadings of uranium released to the environment have been relatively stable during the current licensing period. There was a slight increase in 2025 because of an increase in production days and volumes.

Table 5: Annual average and maximum airborne releases through stacks for PHCF

Parameter	Licence Limit	Value	2017	2018	2019	2020	2021	2022	2023	2024	2025
Uranium – UF ₆ Plant (g/h)	280	Avg	1.1	1.4	2.7	2.5	2.2	2.5	2.4	2.2	2.2
		Max	15.3	8.7	13.3	8.2	6.7	44.7	10.7	9.3	19.5
Hydrogen Fluoride – UF ₆ Plant (g/h)	650	Avg	21	30	18	28	29	20	12	15	13
		Max	209	229	266	273	191	236	197	226	200
Uranium – UO ₂ Plant (g/h)	240	Avg	0.5	0.7	0.8	0.6	0.5	0.5	0.8	0.6	1.0
		Max	2.7	2.2	2.9	2.5	2.3	1.4	2.9	1.7	4.5
Ammonia – UO ₂ Plant (kg/h)	58	Avg	1.4	1.7	2.1	2.0	2.0	2.4	2.0	1.9	2.0
		Max	4.0	3.9	4.8	4.9	5.1	7.7	4.6	3.7	5.1

Table 6: Total uranium loadings discharged through the stacks for PHCF

	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total uranium discharge through stacks (kg/year)	31.5	34.1	48.5	44.4	39.0	42.7	46.6	45.4	54.8



Liquid Effluent Discharges

Cameco controls and monitors waterborne effluent that comes from the operations at the PHCF. Cameco uses an automated composite sampler that collects a daily sample of the sanitary sewer discharge. The sample is analyzed for uranium and pH. The primary inputs to the sanitary sewer include greywater and blackwater source (excluding laundry effluent), powerhouse effluent, and condensates. There are no direct uranium processing inputs to the sanitary sewer. Process water that may be contaminated with uranium, including laundry effluent, is evaporated and not released to the sanitary sewer.

After Cameco installed the independent closed loop cooling system in July 2023, the former once-through cooling water works became permanently inactive. Therefore, starting from July 2023, there were no direct releases to the Port Hope Harbour.

During the licensing term, there were 44 action level exceedances of uranium in sanitary sewer, 5 in 2017, 3 in 2018, 2 in 2019, 1 in 2020, 7 in 2021, 15 in 2022, and 11 in 2023. During each of these events, the licence limit of 275 µg/L was not exceeded.

Cameco conducted detailed investigations into the root cause of the action level exceedances. The investigations found that these exceedances frequently occur due to the poor condition of PHCF's sewer network. Due to the aging system, heavy rain events exacerbate groundwater conditions and cause increased infiltration into the sewer network. PHCF has implemented corrective actions, which include continuing to repair and upgrade sections of the sanitary sewer network as part of the VIM project. Cameco reported each of the action level exceedances to CNSC after becoming aware of them. CNSC staff reviewed each event and verified that Cameco took appropriate corrective actions to control the events. CNSC staff also verified that Cameco assessed the impact of these events on the environment and the health and safety of people. CNSC staff are satisfied with Cameco's response and concluded these events do not pose a risk to the environment or the health and safety of people.

Table 7 shows the annual average flow, annual average uranium concentration, and uranium loadings from the sanitary sewer discharge during the current licensing period. CNSC staff confirm that there were no exceedances of the annual average uranium concentration licence limit of 275 µg/L.

Table 7: Sanitary sewer data for PHCF

Parameter	2017	2018	2019	2020	2021	2022	2023	2024	2025
Annual average flow (m ³ /day)	378	361	444	383	334	423	1167	445	355
Annual average uranium concentration (µg/L)	44	37	33	13	23	39	21	4.6	4.7
Uranium loadings (kg/year)	7.6	4.6	5.5	1.8	3.0	6.0	7.0	0.76	0.60

Release limits

The airborne uranium and gamma release limits in place at the PHCF during the current licence period were based on the operating release levels (ORL). ORLs are derived using information from the derived release limit (DRL) calculations but apply a dose constraint of 0.05 mSv/year for air releases of uranium and 0.3 mSv/year for gamma radiation, which are 5% and 30% of the public dose limit of 1 mSv/year, respectively. Cameco selected to keep the existing licence limits for gamma for the upcoming licensing period. Additional details are in the gamma monitoring section. Changes to release limits for airborne uranium are discussed below.

At the request of CNSC staff, Cameco established exposure-based release limits (EBRLs) at its air and liquid release points at the PHCF. The EBRLs ensure that releases stay below certain levels to meet human health or environmental quality criteria. The EBRL calculations for PHCF followed the same methodology for the ones derived for the BRR and CFM.

For liquid releases to the municipal sanitary sewer, Cameco derived EBRLs based on the Canadian Council of Ministers of the Environment (CCME) - Protection of Aquatic Life Guidelines for uranium and a dilution factor determined from modelling releases through the sewage treatment plant and into Lake Ontario. This resulted in the most restrictive EBRL of 0.29 mg/L and is based on a 4-day time frame and based on the Canadian federal water quality guideline for the protection of aquatic life of 33 µg/L (for short-term). Cameco proposed to not use this EBRL because it would only apply to an average of 4 daily composite samples since sanitary sewer samples are collected once per day. In addition, Cameco calculated a technology-based release limit following the maximum predicted design release characteristics methodology in REGDOC-2.9.2 and demonstrated that it was higher than the EBRL.



Instead, Cameco proposed to continue to use the existing EBRL for uranium in the combined discharge to the sanitary sewer of 0.275 mg/L with a monthly averaging period, as sanitary sewer limit. This value was derived in preparation for the 2016 PHCF licence renewal and is based on meeting the Canadian federal water quality guideline for the protection of aquatic life of 15 µg/L (for long-term) at the discharge point taking into account dilution from mixing with Lake Ontario and mixing with the volume of non-PHCF city water in the Municipality of Port Hope sanitary sewer system.

For releases to air, Cameco harmonized its releases with the provincial air quality standards under Ontario Regulation 419/05 Air Pollution - Local Air Quality and derived an EBRL that applies to all atmospheric release points (i.e., UF₆ and UO₂ main process stacks), based on meeting the applicable air quality standards at the maximum Point-of-Impingement.

CNSC staff reviewed Cameco's methodology and verified that it aligns with CNSC staff's guidance and follows the same methodology that was used to derive the EBRLs for the BRR and CFM. Therefore, CNSC staff accepted these revised release limits which will replace the current Licence Limits during the proposed licensing period. CNSC staff also verified that the revised release limits are calculated in accordance with the requirements and guidance in REGDOC-2.9.2. The EBRLs along with a comparison to the previous licensed release limits are shown in Table 8.

Table 8: Airborne and Waterborne Release limits for PHCF

Source	Parameter	Units	Release limits			
			Previous limit	Averaging period	EBRL	Averaging period
Water – Sanitary Sewer	Uranium	µg/L	275	Monthly	275	Monthly
Air – UF ₆ main stack	Uranium	g/hr	280	24-hour	105	Annual
Air – UF ₆ main stack	Fluoride (as hydrogen fluoride)	g/hr	650	24-hour	299	24-hour

Air – UO ₂ main stack	Uranium	g/hr	240	24-hour	105	Annual
Air – UO ₂ main stack	Ammonia	kg/hr	58	24-hour	33	24-hour
Air – UO ₂ plant depleted operations stack	Nitrogen oxides	kg/hr	78	24-hour	2.1	24-hour

Cameco has also established action levels that are derived using release monitoring data from the facility and are in alignment with the methodology described in CSA N288.8-17, *Establishing and implementing action levels for releases to the environment from nuclear facilities* [20]. These action levels provide an early indication of a potential loss of control of the environmental protection program. Hence, Cameco can take timely corrective actions to ensure that they do not exceed the release limits. CNSC staff have reviewed and approved these action levels and they are found in the current and proposed LCH.

Assessment and monitoring

Cameco conducts environmental monitoring at PHCF under its implementation of the environmental protection program (EPP). The environmental monitoring program is based on CSA N288.4-10, *Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills* [16].

Ambient Air Monitoring

As part of Cameco's EPP for the PHCF, an ambient air monitoring program is implemented to measure the air quality in the vicinity of PHCF. The program consists of dustfall jars to monitor concentrations of uranium in dustfall, high-volume air samplers to measure concentrations of uranium in ambient air, and dustfall jars to monitor concentrations of fluoride in dustfall. A dustfall jar is a container that passively collects particulate matter. Hi-volume air samplers collect air on a filter over a 24-hour period. Over the current licensing period, the results from these monitoring locations show that the ambient air monitoring results have remained consistently low and below their respective ambient air quality criteria or screening levels. The results are summarized in tables 9, 10, and 11.

Table 9: Uranium concentrations in dustfall jars at PHCF, 2017 – 2025 (mg/m²/30 days)

Parameter	2017	2018	2019	2020	2021	2022	2023	2024	2025	Screening Level*
First Quarter	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	10
Second Quarter	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	
Third Quarter	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.2	
Fourth Quarter	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	
Average	<0.1	0.1	0.1	0.1	<0.1	0.1	0.2	0.1	0.2	

* There is no provincial or federal standard for uranium in dustfall. PHCF compares the results to an internal administrative screening level of 10 mg/m²/30 days

Table 10: Annual uranium concentrations in air at high volume air samplers at PHCF, 2017 – 2025 (µg/m³)

Hi-Vol station		2017	2018	2019	2020	2021	2022	2023	2024	2025	Ontario Standard [22]
Waterworks	Average	0.001	0.002	0.001	0.001	0.001	0.001	0.003	0.001	0.002	0.06 (average) 0.3 (maximum)
	Maximum	0.015	0.044	0.011	0.007	0.025	0.017	0.381	0.012	0.067	
Shuter Substation	Average	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001	
	Maximum	0.007	0.007	0.009	0.009	0.011	0.036	0.409	0.083	0.019	
Marsh Street	Average	0.002	0.003	0.003	0.003	0.003	0.003	0.006	0.005	0.006	
	Maximum	0.009	0.049	0.016	0.221	0.071	0.031	0.132	0.238	0.056	
Hayward Street	Average	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	
	Maximum	0.007	0.019	0.033	0.010	0.011	0.015	0.066	0.030	0.030	

Table 11: Fluoride concentrations in dustfall jars at PHCF, 2017 – 2025 (mg/m²/30 days)

Parameter	2017	2018	2019	2020	2021	2022	2023	2024	2025	Screening Level*
First Quarter	0.2	0.7	0.8	1.1	1.3	0.9	0.6	0.8	2.6	20
Second Quarter	1.1	1.0	1.2	1.1	1.2	1.5	1.1	1.3	0.8	
Third Quarter	0.4	0.5	1.0	1.1	0.6	0.4	0.8	1.5	1.1	
Fourth Quarter	0.2	0.6	1.4	1.4	1.1	0.8	1.0	1.0	1.4	
Average	0.5	0.7	1.1	1.2	1.1	0.9	0.9	1.2	1.5	

* There is no provincial or federal standard for fluoride in dustfall. PHCF compares the results to an internal administrative screening level of 20 mg/m²/30 days

Soil Monitoring

Due to impacts from PHAI remedial activities, as of 2023, the number of active soil monitoring program locations has been reduced. Table 12 shows the soil monitoring data at the clean plot located west of the municipal water treatment plant. Soil samples weren't collected in 2023 and 2024 at this location because of the ongoing remediation work by Canadian Nuclear Laboratories (CNL).

Concentrations of uranium in soil fluctuated in the range of 0.8 to 1.1 µg/g indicating no statistically significant accumulation of uranium due to operation of the PHCF in 2017-2022.

Following the completion of the VIM and PHAI project, Cameco will modify the soil monitoring program locations as appropriate, including consideration of CNL clean fill placements.

Table 12: Soil monitoring at PHCF's clean plot located west of the municipal water treatment plant, 2017 –2025 (µg/g)

Parameter	2017	2018	2019	2020	2021	2022	2023	2024	2025	CCME Guideline
Uranium – Soil depth of 0-5 cm	0.8	0.91	0.82	0.91	0.87	1.1	N/A	N/A	N/A	23

Surface Water Monitoring

The 2025 ERA review noted a key operational change since 2016: the transition to a closed-loop cooling system for both the UO₂ and UF₆ plants, allowing decommissioning of the harbour water intake and pumphouse. This transition substantially reduces both the potential for contaminant discharge and thermal loading to Port Hope Harbour. The surface water monitoring program, which informed the 2016 ERA (13 locations at 2 depths), was suspended in August 2018 due to harbour remediation work. As part of mitigation measures during the remediation (dredging) operations, the harbour was isolated through wave attenuator and turbidity curtains. In the interim, water samples were collected from the cooling water intake, until the decommissioning of the harbour water intake in July 2023. Once the harbour remediation projects are completed, the surface water monitoring program will be re-established, with new monitoring locations taking into account the changes to the site.

Table 13 shows the average and maximum harbour water monitoring results during the licensing period. Harbour water supply monitoring stopped in 2024 because Cameco installed cooling towers resulting in no more releases to the Port Hope Harbour. The elevated uranium and fluoride concentrations were attributed to CNL's harbour remedial work under the PHAI umbrella (not to the current PHCF operations). CNSC staff's assessment of these results showed that the fluoride concentrations were well below Health Canada's drinking water standard of 1.5 mg/L and the lowest toxicity benchmark for sensitive aquatic biota of 11.5 mg/L.

Table 13: Harbour water monitoring at PHCF, 2017 –2025

Parameter	2017	2018	2019	2020	2021	2022	2023	2024	2025	CCME Guidelines
Average Uranium (µg/L)	3.3	5.2	5.1	5.0	70	120	240	N/A	N/A	15
Maximum Uranium (µg/L)	8.8	31	46	12	540	500	740	N/A	N/A	15
Average Fluoride (mg/L)	0.19	0.16	0.092	0.09	0.006	0.11	0.1	N/A	N/A	0.12
Maximum Fluoride (mg/L)	0.29	0.36	0.18	0.15	0.17	0.22	0.14	N/A	N/A	0.12



Average Nitrate (mg/L)	1	1	0.95	0.92	1	0.89	1.3	N/A	N/A	13
Maximum Nitrate (mg/L)	2.2	1.8	1.6	1.7	1.9	1.9	2.1	N/A	N/A	13
Average Ammonia + ammonium (mg/L)	0.18	0.13	0.031	0.014	0.015	0.045	0.022	N/A	N/A	0.3
Maximum Ammonia + ammonium (mg/L)	0.4	0.47	0.21	0.14	0.17	0.76	0.14	N/A	N/A	0.3

Gamma Monitoring

Cameco conducts gamma monitoring using OSLD at 14 locations at Site 1 and six locations at Site 2 to confirm that gamma remains at levels that are protective of the environment and human health. The OSLD are collected every month and the measured gamma dose in mSv is converted into a dose rate in $\mu\text{Sv/h}$. The results are summarized in Table 14 and demonstrate that they were all below the licensed release limits.

The results at stations 2 and 13 were used for public dose calculation at Site 1 prior to July 1, 2019. After this date, the results at stations 2 and 10 were used for public dose calculation at Site 1 after the removal of station 13 at the Centre Pier. The results at stations 2 and 21 are used for public dose calculations at Site 2.

In 2025, Cameco reviewed their existing gamma licence limits and verified that they were still effective in ensuring that the environment and human health were protected. As a result, Cameco proposed to continue to use the existing gamma licence limits moving forward. This proposal was reviewed and approved by CNSC staff.

In 2020, the fenceline gamma action level at station 31 was exceeded on 2 occasions due to UF_6 cylinder storage in the area. In response, Cameco reviewed and adjusted how UF_6 cylinders were stored. CNSC staff reviewed Cameco's



investigation and are satisfied with the corrective actions. There were no impacts on the environment or to the health and safety of people.

**Table 14: Maximum monthly public dose gamma monitoring at PHCF, 2017 – 2025
($\mu\text{Sv/h}$)**

Parameter	Licence Limit	2017	2018	2019	2020	2021	2022	2023	2024	2025
Station 2 – Sites 1 and 2	0.57	0.25	0.26	0.20	0.20	0.21	0.23	0.23	0.16	0.18
Station 13 – Site 1	0.40	0.03	0.07	0	-	-	-	-	-	-
Station 10 – Site 1	0.61	-	-	0.05	0.11	0.02	0.01	0.03	0.07	0.05
Station 21 – Site 2	0.26	0.08	0.07	0.06	0.09	0.03	0.06	0.06	0.05	0.03

Vegetation Monitoring

The focus of the vegetation monitoring program is foliar fluoride concentrations within the Municipality of Port Hope collected during the growing season, April 15 - October 15.

The monitoring program is completed in conjunction with the MECP, and currently samples are obtained from 13 locations adjacent to the PHCF and within the surrounding community. Sampling locations are standardized to Manitoba maple locations and clusters of trees are sampled at each location. These samples are analyzed for fluoride content and for assessment of any leaf damage. Vegetation samples are additionally collected through the CNSC IEMP from public areas around the facility including mixed berries, mixed grass, and jewelweed.

Table 15 shows the vegetation monitoring results at the PHCF. The most recent 2025 vegetation sampling program was completed on August 27, 2025, and 12 of 26 samples reported fluoride levels less than the laboratory detection limit of 5 $\mu\text{g/g}$, with a maximum measured value of 25 $\mu\text{g/g}$. The location of the maximum measurement is east of the PHCF and is typically where maximum measurements occur, while closer to the site a concentration of 10 $\mu\text{g/g}$ was

recorded. These concentrations are below the MECP's Upper Limit of Normal guideline of 35 µg/g and therefore no impacts to the environment are anticipated.

Table 15: Vegetation monitoring at PHCF, 2017 –2025 (µg/g)

Parameter	2017	2018	2019	2020	2021	2022	2023	2024	2025	MECP's AAQG
Fluoride	11	<5	<5	<5	6	6	6	8	6	35

Groundwater Monitoring

Groundwater flow patterns across the Site remained consistent with historical observations, with flow generally from the northwest toward the southeast, discharging to Lake Ontario and the Harbor, and a localized eastward component from beneath the UF₆ plant toward the Harbor.

Historical and current operations have affected groundwater quality at the PHCF main operating site (due to leakage of process liquid or other potential contamination sources), resulting in several contaminant plumes [23]. These include plumes beneath Building 50 containing elevated uranium, arsenic, fluoride, and/or VOCs, with additional uranium and arsenic contributions as they migrate toward the Harbor; a plume with elevated uranium, nitrate, ammonia, and VOCs extending from the north-eastern area of Building 24 to the Harbor; and localized zones of elevated uranium, arsenic, ammonia, and/or VOCs east of Buildings 12 and 27. Elevated VOC concentrations were also detected in groundwater adjacent to and south of Building 24, as well as in the parking area south of Building 50 and west of Eldorado Place. An updated and comprehensive list of groundwater COPCs is provided in the 2026 ERA revalidation report [13]

Cameco developed the groundwater monitoring program based on prior site-wide soil and groundwater investigations and risk assessments. Its objectives include tracking groundwater levels and quality, detecting potential leaks or spills, and confirming the effectiveness of ongoing remedial actions. CNSC staff have reviewed Cameco's groundwater monitoring and protection programs and find that they are in compliance with CSA N288.7-15, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*.

During the current licensing period, Cameco conducted groundwater quality sampling at the PHCF main operating site in accordance with CSA N288.7-15, following the schedules outlined below. It should be noted that the reported number of wells aligns with the number of installed wells, which generally aligns with the number of wells sampled, unless the monitoring well is unavailable due to construction activities or other reasons.

Wells for groundwater monitoring include:

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

As part of ongoing VIM project (see Section 1.2 for further information on VIM), the groundwater recovery and treatment (pump-and-treat) systems at the PHCF have been operating since February 2008 and are intended to reduce COPCs discharges to the Harbor. As of 2025, the systems include up to 12 active pumping wells. It is noted that VIM construction activities may result in temporary adjustments to the Groundwater Monitoring Program throughout the duration of the VIM project.

CNSC staff find that groundwater monitoring results from the current licensing period demonstrate that:

- Groundwater flow patterns were consistent with historical observations, flowing southeast towards the Harbor.
- COPCs concentrations across the site were generally consistent with historical observations.
- There is a gradual reduction in the estimated COPCs mass discharge to the Harbor via groundwater, driven by the sustained operation of the pump-and-treat systems [13].

COPCs concentrations from the groundwater monitoring program as reported in their Annual Groundwater and Surface Water Reports were compared to the maximum concentrations identified in the 2016 ERA. Several parameters exceeded the concentrations used for screening in the 2016 ERA. These exceedances were evaluated by considering potential exposure pathways and by comparison with applicable screening criteria. Based on this evaluation, Cameco concluded that, consistent with the 2016 ERA results, COPC concentrations in groundwater would not pose adverse effect on human health and the environment.



CNSC staff have reviewed the Annual Groundwater and Surface Water Reports, ERA reports, and other site investigation reports, and confirm that Cameco's groundwater monitoring data demonstrated that the groundwater monitoring program is achieving its performance objectives, and COPCs concentration in groundwater remain at levels that are protective of the environment and human health.

CNSC Independent Environmental Monitoring Program

The objective of the CNSC's Independent Environmental Monitoring Program (IEMP) is to build Indigenous and public trust in the CNSC's regulation of the nuclear industry, via an independent, technical and accessible environmental sampling program around nuclear facilities. It is separate from, but complementary to, the CNSC's ongoing compliance verification program. The IEMP involves taking samples from public areas around the facility and measuring and analyzing the amount of radiological (nuclear) and hazardous substances in those samples.

CNSC staff conducted the IEMP near PHCF in 2014, 2015, 2017, 2020 and 2024. The sampling campaigns also included samples collected in the vicinity of the nearby CFM. The results are available on the CNSC's [IEMP Web page](#). The IEMP results are consistent with the results submitted by PHCF, supporting CNSC staff's assessment that the licensee's environmental protection program is effective. The results add to the body of evidence that people and the environment in the vicinity of PHCF are protected and that there are no anticipated health impacts from the operation of the facility.

The CNSC is committed to collaborating with Indigenous Nations and communities to ensure that the sampling plan reflects Indigenous traditional land use, values and knowledge. For the 2024 IEMP at PHCF, representatives of Mississaugas of Scugog Island First Nation and Curve Lake First Nation participated in the sampling and provided input into the sampling plan. CNSC staff will continue to engage with Indigenous Nations and communities in future IEMP sampling campaigns at PHCF.

Protection of people

Cameco is required to demonstrate that they have made adequate provisions to protect the health and safety of the public from exposures to radiological and non-radiological substances released from the PHCF. Cameco uses the effluent and environmental monitoring programs currently implemented to verify that



releases do not result in concentrations and/or exposure that may adversely affect public health.

The CNSC receives reports of spills to the environment through the reporting requirements outlined in the PHCF licence and licence conditions handbook. CNSC staff's review and evaluation of spills from the PHCF to the environment during the current licensing period indicates that negligible risks to the public occurred during this period.

Based on a review of these programs at the PHCF, CNSC staff conclude that Cameco continues to protect the public and Indigenous Nations and communities from facility emissions.

Estimated dose to public

The derived release limit (DRL) for a given radionuclide is defined as the release rate that would cause an individual of the most highly exposed group to receive and be committed to a dose equal to the regulatory annual dose limit due to release of the radionuclide to air or surface water during normal operation of a nuclear facility over the period of a calendar year. PHCF uses the DRL calculation to determine dose to the public for PHCF. The PHCF DRL report was most recently revised in September 2025.

The maximum dose to the public considered air emissions and liquid effluent releases from the facility as well as exposures to gamma radiation for a resident located at Site 1 and a resident located at Site 2. The CNSC's requirement for following the ALARA principle, taking into account social and economic factors, means that PHCF must monitor its facility and keep doses to the public below the annual public dose limit of 1 mSv/year prescribed in the RPR.

Table 16 shows that the estimated maximum effective dose to the public from PHCF over the current licence period remained well below the annual public dose limit.

Table 16: Estimated maximum effective dose to a member of the public, 2017 –2025 (mSv)

Parameter	Public dose limit (mSv/year)	2017	2018	2019	2020	2021	2022	2023	2024	2025
-----------	------------------------------	------	------	------	------	------	------	------	------	------



Dose at Site 1	1	0.110	0.142	0.080	0.129	0.072	0.088	0.097	0.053	0.066
Dose at Site 2	1	0.153	0.173	0.127	0.117	0.086	0.118	0.128	0.072	0.071

Environmental management system (EMS)

Cameco has developed and is maintaining an EMS that provides a framework for integrated activities for the protection of the environment at the PHCF. Cameco describes the EMS for the PHCF in the Fuel Services Division (FSD) EMS. This EMS applies to the BRR and CFM as well. It includes activities such as establishing annual environmental objectives and targets. CNSC staff, through compliance verification activities, review these objectives and targets.

As part of compliance verification activities, CNSC staff review documents relating to environmental protection and follow up with staff at PHCF on any outstanding issues. The results of these compliance verification activities demonstrate that Cameco conducts an annual management review in accordance with CNSC requirements. The results from these management reviews are tracked and corrective actions are implemented to address the findings. CNSC staff are satisfied that Cameco is conducting effective reviews and addressing identified issues properly.

Vision in Motion (VIM) Project

As indicated in section 1.2, Cameco intends to complete the VIM project during the proposed licensing period. Further discussion of the VIM project is provided under the SCA of Waste Management (section 3.11).

For the VIM project, Cameco must adhere to the EA follow-up commitments described in the Comprehensive Study Report for the Vision 2010 project [24]. Cameco has developed a supplemental environmental monitoring plan to monitor the impact of the VIM project on the environment in the vicinity of the PHCF main site and Dorset Street properties. Many of the EA follow-up commitments for the VIM project are captured by Cameco's existing environmental monitoring program (e.g., surface water, groundwater, soil and vegetation); the supplemental environmental monitoring plan is intended to monitor potential changes to environmental media as a result of VIM-specific activities, and to verify predictions of environmental effects and the effectiveness of the mitigation measures implemented. The supplemental environmental monitoring plan focuses on the potential environmental effects of



the project, namely dust, airborne particulate, radioactive constituents associated with the particulate (uranium and radium-226) and noise.

3.9.3.2 Regulatory Focus

CNSC staff will continue to monitor performance in this area through regulatory oversight activities, inspections, and desktop reviews of Cameco's compliance reporting and revisions to relevant program documentation pertaining to this SCA.

3.9.3.3 Proposed Improvements

There are no other proposed improvements for the Environmental Protection SCA.

3.9.4 Conclusion

Cameco has implemented and maintained an environmental protection program that adequately protects the environment and the public in accordance with regulatory requirements. CNSC staff expect no adverse effects on human health and the environment during the operation of the facility.

One licence condition is included in the proposed licence for this SCA. Licence condition 9.1 requires the licensee to implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days. Compliance verification criteria for this licence condition are included in the draft LCH.

As indicated under section 3.11.4, under the SCA for Waste Management, the nuclear facility-specific licence condition 15.1 is included in the proposed licence for the clean-up, decontamination, demolition and remediation work carried out at the PHCF, including planned clean-up activities under the VIM project. Compliance verification criteria for this licence condition are included in the draft LCH.

3.10 Emergency Management and Fire Protection

The Emergency Management and Fire Protection SCA covers emergency plans and emergency preparedness programs that exist for emergencies and for non-



routine conditions. This area also includes any results derived from the participation in exercises.

The specific areas that comprise this SCA at the PHCF include:

- conventional emergency preparedness and response
- nuclear emergency preparedness and response
- fire protection and response

3.10.1 Trends

The following table indicates the overall rating trends for the Emergency Management and Fire Protection SCA over the current licensing period:

TRENDS FOR EMERGENCY MANAGEMENT AND FIRE PROTECTION				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that the Emergency Management and Fire Protection SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR EMERGENCY MANAGEMENT AND FIRE PROTECTION				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments.				

3.10.2 Discussion

Emergency Preparedness and Response

The emergency management and fire protection SCA encompasses the arrangements in place to ensure that the licensee can effectively respond to



emergency and non-routine conditions, including accidental releases of hazardous or radiological substances, and to prevent or mitigate the consequences of fire.

Cameco has implemented and maintained an emergency management program in accordance with CNSC regulatory requirements throughout the current licensing period. CNSC staff verified that Cameco maintains an effective emergency preparedness and response capability, supported by an established emergency response organization, documented emergency plans and procedures, and appropriate training and qualification of emergency response personnel.

Cameco consistently achieved a satisfactory rating for this SCA at the PHCF over the licensing period. This performance reflects the licensee's continued implementation of emergency preparedness arrangements, including routine training, drills, and exercises, as well as coordination with off-site response organizations. Emergency exercises conducted during the licence period tested a range of postulated scenarios and contributed to continuous improvement of emergency readiness.

CNSC staff conducted compliance verification activities related to emergency management during the licensing period, including focused inspections in 2017, 2018, 2021 and 2024, and reviews of emergency exercises and emergency preparedness documentation. All findings from these inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

Based on the results of regulatory oversight and the licensee's demonstrated performance, CNSC staff conclude that Cameco continues to effectively implement its emergency management program and that emergency preparedness and response measures are adequate to protect workers, the public, and the environment.

Fire Protection

Over the current licence period, Cameco maintained a structured and generally satisfactory level of performance in fire protection under the physical design and emergency preparedness & fire protection SCAs, consistent with NBCC [6], NFCC [7] and CSA N393 [10] requirements. Annual fire protection audits were completed and reviewed by staff at PHCF with no major findings, indicating that

PHCF's fire protection program and associated physical design features remained adequate to control fire risks. CNSC staff conducted 2 focused fire protection inspections in 2019 and 2024 and identified a limited number of findings. All findings from these inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

Cameco implemented and updated comprehensive Fire Hazard Analyses (FHA) covering major PHCF buildings (including Buildings 2, 6, 7, 12, 12A, 13, 14, 14, 22/22A, 23, 24, 27, 40, 50, 63, 64/65 and 5B/5C), and all FHA findings were resolved through programmatic or physical modifications. Over the proposed licence term, CNSC staff will continue to monitor Cameco's performance in continued FHA maintenance, periodic fire inspections, annual audits and the use of third-party reviews for design changes.

3.10.3 Summary

A summary of the licensee's past performance, challenges, regulatory focus, and proposed improvements are presented in the following subsections.

3.10.3.1 Past Performance

Emergency Preparedness and Response

During the current licensing period, Cameco demonstrated satisfactory performance in emergency preparedness and response. The licensee maintained an up-to-date emergency response plan, which was periodically reviewed and accepted by CNSC staff.

Cameco has established coordination and mutual aid arrangements with local emergency response organizations, including Port Hope Fire and Emergency Services and local medical facilities. These arrangements are routinely exercised through joint training and emergency exercises.

Cameco conducted regular drills and exercises to test emergency response capabilities, including command and control, communications, medical response, and hazard-specific scenarios. Exercise results were documented, and identified deficiencies were tracked and addressed through established corrective action processes.

Emergency response events during the licensing period were limited, and CNSC staff are satisfied with the licensee's response and follow-up actions. Overall, past performance demonstrates that Cameco maintains a well-established emergency management program that meets CNSC regulatory expectations.

Fire Protection

During the current licensing period, Cameco's fire protection performance was characterized by stable implementation of its fire protection program and supporting physical design, with no major regulatory non-compliances or risk-significant deficiencies. Through fire protection inspections in 2019 and 2024, CNSC staff confirmed that the program was implemented in accordance with regulatory requirements, with findings of non-major issues that were addressed in a timely manner through PHCF's corrective action processes. The completion and update of FHAs for key PHCF buildings, closure of all FHA findings, and annual fire protection audits that were acceptable to CNSC staff provide further confidence that the licensee has effectively managed fire protection risks throughout 2017–2025.

3.10.3.2 Regulatory Focus

CNSC staff continue to monitor Cameco's performance in this SCA through regulatory oversight activities including inspections and desktop reviews of relevant program documentation.

3.10.3.3 Proposed Improvements

Emergency Preparedness and Response

Cameco is expected to continue maintaining and improving its emergency management program by incorporating lessons learned from drills, exercises, and events, as well as responding to changes in regulatory requirements. Ongoing activities include maintaining emergency response organization readiness, updating emergency preparedness documentation and training programs as required, and continuing joint training and exercises with off-site response agencies.

CNSC staff will continue to monitor the licensee's emergency management performance through routine compliance verification activities over the next licensing period.

Fire Protection

For the proposed licensing period, Cameco plans to maintain and periodically update the FHA for PHCF buildings to reflect configuration changes, lessons learned and evolving standards, and to continue implementing any residual low-significance recommendations as part of ongoing improvement. The licensee will continue to process fire-related design changes through its design/change control process, supported by third-party reviews, to demonstrate that modifications remain compliant with NBCC [6], NFCC [7], CSA N393 [10] and associated NFPA standards.

CNSC staff plan to continue conducting fire protection and emergency preparedness inspections, to review FHA updates, design change submissions and annual fire protection audits, and to engage with fire protection staff at PHCF on an ongoing basis to ensure that performance remains satisfactory.

3.10.4 Conclusion

CNSC staff have assessed Cameco's application, supporting documents and past performance under the Emergency Management and Fire Protection SCA. CNSC staff conclude that Cameco continues to implement and maintain effective emergency management and fire protection programs in accordance with regulatory requirements.

Two licence conditions are included in the proposed licence for this SCA. Licence condition 10.1 requires the licensee to implement and maintain an emergency preparedness program. Licence condition 10.2 requires the licensee to implement and maintain a fire protection program. Compliance verification criteria for both licence conditions are included in the draft LCH.

3.11 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 licensed site for storage, treatment, or disposal at another licensed location. This area also covers the planning for decommissioning.

The specific areas that comprise this SCA at PHCF include:

- waste characterization
- waste minimization



- waste management practices
- decommissioning plans

3.11.1 Trends

The following table indicates the overall rating trends for the Waste Management SCA over the current licensing period:

TRENDS FOR WASTE MANAGEMENT				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that the Waste Management SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR WASTE MANAGEMENT				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments.				

3.11.2 Discussion

Cameco has implemented and maintained a waste management program at PHCF to minimize the generation of waste at the facilities and dispose of waste and by-products in accordance with CNSC regulatory requirements. Cameco's FSD waste management program FSD-PGR-WM-01, PHCF waste management plan WMP-01 and Clean Up Program, WMP-02 describe how waste is managed throughout its lifecycle to the point of disposal. This includes waste generation, storage, processing, recycling, and removal/transfer activities. Cameco also maintains a preliminary decommissioning plan (PDP) for PHCF [25].

During the licence period, CNSC staff conducted compliance verification activities to evaluate Cameco's performance in the waste management SCA. These activities include inspections and reviews of annual reports and required submissions (e.g. PDP). CNSC staff have found that Cameco has met regulatory requirements and proposed or implemented satisfactory corrective actions to address any findings related to the waste management SCA.

Cameco has implemented the following REGDOCs and standards related to the waste management SCA:

- [REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste](#)
- CSA N292.0-19, *General principles for the management of radioactive waste and irradiated fuel* [26]
- CSA N292.3-14, *Management of Low and Intermediate Level Radioactive Waste* [27]
- [REGDOC-2.11.2, Decommissioning](#)
- CSA N294-19, *Decommissioning of Facilities Containing Nuclear Substances* [28]

Details pertaining to the specific areas within this SCA are presented in the following subsections.

Waste Characterization and Waste Management Practices

Cameco's waste management program governs activities to minimize, control, and properly dispose of radioactive, hazardous, and conventional waste. PHCF uses waste management procedures to ensure that waste generated at the facility is segregated at the source.

Radioactive waste at PHCF is categorized as low-level contaminated materials, recoverable uranium materials, conventional and hazardous waste in order to meet the waste acceptance criteria for the waste receiving facilities. Non-radioactive waste is further segregated as conventional waste or hazardous chemical waste. To segregate and reduce active waste volumes, LLW is sorted into solid and liquid contaminated waste.

Some materials, such as metal vessels, may be decontaminated on-site and the material released for recycling. Other wastes will require additional stages of characterization, processing, and/or determination of an appropriate outlet for disposal or recycling.

Waste Minimization

Cameco implements strategies to minimize waste, both by minimizing the volume of waste generated and reducing the quantity of generated radioactive waste. These goals are accomplished by utilizing waste segregation, volume reduction, and decontamination steps in the overall waste management process.

In accordance with [REGDOC-3.1.2](#), Cameco provides annual reports that include the type and volume of waste generated at the PHCF. During the licence period, CNSC staff have found that Cameco's reports met the requirements of REGDOC 3.1.2.

During the term of the current licence, CNSC staff conducted 2 inspections at PHCF focused on the waste management SCA, in 2018 and 2022. Enforcement actions from these inspections dealt with how Cameco managed legacy waste and labelling of containers. All findings from these inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

CNSC staff assessed the waste management program and associated supporting documentation submitted by Cameco with the licence renewal application for the SCA and found that Cameco's waste management program meets regulatory requirements.

Vision in Motion (VIM) Project

As indicated in section 1.2, Cameco plans to complete the VIM project during the upcoming licensing period. This is a project to carry out clean-up, remediation and renewal work at the PHCF and is being carried out under the existing Clean Up Program (CUP) at the PHCF.

The VIM project is intended to make the PHCF site more visually appealing and improve public access to the waterfront. VIM implementation entails the clean-up and demolition of a number of old or underutilized buildings, the removal of contaminated soils, building materials and stored wastes associated with Eldorado operations at the site from 1933-1988, a fenceline shift with land-transfer agreements, and the proposed construction of new replacement buildings, additions or modifications to existing buildings at the PHCF with associated landscaping and infrastructure [29, 30]. Legacy contaminated soils, building materials and other stored legacy wastes are transported to the CNL Port Hope Project LTWMF [31].

During the term of the current licence, Cameco implemented and significantly advanced the VIM project. The VIM project is executed in accordance with Cameco's corporate policies and procedures, and wastes are managed as per FSD waste management program FSD-PGR-WM-01, PHCF waste management plan WMP-01 and Clean Up Program, WMP-02. CNSC staff verify compliance on the VIM activities through reviews of the Annual VIM Supplemental reports and inspections.

Further discussion of the EA follow-up environmental monitoring commitments for the VIM project are provided under the SCA of Environmental Protection (section 3.9).

Decommissioning Plans

In accordance with licence condition 12.2 of the current licence (FFOL-3631.00/2027) [1], Cameco is required to maintain a decommissioning plan. The decommissioning plan must be reviewed and updated every 5 years, or when required by the Commission.

In September 2022, Cameco submitted a revised preliminary decommissioning Plan (PDP) [25], the associated cost estimate for decommissioning of PHCF and its proposal for updated financial guarantee. The updated PDP addressed the planning for decommissioning at the end of operation of the PHCF and Cameco's near-term clean-up activities under the VIM project.

CNSC staff reviewed the revised PDP against the criteria set in the [REGDOC-2.11.2, Decommissioning](#), CSA Standard N294-19, *Decommissioning of Facilities Containing Nuclear Substances* [28] and found that the revised PDP meets the applicable regulatory requirements and provides a credible basis for a decommissioning cost estimate. The associated financial guarantee for decommissioning is discussed in section 5.2 of this CMD.

3.11.3 Summary

A summary of the licensee's past performance, challenges and proposed improvements is presented in the following subsections.

3.11.3.1 Past Performance

Based on the review of Cameco's reports and submissions and CNSC routine compliance inspections, CNSC staff rate Cameco's overall performance for the Waste Management SCA as satisfactory for the current licence period.

3.11.3.2 Regulatory Focus

CNSC staff will continue to monitor Cameco's performance in this area through regulatory oversight activities including onsite inspections and desktop reviews of PHCF compliance reporting and revisions to relevant program documentation pertaining to this SCA.

3.11.3.3 Proposed Improvements

During the proposed licensing period, Cameco is expected to implement new and updated regulatory documents and standards related to the waste management SCA.

3.11.4 Conclusion

CNSC staff conclude that Cameco continues to meet regulatory requirements related to the waste management SCA. Based on CNSC staff's assessment of Cameco's application, supporting documentation, and performance during the licence period, Cameco's existing waste management programs are adequate for the proposed licence period, the conduct of decommissioning work, and the continued operation.

Two licence condition are included in the proposed licence for this SCA. Licence condition 11.1 requires the licensee to implement and maintain a waste management program. Licence condition 11.2 requires the licensee to maintain a decommissioning plan. Compliance verification criteria for this licence condition are included in the draft LCH.

As indicated under section 3.9.4, under the SCA for Environmental Protection, the nuclear facility-specific licence condition 15.1 is included in the proposed licence for the clean-up, decontamination, demolition and remediation work carried out at the PHCF, including planned clean-up activities under the VIM project. Compliance verification criteria for this licence condition are included in the draft LCH.



3.12 Security

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

The specific areas that comprise this SCA at PHCF include:

- facilities and equipment
- response arrangements
- security practices

3.12.1 Trends

The following table indicates the overall rating trends for the Security SCA over the current licensing period:

TRENDS FOR SECURITY				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that Cameco has implemented and maintained a security program that meets regulatory requirements under the GNSCR and Part 2 of the former Nuclear Security Regulations (SOR/2000-209) to prevent the loss, unauthorized removal and sabotage of nuclear substances, nuclear materials, prescribed equipment and prescribed information. The SCA received a satisfactory rating during the current licence period.				

TRENDS FOR SECURITY				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments for this SCA.				

3.12.2 Discussion

Cameco is subject to the [GNSCR](#), which provide obligations for licensees across all SCAs. Specific obligations that distinctly encompass the security SCA include:

- [GNSCR](#) p. 12(1)(c) *Every licensee shall take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances;*
- [GNSCR](#) p.12(1)(g) *Every licensee shall implement measures for alerting the licensee to the illegal use or removal of a nuclear substance, prescribed equipment or prescribed information, or the illegal use of a nuclear facility;*
- [GNSCR](#) p.12(1)(h) *Every licensee shall implement measures for alerting the licensee to acts of sabotage or attempted sabotage anywhere at the site of the licensed activity; and*
- [GNSCR](#) p.12(1)(j) *Every licensee shall instruct the workers on the physical security program at the site of the licensed activity and on their obligations under that program.*

Furthermore, sections 21 to 23 of the [GNSCR](#) provide obligations for all licensees on the identification, storage, handling, and transfer requirements of information designated as “prescribed information”.

[REGDOC-2.12.3, Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material, Version 2.1](#) provides regulatory expectations and guidance for licensees regarding the CNSC’s expectations under the [GNSCR](#) for security.

In addition to the regulatory requirements stipulated in the [GNSCR](#), this facility is subject to the requirements of the [Nuclear Security Regulations](#) (NSR) (SOR/2025-219), including the transitional provisions as set out in s. 107 of the NSR. The facility is identified as a named entity within Schedule 2 of the former Regulations (SOR/2000-209), and as such, will continue to be subject to Part 2 of the former Regulations during the 2-year transitional period.

3.12.3 Summary

A summary of the licensee’s past performance, challenges, regulatory focus and proposed improvements are presented in the following subsections.



3.12.3.1 Past Performance

Specific area performance evaluation for security is identified as security sensitive information and has been designated as Confidential – Prescribed Information. This information is not available for public release.

Facilities and Equipment

Cameco has maintained a security program that provides sufficient security systems and devices for the facility and the areas that involve the processing, use, or storage of nuclear substances. In addition, Cameco has identified processes for effectively testing and maintaining the security devices and assessment and detection systems.

Response Arrangements

Alarm detection and assessment systems are continuously monitored by onsite security staff. Cameco has established a response protocol with the Ontario Provincial Police to ensure timely off-site armed response, should a security-related incident occur.

Security Practices

CNSC staff assessed and verified Cameco's implementation of the physical protection program from the access control perspective. Measures for controlling access to persons and vehicles were assessed as meeting regulatory requirements.

The licensee has implemented a satisfactory Facility Access Security Clearance (FASC) process that includes a Criminal Record Name Check for individuals with the FASC. In addition, Cameco has a security awareness program for all PHCF staff and a supervisory awareness program for managers and supervisors to enhance capabilities in identifying and responding to changes in employee behaviour. The facility's physical protection program includes administrative and technical measures that meet current CNSC regulatory requirements for nuclear security.

During the current licence period, CNSC staff verified Cameco's performance with respect to security through inspections and desk top reviews. In total, CNSC staff conducted 3 security focused inspection of PHCF in 2019, 2022 and 2023. All enforcement actions associated with these inspections have been closed to CNSC staff's satisfaction. The facility has been operating in a manner compliant with CNSC requirements for the security SCA for the current licence period. CNSC



staff are satisfied that an effective security program has been implemented at the facility, and expect this to continue at PHCF.

3.12.3.2 Regulatory Focus

CNSC staff will continue to monitor Cameco's performance for the security SCA through regulatory oversight activities, including on-site inspections and technical assessments of relevant program documentation.

CNSC staff's expectations for Cameco's compliance with the security SCA include ensuring adequate provisions for the security of nuclear substances, the implementation of measures to alert the licensee to the illegal use or removal of nuclear substances, and sabotage or attempted sabotage, anywhere at the site, and that all workers will be instructed on the facility's security program and their obligations therein.

As of October 30th, 2025, the former Regulations (SOR/2000-209) were repealed and replaced by the NSR. The former regulations continue to apply for 2 years from the date of registration, during which the applicant will be required to implement any changes required to achieve compliance with the NSR. CNSC staff will monitor Cameco's progress during the implementation period to ensure compliance with the NSR is achieved by the end of the 2-year transitional period.

3.12.3.3 Proposed Improvements

Proposed improvements for the security SCA are evaluated as sensitive information and have been designated as Prescribed Information. This information is not available for public release.

3.12.4 Conclusion

CNSC staff confirmed that Cameco has met regulatory requirements for the security SCA throughout the licensing period, and that the performance rating of "Satisfactory" is supported. CNSC staff will continue to monitor and provide regulatory oversight of Cameco's implementation and operation of their security program.

One licence condition is included in the proposed licence for this SCA. Licence condition 12.1 requires the licensee to implement and maintain a security program. Compliance verification criteria for the licence condition are included in the draft LCH.



3.13 Safeguards and Non-Proliferation

The Safety and Control Area “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 other measures arising from the [*Treaty on the Non-Proliferation of Nuclear Weapons*](#).

The specific areas that comprise this SCA at PHCF include:

- nuclear material accountancy and control
- access and assistance to the IAEA
- operational and design information
- safeguards equipment, containment and surveillance
- import and export

3.13.1 Trends

The following table indicates the overall rating trends for the Safeguards and Non-Proliferation SCA over the current licensing period:

TRENDS FOR SAFEGUARDS AND NON-PROLIFERATION				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that the Safeguards and Non-Proliferation SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR SAFEGUARDS AND NON-PROLIFERATION				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments There are no additional comments for this SCA.				

3.13.2 Discussion

Pursuant to the [*Treaty on the Non-Proliferation of Nuclear Weapons*](#), Canada has entered into a Comprehensive Safeguards Agreement and an Additional Protocol (hereafter referred to as the safeguards agreements) with the IAEA. The objective of the safeguards agreements is for the IAEA to establish a set of measures that confirms nuclear material is not being diverted and that all nuclear activities are peaceful in nature.

The CNSC provides the mechanism, through the [*NSCA*](#), regulations and a licence condition, for the IAEA to implement the safeguards agreements at the PHCF. Conditions for the application of IAEA safeguards are contained in the licence. Criteria to meet the conditions are contained in the LCH and outlined in CNSC's [*REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy*](#).

To comply with the safeguards requirements, PHCF ensures the following:

- CNSC and IAEA are provided with required access, information, and support
- the site maintains trained personnel for material control and accountancy
- regulatory reports are prepared as required, and nuclear material accountancy records are maintained
- all inventory is tracked, and the required documentation for material movement is maintained

Cameco maintains a Safeguards and Nuclear Accountancy program document that meets the requirements of [*REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy*](#). PHCF's documentation describes considerations and measures taken to satisfy the regulatory requirements and expectations for the Safeguards and Non-Proliferation SCA.

3.13.3 Summary

A summary of the licensee's past performance, challenges and proposed improvements is presented in the following subsections.



3.13.3.1 Past Performance

Nuclear Material Accountancy and Control

CNSC staff determined that the facility complied with the CNSC's regulatory requirements in accordance with [REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*](#).

During this licensing period, PHCF continued to improve nuclear material accountancy, including through support for the CNSC's use of 3D laser scanning determinations of the contents in-process tanks and through a noted improvement in the annual physical inventory taking process.

Access and Assistance to the IAEA

CNSC staff determined that the facility granted adequate access and assistance to the IAEA for safeguards activities.

During the current licence period, the IAEA performed inspections and verifications that included 9 Physical Inventory Verifications, 17 Design Information Verifications and 46 short notice random inspections. During all activities, the facility provided the IAEA and the CNSC with the necessary access and assistance to perform the activities and complied with all regulatory requirements.

Operational and Design Information

The licensee submitted its annual operational programs, annual updates to the additional protocol, and other required information to the IAEA and the CNSC in a timely manner.

Safeguards Equipment, Containment and Surveillance

CNSC staff determined that the facility complied with CNSC's regulatory requirements on safeguards equipment, containment and surveillance in accordance with [REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*](#).

Import and Export

The scope of the non-proliferation program is limited to the tracking and reporting of foreign obligations and origins of nuclear material. CNSC staff determined that Cameco has complied with the CNSC's regulatory requirements in this respect.

The import and export of controlled nuclear substances, equipment and information identified in the [Nuclear Non-proliferation Import and Export Control Regulations](#) require separate authorization from the CNSC, consistent with section 3 (2) of the General Nuclear Safety and Control Regulations and subject to any restrictions or exemptions as described in the regulations. The guidance to seek such an authorization is provided in [REGDOC-2.13.2, Import and Export](#).

3.13.3.2 Regulatory Focus

PHCF continues to meet requirements in accordance with [REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy](#) while also improving nuclear material measurement and accountancy practices. CNSC staff will continue to monitor and evaluate the licensee's performance through participation in IAEA inspections. CNSC evaluations and ongoing assessments of compliance with licensing requirements.

3.13.3.3 Proposed Improvements

No improvements are proposed by CNSC staff for this SCA.

3.13.4 Conclusion

CNSC staff have assessed PHCF documentation under the safeguards and non-proliferation SCA and have found the documentation to be acceptable and compliant with regulatory requirements. CNSC staff concluded the overall performance of the SCA is satisfactory and Cameco is qualified to carry out the authorized activities in this SCA.

One licence condition is included in the proposed licence for this SCA. Licence condition 13.1 requires the licensee to implement and maintain a safeguards program. Compliance verification criteria for this licence condition are included in the draft LCH.

3.14 Packaging and Transport

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

The specific areas that comprise this SCA at PHCF include:

- package design and maintenance

- packaging and transport

3.14.1 Trends

The following table indicates the overall rating trends for the Packaging and Transport SCA over the current licensing period:

TRENDS FOR PACKAGING AND TRANSPORT				
Overall Compliance Ratings				
2017	2018	2019	2020	2021
SA	SA	SA	SA	SA
Comments CNSC staff conclude that the Packaging and Transport SCA at PHCF met regulatory requirements and the SCA received a satisfactory rating during the current licence period.				

TRENDS FOR PACKAGING AND TRANSPORT				
Overall Compliance Ratings				
2022	2023	2024	2025	
SA	SA	SA	SA	
Comments No additional comments.				

3.14.2 Discussion

The following publications contain regulatory requirements that are applicable over the current licensing period:

- [*Transportation of Dangerous Goods Regulations*](#) (TDGR)
- [*Packaging and Transport of Nuclear Substances Regulations, 2015*](#) (PTNSR)

The [PTNSR](#) apply to the packaging and transport of nuclear substances, including the design, production, use, inspection, maintenance and repair of packages, and the preparation, consigning, handling, loading, carriage and unloading of packages.

Cameco is required to have appropriate training for personnel involved in the handling, offering for transport and transport of dangerous goods, and is required to issue a training certificate to those workers in accordance with the [TDGR](#).

CNSC staff conclude that Cameco has conducted packaging and transportation activities in accordance with regulatory requirements over the current licence period.

3.14.3 Summary

A summary of the licensee's past performance, challenges and proposed improvements is presented in the following subsections.

3.14.3.1 Past Performance

Cameco has implemented the Cameco FSD packaging and transport program to ensure all shipments leaving its facility are in compliance with the [PTNSR](#) and the [TDGR](#). PHCF's packaging and transport program covers elements of packaging and transport and package design and maintenance as required by the regulations. Details of CNSC staff's assessment are presented in the following paragraphs.

In the current licence period, there were 18 events reported under the [PTNSR](#) for consignments related to the PHCF, and none of them resulted in a risk to the health and safety of persons or the environment. The required event reports were submitted in accordance with the regulatory requirements. CNSC staff have reviewed all reports and found the corrective actions satisfactory.

The reported events primarily involved minor transportation incidents, most of which had no impact on the packages themselves but still required reporting. Events were related to packaging or closure deficiencies, such as loose valves, a punctured drum lid, or incorrectly closed excepted packages, and one was a low-level contamination event. For all the events, there was no release of nuclear substances.

During the current licence period CNSC staff completed 2 Packaging and Transport inspections at the PHCF in 2017 and 2022. All findings from these



inspections were considered to have low safety significance and all enforcement actions associated with these inspections are closed to CNSC staff's satisfaction.

3.14.3.2 Regulatory Focus

CNSC staff will continue to monitor Cameco's compliance with regulatory requirements for the packaging and transport SCA through onsite inspections and reviews of annual compliance reporting and packaging and transportation program updates.

Note that "package" and "transport" have been removed from Part IV (ii) of the proposed licence, since those activities do not require a licence under the [NSCA](#) and associated regulations. Section 26 of the [NSCA](#) subjects PHCF to the [PTNSR](#), where subsection 6 (1) of the [PTNSR](#) states that a person may transport a nuclear substance without a licence issued under subsection 24 (2) of the [Act](#) for that purpose, except for 6 conditions (paragraphs 6 (1) (a) to (f) of the [PTNSR](#)). CNSC staff have determined that the conditions that would require a licence under paragraphs 6 (1) (a) to (f) of the [PTNSR](#) do not apply to the PHCF activities.

This change would not have an impact on the licence conditions or the licence conditions handbook as the licensee would still be required to implement and maintain a packaging and transport program as per Licence condition 14.1.

3.14.3.3 Proposed Improvements

The current programs at PHCF for this SCA are considered acceptable and no improvements within this SCA are proposed.

3.14.4 Conclusion

CNSC staff conclude that Cameco meets the requirements covered under the packaging and transport SCA. The licensee's performance remained satisfactory in the area of packaging and transport throughout the current licence period.

One licence condition is included in the proposed licence for this SCA. Licence condition 14.1 requires the licensee to implement and maintain a packaging and transport program. Compliance verification criteria for this licence condition are included in the draft LCH.

4 Consultation and Engagement

4.1 Indigenous consultation and engagement

The common-law duty to consult with Indigenous Nations and communities applies when the Crown contemplates actions that may adversely affect potential or established Indigenous and/or treaty rights. The CNSC ensures that all of its licensing decisions under the [NSCA](#) uphold the honour of the Crown and uphold Indigenous peoples' potential or established Indigenous and/or treaty rights pursuant to section 35 of the [Constitution Act, 1982](#). When assessing whether to recommend to the Commission that duty to consult obligations are raised, CNSC staff's considerations include but are not limited to considering Indigenous Nations' and communities' established or asserted rights pertaining to lands and waters in relation to the facility and the expected and/or potential impacts of the activities conducted on the site in accordance with a CNSC issued licence.

The CNSC ensures that its approach to consultation and engagement is aligned and consistent with the [United Nations Declaration on the Rights of Indigenous Peoples](#) (UN Declaration) and the [United Nations Declaration on the Rights of Indigenous Peoples Act](#) (UNDA). The UN Declaration and UNDA must be considered when the Commission is assessing the duty to consult and accommodate, as the UN Declaration is an added contextual layer that informs the scope and content of the duty to consult and accommodate.

[REGDOC-3.2.2, *Indigenous Engagement*](#), sets out requirements and guidance for licensees whose proposed projects may raise the Crown's duty to consult. While the CNSC cannot delegate its obligation, it can delegate procedural aspects of the consultation process to licensees, where appropriate. The information collected and measures proposed by licensees to avoid, mitigate, or offset potential adverse impacts from the proposed licence renewal may be used by CNSC staff in meeting its consultation obligations.

CNSC Staff's Consultation and Engagement Activities

CNSC staff are committed to building long-term relationships with Indigenous Nations and communities who have rights and interests in CNSC-regulated facilities within their traditional and/or treaty territories. The CNSC's Indigenous consultation and engagement practices include sharing information, discussing topics of interest, seeking feedback and input on CNSC processes, and providing



opportunities to participate in environmental monitoring programs, such as the CNSC's IEMP.

Independent environmental monitoring was conducted at the PHCF site during the licence period in 2017, 2020 and most recently in 2024. CNSC staff reached out to, engaged and collaborated with interested Indigenous Nations with regards to IEMP sampling near the PHCF facility. The CNSC also provided funding support, through its Participant Funding Program (PFP) and Indigenous and Stakeholder Capacity Fund, for Indigenous peoples to meaningfully participate in Commission proceedings and ongoing regulatory activities.

4.1.1 Discussion

CNSC staff identified several Indigenous Nations and communities that may have an interest in PHCF's licence renewal application, due to the proximity of their communities, treaty areas and traditional territories to the PHCF in Port Hope, Ontario, or due to previously expressed interest in being informed of CNSC licencing activities occurring in or near to their territories or communities.

The Indigenous Nations and communities listed below have been identified based on analysis conducted by CNSC staff using the Aboriginal and Treaty Rights Information System and other mapping tools, as well as through a review of existing CNSC and open resources including records of Indigenous Nations and communities who may have expressed interest in the PHCF in the past. Should other Indigenous Nations and communities not included in the list identify interest in the licence application moving forward, they will be added as appropriate.

Indigenous Nations and communities with potential or established rights in relation to the PHCF include:

- Alderville First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation
- Chippewas of Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation (Mnjikaming)

Indigenous Nations and communities with interest in the renewal of the PHCF include:



- Métis Nation of Ontario
- Mohawks of the Bay of Quinte

The CNSC has signed Terms of Reference (TOR) for long-term engagement with the Mississaugas of Scugog Island First Nation, Curve Lake First Nation, Hiawatha First Nation and the Métis Nation of Ontario. The CNSC also has regular engagement and meetings with Alderville First Nation and have offered to develop a TOR for long-term engagement with Alderville First Nation. The CNSC is open to developing TORs for long-term engagement with other Indigenous Nations and communities as appropriate.

A licence renewal notification email was sent to all identified Indigenous Nations and communities on December 23, 2025. These emails informed the identified Indigenous Nations and communities that the CNSC had received PHCF's licence renewal application. CNSC staff sent a licence renewal notification letter to all identified Indigenous Nations and communities on February 13, 2026. The notification letter which provided details about the licence renewal application, opportunities to participate in the Commission's hearing process, and information about the CNSC's PFP to facilitate participation in the Commission hearing and regulatory review process.

CNSC staff offered to meet with all identified Indigenous Nations and communities to discuss the application and provide information regarding the Commission hearing process and answer any questions about the licence renewal application. CNSC staff attended regular meetings with Alderville First Nation, Mississaugas of Scugog Island First Nation, Hiawatha First Nation and Curve Lake First Nation to discuss the application and answer their questions.

CNSC staff followed up with the identified Indigenous Nation and communities via email on March 19, 2026, to provide a reminder regarding participant funding application deadlines. All of the identified Indigenous Nations and communities have been encouraged to participate in the regulatory review process and in the Commission hearing through interventions to advise the Commission directly of any concerns they may have in relation to this licence renewal application.

On March 19, 2026, CNSC staff were informed by Curve Lake First Nation and Hiawatha First Nation that they had provided letters to Cameco in February 2026 in response to Cameco's notification of the PHCF licence renewal application. CNSC staff subsequently met with both Nations to better understand the issues raised in their correspondence.



To date, Curve Lake First Nation and Hiawatha First Nation have expressed concerns regarding the level of detail and depth of information provided by Cameco in relation to the licence renewal application. Curve Lake First Nation also indicated an interest in having opportunities to provide input on engagement-related materials developed by Cameco that describe engagement activities between Cameco and Curve Lake First Nation. Both Nations emphasized the importance of meaningful engagement and ongoing information sharing throughout the licence period.

CNSC staff have raised these concerns with Cameco and continue to encourage them to work with the Nations to determine whether the information being shared meets their needs and expectations. CNSC staff and Cameco are planning to meet on July 15, 2026, to further discuss the concerns raised by both Nations and seek information on any actions taken or plans to address them by Cameco. CNSC staff will continue to follow up with the Nations regarding the adequacy of information shared by Cameco and any progress made in addressing their concerns.

On April 1, 2026, CNSC staff met with Chippewas of Georgina Island First Nation to provide an overview of the licence renewal application and discuss the Participant Funding Program (PFP) application process. CNSC staff subsequently held a telephone discussion with the Chippewas of Georgina Island First Nation on April 20, 2026, during which the Nation confirmed that it would not be submitting a PFP application for the PHCF licence renewal. Following the discussion, CNSC staff shared information regarding the CNSC's Capacity Fund for future consideration.

Mississauga First Nation (MFN) submitted an application to the PFP which identified concerns related to the PHCF preliminary decommissioning plan and the storage of waste at the Blind River Refinery. CNSC staff provided participant funding to support MFN's involvement in the licensing and Commission hearing process. On May 22, 2026, CNSC staff notified MFN of adjustments to the approved funding allocation. CNSC staff have followed-up with MFN and offered to meet to discuss its interests and concerns relating to the PHCF licence renewal application.

CNSC staff remain committed to working with the the identified Indigenous Nations and Cameco, as appropriate, to facilitate information sharing and working towards responding to and addressing concerns raised during the



engagement process. Engagement between Cameco and the identified Nations remains ongoing. CNSC staff meet monthly with Cameco and continue to monitor engagement activities and follow up on issues raised by Nations. CNSC staff have emphasized the importance of meaningful, ongoing engagement with Indigenous Nations and communities throughout the licensing period, consistent with Licence Condition G.4 (Public Information and Disclosure Program) outlined in the Licence Conditions Handbook.

Identified Indigenous Nations and communities have been encouraged to continue sharing their views and concerns with CNSC staff and the Commission through ongoing engagement and discussions, where applicable, and through interventions submitted as part of the Commission hearing process. CNSC staff are committed to working with each Nation individually to better understand and address concerns through ongoing dialogue and collaboration, including regular relationship meetings, project-specific discussions, email correspondence, and other engagement activities based on each Nation's interests and needs regarding the PHCF licence renewal application and ongoing operations..

Licensee Engagement Activities

Cameco has submitted an Indigenous Engagement Report to inform CNSC staff of their engagement efforts in relation to their PHCF licence renewal application. Cameco provided information with regards to which Indigenous Nations and communities Cameco identified for engagement, an overview of engagement activities conducted, description of planned future engagement activities, and proposed a schedule for interim reporting to the CNSC. Cameco has noted that they have identified Curve Lake First Nation, Alderville First Nation, Hiawatha First Nation, and Mississauga of Scugog Island First Nations as a primary audience due to their proximity to the operations in Port Hope. Cameco noted they engage with all Williams Treaty First Nations, and the Mohawks of the Bay of Quinte by sharing compliance reports and publications. Cameco also noted the Chippewas of Rama First Nation, Chippewas of Beausoleil First Nation, Chippewas of Georgina Island First Nation, Mohawks of the Bay of Quinte and the Métis Nation of Ontario-Region 6 have not requested further information or engagement.

Cameco's application does not propose changes to the existing operations or authorized activities at the PHCF and therefore is unlikely to cause new adverse impacts to the exercise of potential or established Indigenous and/or treaty rights. Over the course of the PHCF's licencing period, the licensee has met their



regulatory requirements for Indigenous engagement. Cameco has engaged with Indigenous Nations via email, letters and meetings to share information regarding licencing activities, ongoing site operations, and sharing compliance and monitoring reports.

Cameco has formalized agreements with Curve Lake First Nation and Mississaugas of Scugog Island First Nation to support relationship building and focus on mutually agreed upon areas of interest. Cameco noted that both Nations were provided information regarding the licence renewal in advance of the application being submitted in September 2025. Cameco invited both Nations to review the Indigenous engagement section of the application to ensure that the respective relationship was represented accurately and that both parties had an opportunity to review and provide feedback on statements made by Cameco.

CNSC staff are satisfied with Cameco's engagement activities to date and recommend that Cameco continue its efforts to enhance Indigenous engagement programs and activities throughout the proposed licencing term. CNSC staff also recommend that Cameco continue engaging with Indigenous Nations that have expressed interest in their operations and activities.

4.1.2 Conclusion

Based on the information in Cameco's application reviewed to date, CNSC staff conclude that Cameco's requested licence renewal is unlikely to cause new adverse impacts to any potential or established Indigenous and/or Treaty rights, as it would not change the PHCF site characterization or lead to new offsite impacts. Accordingly, staff conclude that the application is unlikely to raise the duty to consult. For this licence renewal application, both Cameco and the CNSC conducted engagement activities with Indigenous Nations and communities, to ensure that each Nation has the ability to express any specific issues or concerns with regards to the licence renewal application and participate in the regulatory review process including the Commission hearing. The CNSC is committed to meaningful, ongoing engagement and collaboration with Indigenous Nations and communities that have an interest in the PHCF and activities and encourages Cameco to continue to engage with all identified and interested Indigenous Nations and communities during their licensing term and other ongoing activities of interest.

4.2 Public consultation and engagement

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

4.2.1 Discussion

In accordance with section 17 of the [Canadian Nuclear Safety Commission Rules of Procedure](#), a [Notice of Public hearing](#) was issued and posted on the CNSC website on January 26, 2026, inviting written comments and requests for appearances before the Commission. CNSC staff also informed the public of PHCF's application, the public Commission hearing, and participant funding availability, via the CNSC's website, email subscription list, and social media channels.

CNSC staff have annually reported to the Commission, the public and Indigenous Nations and communities on the regulatory oversight of all the nuclear processing facilities, including the PHCF facility. The list of past regulatory oversight reports is available on the CNSC's [website](#). The public and Indigenous Nations and communities have the opportunity to review, question and comment on the regulatory oversight report. Through CNSC's PFP, financial support was made available for participation in this licence renewal CMD (see section 4.4). As part of the reinventing regulatory oversight reporting work that is being undertaken by CNSC staff, collaboration will take place with Indigenous Nations and communities to determine how to meaningfully engage moving forward. This includes identifying engagement opportunities for Nations with CNSC staff, as well as the Commission.

CNSC staff is anticipating holding a public webinar in August 2026 and a second webinar for Indigenous Nations and communities in August 2026. These webinars will be after submission of the CMD to the CNSC registrar and will be to discuss Cameco's application, staff's assessment and the public hearing process. Awareness for the webinar will be ensured by posting notification to the CNSC website, an email to CNSC's subscribers, direct emails to Indigenous Nations and communities and promotion on CNSC social media. In addition, CNSC staff will be sending a public service announcement to local Port Hope radio stations for broadcast. Staff will also be providing written notice to local and regional media outlets to inform them of the Commission hearing.

Finally, CNSC staff engage directly with the public of Port Hope by attending events within the community (e.g., annual Port Hope Fall Fair) on a regular basis. At these events, CNSC staff organize information booths and provide informative materials to the public, as well as answer any questions the public may have about CNSC and the facilities it regulates, including PHCF. Recently, during the relicensing period of PHCF, staff attended the Float Your Fanny Down the Ganny community event on April 11, 2026, and will be attending the Port Hope Fall Fair, between September 18 and 20, 2026.

4.2.2 Conclusion

The CNSC is committed to keeping interested communities informed of regulatory activities occurring in regard to the PHCF and will continue to look for ways to enhance the involvement of interested groups. CNSC staff continue to inform Indigenous Nations and communities and the public of our regulatory activities through regular website updates, publicly webcast Commission proceedings, social media, public webinars and regular discussions with key audiences near the PHCF. CNSC staff encourage the public and Indigenous communities to participate in Commission proceedings. PFP is offered to assist interested members on the public and Indigenous Nations and communities to prepare for and participate in Commission proceedings.

4.3 Licensee 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 public information program, as it relates to the licensed activities, 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. As a component, where the public has indicated an interest to know, the program shall include a commitment to and protocol for ongoing, timely communication of information related to the licensed facility during the course of the licence period.

In the case of licence renewals, licensees and applicants shall describe how the public information program and its disclosure protocol builds upon past activities

and how the program will be updated to address the communication needs of their target audiences during upcoming licensing periods.

The public information program and its disclosure protocol shall be commensurate with the public's perception of risk and the level of public interest in the licensed activities, which may be 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.

4.3.1 Discussion

Cameco has a comprehensive, PIDP in place for all 3 of its sites including the PHCF. Its public communications program is fulsome and uses various means of communication to effectively reach diverse audiences. These include, but are not limited to tours, social media (Facebook, X and Instagram), advertising, public inquiries, websites and booths with promotional material at conferences and events.

As part of Cameco's disclosure protocol, environmental incidents and notable events are posted on the website with details such as incident date, posting date and corrective action taken.

Public polling is conducted every 2 years to identify and describe community and public views, opinions and concerns in relation to the licensed activities. Cameco tailors its communications to reflect the needs and interests of its various audiences, adapting messaging to address topics of relevance and concern.

4.3.2 Conclusion

CNSC staff are satisfied that Cameco has a satisfactory public information and disclosure program that meets CNSC regulatory requirements and that information related to the health, safety and security of persons and the environment, and other issues associated with the lifecycle of the facility is being effectively communicated to the public.

One standardized licence condition is included in the proposed licence. Licence condition G.4 requires that the licensee implement and maintain a PIDP.



Compliance verification criteria for this licence condition is included in the draft LCH.

4.4 Participant funding program

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

1. enhance individual, not-for-profit organization and Indigenous Nations and Communities participation in the CNSC's environmental assessment (EA) and licensing processes for major nuclear facilities (e.g., uranium mines, nuclear power plants, nuclear substance processing, or nuclear waste facilities)
2. assist individuals, not-for-profit organizations and Indigenous Nations and Communities to bring value-added information to the Commission through informed and topic-specific interventions related to EAs and licensing (i.e., new, distinctive and relevant information that contributes to a better understanding of the anticipated effects of a project)

4.4.1 Discussion

The CNSC awarded participant funding through its PFP to assist Indigenous Nations, communities and organizations, members of the public and interested parties in participating in the regulatory review process for PHCF's application to renew its licence and providing value-added information to the Commission through informed and topic-specific interventions.

A Funding Review Committee reviewed the funding applications received, and made recommendations on the allocation of funding to eligible applicants.

Based on recommendations from the Funding Review Committee, the CNSC awarded \$90,780.72 to the following recipients:

- Alderville First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation
- Mississauga First Nation
- Port Hope Community Health Concerns Committee

The details of this offering can be found in the online announcement [here](#).

4.4.2 Conclusion

Through the PFP, the CNSC has provided funding to assist interested members of the public, Indigenous Nations and communities, and interested parties to prepare for and participate in the Commission's public hearing.

5 Events and other matters of regulatory interest

5.1 Cost recovery

Paragraph 24(2)(c) of the [NSCA](#) requires that a licence application is accompanied by the prescribed fee. The [CNSC Cost Recovery Fees Regulations](#) (CRFR) set out the specific requirements based on the activities to be licensed. An applicant for a Class I facility licence is subject to Part 2 of CRFR, which is based on Regulatory Activity Plan fees.

5.1.1 Discussion

CNSC staff confirmed that Cameco is in good standing with respect to CRFR requirements for the PHCF and has paid its cost recovery fees in full. CNSC staff do not have concerns regarding payment of future cost recovery fees for this licensee.

5.1.2 Conclusion

Based on previous performance there are no concerns over the payment of future cost recovery fees.

CNSC staff's assessment is that there is no requirement for any additional licensing activity or any additional licence conditions.

5.2 Financial guarantees

Under subsection 24(5) of the NSCA; a licence may contain any term or condition that the Commission considers necessary for the purposes of this Act, including a condition that the applicant provide a financial guarantee in a form that is acceptable to the Commission. [GNSCR](#), paragraph 3(1)(l) stipulates that, "an application for a licence shall contain a description of any proposed financial

guarantee related to the activity for which a licence application is submitted.” The financial guarantee for decommissioning is established to fund the activities described in the preliminary decommissioning plan (PDP). These requirements are found in [REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*](#).

5.2.1 Discussion

In accordance with licence condition 1.3 of the current licence (FFOL-3631.00/2027) [1], Cameco is required to maintain a financial guarantee for decommissioning of PHCF that is acceptable to the Commission. The financial guarantee must be reviewed and updated every 5 years, or when there are material changes to the licensee’s operational activities.

In September 2022, Cameco submitted a revised preliminary decommissioning Plan (PDP), the associated cost estimate for decommissioning of PHCF and its proposal for updated financial guarantee. CNSC staff reviewed the revised PDP, cost estimate and financial guarantee against the criteria set in CNSC [REGDOC-2.11.2, *Decommissioning*](#), CSA Standard N294-19, *Decommissioning of Facilities Containing Nuclear Substances* [28] and CNSC [REGDOC-3.3.1](#) respectively and found that the proposed financial guarantee is adequate for decommissioning of PHCF. A summary of the PDP can be found at the [Cameco Fuel Services Media Library](#).

On May 7, 2024, the Commission accepted the revised financial guarantee of C\$138.2 million to cover the cost for the PHCF decommissioning [32]. The financial guarantee is in the form of an irrevocable letter of credit.

PHCF is required to confirm annually that the financial guarantee remains sufficient and in effect in its annual compliance report and did so for 2025.

5.2.2 Conclusion

Cameco maintains a financial guarantee for PHCF in accordance with regulatory requirements, which was accepted by the Commission in 2024. CNSC staff is satisfied that PHCF’s current financial guarantee will remain adequate for the activities included in the proposed licence renewal.

One licence condition is included in the proposed licence for this SCA. Licence condition G.3 requires the licensee to maintain a financial guarantee for

decommissioning that is acceptable to the Commission. Compliance verification criteria for this licence condition are included in the draft LCH.

5.3 Improvement plan and significant future activities

5.3.1 Discussion

Cameco maintains a Clean Up Program (CUP) for reducing environmental liabilities, addressing health and safety hazards in underutilized buildings, creating useable space and improving the appearance of the facility. This program covers the removal of unutilized buildings, equipment, contaminated soils, building materials, and wastes at the facility. In the current licence term Cameco continued to implement CUP and began implementation of the Vision in Motion Project (VIM). In the next licensing period Cameco will continue to remediate PHCF through the VIM project. It is anticipated that the VIM project will conclude by 2029.

Cameco has not identified any other significant future activities or improvements for the next licence period.

5.3.2 Conclusion

CNSC staff have no concerns or recommendation with respect to this matter.

5.4 Nuclear liability insurance

The [*Nuclear Liability and Compensation Act*](#) (NLCA) establishes civil liability and compensation provisions for damages resulting from a nuclear incident. The PHCF is identified as a nuclear installation in Schedule 2 of the [*Nuclear Liability Compensation Regulations*](#) (NLCR) and is therefore required to maintain valid insurance for the liability amount defined in those regulations.

5.4.1 Discussion

The [*NLCA*](#) is administered by Natural Resources Canada (NRCan). However, the CNSC, prior to granting a licence to operators, ensures that applicants have the required financial security in place to cover their respective liability amount, as established by the [*NLCA*](#) and [*NLCR*](#).

Cameco has maintained valid nuclear installation liability insurance under the [NLCA](#) for the duration of PHCF's current licence period, and has provided CNSC staff a certificate of insurance to demonstrate that its liability insurance remains valid.

5.4.2 Conclusion

CNSC staff are satisfied that Cameco is in compliance with its obligation under the NLCA and has the requisite third-party (civil) liability financial security for the PHCF.

5.5 Delegation of authority

The Commission may include in a licence any condition it considers necessary for the purposes of the [NSCA](#). The Commission may delegate authority to CNSC staff with respect to the administration of licence conditions, or portions thereof.

There is 1 proposed licence conditions in the proposed PHCF licence, FFL-3631.00/2047 that contains the phrase "the Commission or a person authorized by the Commission":

- LC 3.2 - The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.

CNSC staff recommend the Commission delegate its authority for the purposes described in the above licence conditions to the following staff:

- Director, Nuclear Processing Facilities Division
- Director General, Directorate of Nuclear Cycle and Facilities Regulation
- Vice President, Advanced Reactor Technology and Nuclear Facility Regulation

5.6 Proposed Licence Term

The current licence was issued for a period of 10 years. In its application Cameco requested that its Class 1B fuel facility licence (FFOL-3631.00/2027) be renewed for a period of 20 years.

5.6.1 Discussion

Cameco's basis for requesting a 20-year licence period

In a supplemental letter [3], Cameco provided the following justifications in support of the request for a 20-year licence term:

- Cameco has over 35 years of operating experience at PHCF.
- The hazards associated with PHCF are well understood and mitigated.
- Cameco assesses these hazards on a regular basis via studies such as the safety analysis report, the environmental risk assessment and the fire hazard assessments.
- Cameco has a mature management system program.
- Cameco maintains effective programs in all the safety and control areas. and has a facility change control process for physical changes to the facility.
- The CNSC has a standardized licence and LCH framework which provides for effective regulatory oversight of facilities. At PHCF, this included successfully implementing new or updated regulatory documents and CSA standards during the current licence term.
- Cameco reports on the compliance of the facility through annual and quarterly compliance reports.
- CNSC verify compliance with requirements through desktop reviews, inspections and event reviews.

CNSC assessment

In 2002, following the coming into force of the [NSCA](#), and the evolution of CNSC's licensing process and regulatory framework, CNSC staff reviewed the feasibility of granting longer term licences. As an outcome of this review, CNSC staff developed an approach to recommending appropriate licence periods, which was based on benchmarking with international practices. This approach is outlined in [CMD 02-M12 New Staff to Recommending Licence Periods \(CMD 02-M12\)](#) and was presented to the Commission in March 2002 [33]. CMD 02-M12 provides a risk-informed process that has been used by CNSC staff to support recommendations regarding licence periods to the Commission in the past.

More recently, CNSC has received applications from licensees requesting renewal of licences with terms in excess of 10 years. In the past few years, the Commission has granted a 20-year licence to CFM, McMaster, and the RMC SLOWPOKE research reactor. In addition, the Commission granted 20-year licences to Cameco Corporation for its McArthur River, and Key Lake Operations and a 25-year licence to Nordion. These decisions identified requirements for either 1 or 2 midterm performance updates.

CNSC staff reviewed Cameco's licence term request for PHCF against the criteria from CMD 02-M12 [33] and assess that a 20-year licence period is reasonable based on those criteria. This review is summarized in Table 17 below. In addition to the criteria listed in Table 17, CNSC staff incorporated other considerations before arriving at a recommendation on the proposed licence period. These include considerations of the international approach to fuel cycle facility licensing, periodic safety review, aging management, CNSC's regulatory oversight framework, ongoing communication and engagement during the licence term, and ongoing Commission engagement opportunities. These considerations are discussed in the subsections below.

Table 17: CNSC staff assessment of the proposed 20-year licence term against CMD - 02-M12 Criteria

CMD 02-M12 Licence Period Criteria	CNSC Staff Assessment of the Criteria for PHCF
<i>The recommended duration of the licence should be commensurate with the licensed activity.</i>	Cameco has safely operated PHCF's UF₆ and UO₂ production for over 35 years. In its licence application PHCF has not requested any changes to the specific activities authorized by the licence (see section IV of the current and proposed licence in Appendix C of this CMD). There is no specific limitation on the licence term based on the licensed activity or facility life stage. The Preliminary Decommissioning Plan does not identify an end date for the facility. CNSC staff's assessment is that the recommended licence term is commensurate with the licensed activity.
<i>A longer licence period can be recommended when the hazards associated with the licensed activity are well characterized and their impacts well predicted, and they are within the scope considered in the environmental safety case.</i>	Cameco has characterized and mitigated hazards associated with facility operations through the implementation of control measures that ensure adequate measures are in place to protect the health and safety of persons and the environment. Cameco systematically assesses risk using risk analysis tools to ensure sustainable and safe operation. These tools include hazards and operability assessments (HAZOPs); job hazard analysis (JHAs); and field level risk assessments (FLRAs). These measures are used to assess new tasks, processes, or equipment.



	Key documents describing the PHCF safety case include the Safety Analysis Report, Environmental Risk Assessment, Derived Release Limit Report, and Fire Hazard Assessments. These documents are part of the licensing basis and PHCF is required to review each at a minimum 5-year frequency, or fewer if there are significant changes to the facility, to ensure safety measures remain current and appropriate. CNSC staff have prepared an Environmental Protection Review Report (Appendix E) which provides an assessment of Cameco's environmental protection measures for the purpose of confirming whether Cameco provides adequate protection for the environment and health of persons. CNSC staff's assessment is that PHCF's environmental protection measures provide adequate protection for the environment and health of persons, and will continue to do so in the future. CNSC staff will continue to verify and ensure that, through ongoing licensing and compliance activities and reviews, the environment and the health of persons are protected.
<i>A longer licence period can be recommended when licensees have in place a management system, such as a quality assurance program, to provide assurance that their safety-related activities are effective and maintained.</i>	Cameco has a management system that meets the requirements of CSA N286-12 [4]. During the current licence term, CNSC staff conducted 4 management system focused inspections at PHCF and found that it meets the requirements of CSA N286-12. Cameco regularly monitors, audits and reports on implementation of programs and their supporting procedures and processes to ensure they are suitable and effective. Cameco has an effective design and change control process to ensure changes are reviewed and approved prior to implementation. Cameco's performance over the current licence period provides further demonstration that effective programs are maintained to ensure safety while performing licensed activities. CNSC staff's assessment is that Cameco has in place a management system to provide assurance that the safety-related activities are effective and maintained.
<i>A longer licence period can be recommended when effective</i>	Cameco has established programs describing the implementation of control measures to ensure that facility operations remain in compliance within its licensing basis. CNSC



<i>compliance programs are in place on the part of both the applicant/licensee and the CNSC.</i>	staff have reviewed these programs to confirm regulatory expectations are being met. In accordance with the change notification process defined in the LCH, CNSC staff are notified of revisions to licensing basis documents, which triggers CNSC review to ensure compliance with the licensing basis is not adversely impacted. During the current licence period, CNSC staff formalized expectations and added additional requirements through publication of new/revised regulatory documents and adoption of the new standards. In each case, Cameco has reviewed and revised its programs where necessary to implement these requirements. The CNSC has a robust and effective compliance verification program to ensure there is adequate regulatory oversight over the licensed activities at PHCF. CNSC staff verify compliance through desktop reviews, inspections and event reviews. CNSC has established and implemented a compliance strategy for PHCF, which identifies a risk-informed frequency for inspections of each SCA. In total, CNSC staff conducted 42 inspections at PHCF since the beginning of the current licence term in 2017 (Appendix D). In addition to program documentation reviews, CNSC performs desktop reviews of quarterly and annual compliance reports submitted by Cameco in accordance with requirements specified in the LCH. CNSC staff also review event reports, which are submitted by Cameco in accordance with requirements specified in REGDOC-3.1.2. CNSC staff review these reports to verify that Cameco implements appropriate corrective actions, where necessary, to prevent recurrence and ensure that adequate provisions ensuring protection of the health and safety of persons and the environment remain in place. CNSC staff's assessment is that effective compliance programs are in place for Cameco and the CNSC.
<i>A longer licence period can be recommended when the licensee has shown a consistent and good history of operating</i>	CNSC staff review and assess licensee performance on an ongoing basis. During the current licence period CNSC staff rated Cameco's performance as satisfactory across all SCAs since 2018. In 2017, there was one below expectation rating in the area of Management System. This is discussed in Section 3.1,



<i>experience and compliance in carrying out the licensed activity.</i>	on Management Systems. All other SCAs were satisfactory in 2017. These ratings and other compliance highlights have been published and reported to the Commission in public meetings, through the Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities. As described in this CMD, Cameco has demonstrated satisfactory performance over the current licence period and has conducted operations in accordance with its licensing basis. Worker doses and doses to the public have been kept below regulatory limits at all times (sections 3.7 and 3.9), and releases to the environment have been maintained at a small fraction of the licensed release limits (section 3.9). Cameco has reported events as per the requirements described in REGDOC-3.1.2. CNSC staff are satisfied with Cameco's reporting and response to events during the current licence period. CNSC staff's assessment is that Cameco has shown a consistent and good history of operating experience and compliance in carrying out the licensed activity.
<i>The licence period must be consistent with the requirements of the CNSC Cost Recovery Fees Regulations.</i>	As per section 5.1, Cameco is currently in good standing with the CNSC Cost Recovery Fees Regulations.
<i>The licence period should take account of the planning cycle of the facility and the licensee's plans for any significant change in licensed activity.</i>	Cameco has conveyed its intent to continue to operate the facility for the production of UF₆ and UO₂. In its application, Cameco stated that no new activities and no changes to the specific activities authorized by the current licence have been proposed. Cameco's VIM will continue into the next licence, if granted by the Commission. It is expected that the Preliminary Decommissioning Plan will be updated at the conclusion of VIM in 2029 and that the preliminary decommissioning cost estimate is expected to decrease. Cameco expressed that a longer licence term would facilitate their ability to make longer term plans and budgeting decisions for investments at the operations.

	The proposed 20-year period does not coincide with any expressed position regarding an end of operations timeline for the PHCF Facility. CNSC staff's assessment is that the proposed licensing period takes into account the PHCF planning cycle and Cameco has not identified any significant change in licensed activity.
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International Approach to Fuel Cycle Facility Licensing

Internationally, nuclear processing facilities are issued licences for periods ranging from a few years to the entire life of the facility, supported by periodic comprehensive assessment of facility safety. [The US Nuclear Regulatory Commission](#) (NRC) issues licences for a period of up to 40 years. More recently, the US NRC issued a 40-year licence renewal to Honeywell Metropolis Works, which is a conversion plant similar to PHCF.

The CNSC's regulatory framework includes requirements for periodic review and updates of essential licensee documentation. Additionally, CSA N286-12, *Management system requirements for nuclear facilities* [4], which has been implemented at PHCF, requires that the licensee periodically review and assess all program documentation. When these reviews and updates are carried out, the licensee must notify CNSC staff, who then assess the updated version to ensure continued compliance with the licensing basis. This provides assurance that the licensing basis remains valid and that programs in place are acceptable on a continual basis.

Current Approach to Implementing Periodic Safety Review

All nuclear activities are under the purview of the [NSCA](#) and its associated regulations. The Class I Nuclear Facilities Regulations under the [NSCA](#) mandate a Periodic Safety Review (PSR) only for nuclear power plants at an interval specified by the licence. For nuclear fuel cycle facilities (NFCFs), such as PHCF, a safety assessment of the facility and operating organization's performance, with a focus on all the safety factors, is conducted as part of routine compliance activities (e.g., inspections, compliance verification activities, etc.) as well as a part of licence renewal.

The IAEA has produced 2 documents that are applicable to NFCFs, such as PHCF. Provisions for a PSR for fuel cycle facilities are included in a few sections of IAEA Safety Standards Series No. SSR-4, "Safety of Nuclear Fuel Cycle Facilities"



[34]; and guidance is provided in IAEA Safety Report Series No. 124, “Periodic Safety Review for Nuclear Fuel Cycle Facilities” [35].

CNSC staff assessed the current approach at PHCF against this guidance documentation for periodic safety reviews. The following CNSC processes and practices ensure that provisions of IAEA SSR-4 and guidance of SRS-124 related to PSR are addressed in a timely manner, independent of the duration of the licence:

- periodic updates and reviews of documentation related to safety analysis, such as Safety Analysis Report (SAR), Preliminary Decommissioning Plan (PDP), Environmental Risk Assessment (ERA), which are typically done once in 5 years
- prior notification requirement stated in the Licence Conditions Handbook (LCH) of major plant modification and program updates which are reviewed to confirm that changes remain within the licensing basis.
- ongoing and regular updates of all program documents and code compliance reviews to approved licensing basis
- compliance verification program that ensures safety
- periodic updates of the LCH; and
- annual reporting requirement of performance of the licensee to the Commission and associated reviews of Annual Compliance Reports by the CNSC staff

CNSC staff is satisfied that the PSR elements identified in IAEA’s SSR-4 and SRS-124 are addressed within PHCF’s current compliance processes and practices.

Aging Management

Cameco’s Fitness for Service program is detailed in the PHCF Asset Management and Reliability Program Manual (section 3.6). Cameco’s asset maintenance strategy requires that Cameco should be proactive by defining the right work, as well as the rationale and timing for it. This requires understanding the failure/degradation mechanisms, failure patterns, and intervals for an asset’s failure modes. They are prioritized based on risk resulting in approximately 1,000 safety-significant assets and systems.

Eight asset families are considered safety-significant due to their potential to harm individuals on site or the environment. For assets with higher safety



rankings, Reliability Centered Maintenance analysis or Failure Modes and Effects Analysis are utilized to assess failure modes and determine appropriate preventive actions.

There is no explicit requirement for an aging management program under the Fitness for Service SCA in the PHCF LCH for the current licence term. In the proposed LCH, LC 6.1 includes revised compliance verification criteria to better support licensee compliance expectations over the proposed 20-year licence period (section 3.6) as it relates to aging management. The revised compliance verification criteria provide a clearer link to ageing management and explicitly link this requirement to the proposed 20-year licence period of the PHCF.

CNSC staff is satisfied that Cameco's approach to aging management is appropriate. The revised compliance verification criteria in LCH, LC 6.1 supports licensee compliance expectations over the proposed 20-year licence period by providing expectation for the licensee to proactively manage the facility's material condition over the long-term, thereby ensuring continued safety and environmental protection.

CNSC Regulatory Oversight

The CNSC regulatory compliance program is effective and independent of the licence period granted by the Commission. CNSC staff established a 10-year baseline compliance plan for all nuclear processing facilities. This baseline compliance plan is carried out regardless of licence period and verifies continued safety through planned inspections, assessments and document reviews. The plan establishes a minimum number of inspections to be carried out at a given facility based on the facility's risk profile.

Each year CNSC staff review the compliance plan as well as the licensee's planned activities to determine if additional verification activities should be added or moved. This approach is flexible and agile to ensure that appropriate, risk-informed regulatory oversight is in place, regardless of the licence period.

CNSC requirements are updated through changes in regulations made under the NSCA and updates to REGDOCs and standards. The LCH process ensures regulatory requirements can be updated within the licence term. LCH updates ensure that modern codes, standards, and practices are implemented continually.



Ongoing Communication and Engagement

CNSC remains committed to openness and transparency through effective communication and engagement. Licensing hearings currently represent an opportunity to engage with Indigenous Nations and communities as well as the public. As part of the reinventing regulatory oversight reporting work that is being undertaken by CNSC staff, collaboration will take place with Indigenous Nations and communities to determine how to meaningfully engage moving forward. This includes identifying engagement opportunities for Nations with CNSC staff, as well as the Commission.

CNSC staff remain committed to collaborating with interested Indigenous Nations and communities, to address any concerns and will continue to provide updates on the PHCF, for example, through regular meetings under Terms of Reference for long-term engagement with these Nations.

To ensure that an opportunity for meaningful engagement remains available with a longer licence term such as 20 years, CNSC staff recommend that Cameco provide 1 performance update to the Commission during the licence period. CNSC staff recommend the performance update to occur at the mid-point of the licence term.

Commission Engagement Opportunities

CNSC's capability to deliver on its mandate is not impacted by a longer licence period. Irrespective of the period of a licence granted by the Commission, the powers of the Commission will not be impacted. The Commission has the authority to conduct proceedings on any matter within its jurisdiction or any matter relating to the purpose of the NSCA if doing so would be in the public interest. In addition, the Commission may, at any time, amend, suspend, revoke or replace a licence under the conditions prescribed in the [GNSCR](#).

Any concerns identified by CNSC staff can be raised to the Commission for consideration and any requested changes by Cameco that are deemed to be outside the licensing basis are subject to additional Commission approvals, regardless of the licence period. Additionally, for issues raised by members of the public, CNSC has an established [external complaint process](#) in place to ensure the issues raised are reviewed and addressed as appropriate.



5.6.2 Conclusion

CNSC staff is satisfied that a regulatory framework is in place to maintain regulatory oversight of the PHCF facility regardless of the licence term. Based on Cameco's performance over the current licence term and information submitted in the licence application, their justification for a 20-year licence is reasonable.

CNSC staff recommend the Commission issue the requested licence for a 20-year term. If a 20-year licence term is granted, CNSC staff recommend that Cameco provide a comprehensive performance update to the Commission at the mid-point of the licence term that would provide an opportunity for the public and Indigenous Nations and communities to provide input on the PHCF facility directly to the Commission.

6 Overall Conclusions and Recommendations

CNSC staff's conclusions and recommendations consider an overall assessment of Cameco's compliance with the NSCA and its regulations during the current licence period (2017-2025). CNSC staff conclude that Cameco has programs, resources, and measures in place at the PHCF to ensure the health and safety of persons and the environment and of the measures related to security and Canada's international obligations during the proposed licence period.

CNSC staff's assessment determined that the application complies with the regulatory requirements. CNSC staff conclude that PHCF's performance during the current licensing term was satisfactory and met regulatory requirements.

Based on above conclusions, CNSC staff recommend that the Commission:

1. **Find**, pursuant to paragraphs 24(4)(a) and (b) of the [*Nuclear Safety and Control Act*](#) **in that Cameco:**
 - a) **is qualified** to carry on the activities authorized by the licence
 - b) **will make adequate provision** for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
2. **Renew** the proposed 20-year Nuclear Fuel Facility Licence FFL-3631.00/2047 for operation of the PHCF facility, effective March 1, 2027, to February 28, 2047, with a requirement for Cameco to provide a comprehensive performance update to the Commission at the mid-point of the licence.
3. **Delegate** authority as set out in section 5.5 of this CMD.



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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.

Additional terms and acronyms used in this CMD are listed below.

AIA	Authorized Inspection Agency
ALARA	As low as reasonably achievable
AMP	Administrative Monetary Penalty
BRR	Blind River Refinery
Cameco	Cameco Corporation
CCME	Canadian Council of Ministers of the Environment
CCR	Code Compliance Reviews
CFM	Cameco Fuel Manufacturing Inc.
CINFR	Class I Nuclear Facilities Regulations
CIRS	Cameco's Incident Reporting System
CMD	Commission Member Document
CNL	Canadian Nuclear Laboratories
CNSC	Canadian Nuclear Safety Commission
COPCs	Contaminants of potential concern
CRFR	<i>Cost Recovery Fees Regulations</i>
CSSC	Conversion Safety Steering Committee
CSA	Canadian Standards Association
CUP	Clean up Program.
DRL	Derived Release Limit
EBRLs	Exposure Based Release Limits
ECA	Environmental Compliance Approval
EMS	Environmental management system
EPP	Environmental Protection Program
EPR	Environmental Protection Reviews



ERA	Environmental Risk Assessment
FASC	Facility Access Security Clearance
FFL	Fuel Facility Licence
FHA	Fire Hazard Analysis
FSD	Fuel Services Division
GNSCR	<i>General Nuclear Safety and Control Regulations</i>
HAZOPs	Hazards and operability assessments
HF	Hydrofluoric acid
IAEA	International Atomic Energy Agency
IEMP	Independent Environmental Monitoring Program
JHA	Job hazard analysis
LCH	Licence conditions handbook
LTI	Lost-time injuries
MECP	Ontario Ministry of the Environment, Conservation and Parks
mSv	Millisievert
MSPM	Management Systems Program Manual
NBCC	National Building Code of Canada
NEW	Nuclear Energy Workers
NFCC	National Fire Code of Canada
NRC	The US Nuclear Regulatory Commission
NSR	<i>Nuclear Security Regulations</i>
NSCA	Nuclear Safety and Control Act
ORL	Operating release levels
OSLD	Optically stimulated luminescent dosimeter
PDP	Preliminary Decommissioning Plan
PFP	Participant Funding Program
PHAI	Port Hope Area Initiative
PHCF	Port Hope Conversion Facility
PIDP	Public Information and Disclosure Program
PIV	Physical Inventory Verification
PPE	Personal protective equipment



PTNSR	<i>Packaging and Transport of Nuclear Substances Regulations</i>
REGDOC	Regulatory Document
RP	Radiation protection
RPP	Radiation Protection Program
SA	Satisfactory
SAR	Safety Analysis Report
SCR	Selective catalytic reduction
SAT	Systematic approach to training
SCA	Safety and Control Areas
TOR	Terms of reference
SSC	Structures, Systems and Components
TSSA	Technical Standards and Safety Authority
U	Uranium
UN Declaration	United Nations Declaration on the Rights of Indigenous Peoples
UNDA	United Nations Declaration Act
UF ₄	Uranium Tetrafluoride
UF ₆	Uranium Hexafluoride
UO ₂	Uranium Dioxide
UO ₃	Uranium Trioxide
VIM	Vision in Motion
WMP	Waste Management Plan

Appendix

APPENDIX A: Basis for the Recommendation(s)

A1: Regulatory Basis

The recommendations presented in this CMD are based on compliance objectives and expectations associated with the relevant SCAs and other matters. The regulatory basis for the matters that are relevant to this CMD are as follows.

Management System

The regulatory foundation for the recommendation(s) associated with Management System includes the following:

- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraph:
 - 3(d), the proposed management system for the activity to be licensed, including measures to promote and support safety culture.
- The [*General Nuclear Safety and Control Regulations*](#) require that an application for a licence shall contain, under paragraphs:
 - 3(1)(k), the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the NSCA and the regulations made under the NSCA, including the internal allocation of functions, responsibilities and authority.
 - 15(a), the persons who have the authority to act for them (the applicant/licensee) in their dealings with the Commission.
 - 15(b), the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence.

Human Performance Management

The regulatory foundation for the recommendation(s) associated with Human Performance Management includes the following:

- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraphs:
 - 3(d.1), the proposed human performance program for the activity to be licensed, including measures to ensure workers' fitness for duty.
 - 6(m), the proposed responsibilities of and the qualification requirements and training program for workers, including the procedures for the requalification of workers
 - 6(n), the results that have been achieved in implementing the program for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility.
- The [*General Nuclear Safety and Control Regulations*](#) require that licensees, under paragraphs:
 - 12(1)(a), ensure the presence of a sufficient number of qualified workers to carry on the licensed activity safely and in accordance with the Act, the regulations made under the Act and the licence.
 - 12(1)(b), train the workers to carry on the licensed activity in accordance with the Act, the regulations made under the Act and the licence.
 - 12(1)(e), require that every person at the site of the licensed activity to use equipment, devices, clothing and procedures in accordance with the Act, the regulations made under the Act and the licence.

Operating Performance

The regulatory foundation for the recommendation(s) associated with operating performance includes the following:

- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence to operate a Class I nuclear facility shall contain, under paragraph:
 - 6(d), the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility.

Safety Analysis

The regulatory foundation for the recommendation(s) associated with safety analysis includes the following:

- The [*General Nuclear Safety and Control Regulations*](#) require that an application for a licence shall contain, under paragraph:
 - 3(1)(i), a description and the results of any test, analysis or calculation performed to substantiate the information included in the application.
- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraphs:

- 6(c), a final safety analysis report demonstrating the adequacy of the design of the nuclear facility.
- 6(h), the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects.

Physical Design

The regulatory foundation for the recommendation(s) associated with physical design includes the following:

- Paragraph 3(1)(d) of the [General Nuclear Safety and Control Regulations](#) requires that an application for a licence shall contain a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence.
- The [Class I Nuclear Facilities Regulations](#) require that an application for a licence shall contain, under paragraphs:
 - 3(a), a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;
 - 3(b), plans showing the location, perimeter, areas, structures and systems of the nuclear facility;
 - 6(a), a description of the structures at the nuclear facility, including their design and their design operating conditions;
 - 6(b), a description of the systems and equipment at the nuclear facility, including their design and their design operating conditions;
 - 6(c), a final safety analysis report demonstrating the adequacy of the design of the facility; and
 - 6(d), proposed measures, policies, methods and procedures for operating and maintaining the facility.

Fitness for Service

The regulatory foundation for the recommendation(s) associated with fitness for service includes the following:

- The [Class I Nuclear Facilities Regulations](#) require that an application for a licence shall contain, under paragraph:
 - 6(d), the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility.

Radiation Protection

The regulatory foundation for the recommendation(s) associated with radiation protection includes the following:



- The [*General Nuclear Safety and Control Regulations*](#) require, under subsection 3(1), that a licence application contain the following information under paragraphs:
 - 3(1)(e), the proposed measures to ensure compliance with the [*Radiation Protection Regulations*](#).
 - 3(1)(f), any proposed action level for the purpose of section 6 of the [*Radiation Protection Regulations*](#).
- The [*Radiation Protection Regulations*](#)
- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence to operate a Class I nuclear facility shall contain, under paragraphs:
 - 6(e), the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances.
 - 6(h), the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measure that will be taken to prevent or mitigate those effects.

Conventional Health and Safety

The regulatory foundation for the recommendation(s) associated with Conventional Health and Safety includes the following:

- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraph:
 - 3(f), the proposed worker health and safety policies and procedures.
- PHCF's activities and operations must comply with the [*Canada Labour Code, Part II: Occupational Health and Safety*](#).

Environmental Protection

The regulatory foundation for the recommendation(s) associated with Environmental Protection includes the following:

- The [*General Nuclear Safety and Control Regulations*](#), under paragraphs 12(1)(c) and (f), require that each licensee take all reasonable precautions to protect the environment and the health and safety of persons, and to control the release of radioactive nuclear substances and hazardous substances within the site of the licensed activity and into the environment.
- The [*Radiation Protection Regulations*](#) prescribe dose limits for the general public, which under Subsection 1(3) is 1 mSv per calendar year.
- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraphs:

- 3(e), the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on.
- 3(g), the proposed environmental protection policies and procedures.
- 3(h), the proposed effluent and environmental monitoring programs.
- 6(e), the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances.
- 6(h), the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects.
- 6(i), the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics.
- 6(j), the proposed measures to control releases of nuclear substances and hazardous substances into the environment.

Emergency Management and Fire Protection

The regulatory foundation for the recommendation(s) associated with Emergency Management and Response includes the following:

- 12(1)(c) of the [*General Nuclear Safety and Control Regulations*](#) states that every licensee shall “take all reasonable precautions to protect the environment and the health and safety of persons and to maintain security”.
- 12(1)(f) of the [*General Nuclear Safety and Control Regulations*](#) states that every licensee shall “take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances within the site of the licensed activity and into the environment of the licensed activity”.
- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraph:
 - 6(k) information on the licensee’s proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of national security, including measures to:
 - Assist offsite authorities in planning and preparing to limit the effects of an accidental release;
 - Notify offsite authorities of an accidental release or the imminence of an accidental release;
 - Report information to offsite authorities during and after an accidental release;

- Assist offsite authorities in dealing with the effects of an accidental release; and
- Test the implementation of the measures to prevent or mitigate the effects of an accidental release.

Waste Management

The regulatory foundation for the recommendation(s) associated with Waste Management includes the following:

- The [*General Nuclear Safety and Control Regulations*](#) require that an application for a licence include, under paragraph:
 - 3(1)(j), the name, quantity, form and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed, or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste.

Security

The regulatory foundation for the recommendation(s) associated with Security includes the following:

- The [*Nuclear Security Regulations*](#) (NSR). It is a requirement of all Class I licensees to comply with the NSR.
- Specific obligations of the GNSCR that distinctly encompass the security SCA include:
 - Paragraph 12(1)(c), Every licensee shall take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances;
 - Paragraph 12(1)(g), Every licensee shall implement measures for alerting the licensee to the illegal use or removal of a nuclear substance, prescribed equipment or prescribed information, or the illegal use of a nuclear facility;
 - Paragraph 12(1)(h), Every licensee shall implement measures for alerting the licensee to acts of sabotage or attempted sabotage anywhere at the site of the licensed activity; and
 - Paragraph 12(1)(j), Every licensee shall instruct the workers on the physical security program at the site of the licensed activity and on their obligations under that program.

Safeguards and Non-Proliferation

The regulatory foundation for the recommendation(s) associated with Safeguards and Non-Proliferation includes the following:



- It is a requirement of the [*General Nuclear Safety and Control Regulations*](#) under paragraph 12(1)(i) that each licensee take all necessary measures to facilitate Canada's compliance with any applicable safeguards agreement, where the applicable agreements are:
 - The [*Agreement between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons*](#).
 - The [*Protocol Additional to the Agreement between Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons*](#).

Packaging and Transport

The regulatory foundation for the recommendation(s) associated with Packaging and Transport includes the following:

- The [*Packaging and Transport of Nuclear Substances Regulations, 2015*](#); and
- Transport Canada's [*Transportation of Dangerous Goods Regulations*](#).

Decommissioning Strategy and Financial Guarantees

The regulatory foundation for the recommendation(s) associated with PHCF's Decommissioning Strategy and Financial Guarantees includes:

- The [*General Nuclear Safety and Control Regulations*](#) require that an application for a licence shall contain, under paragraph:
 - 3(1)(l), a description of any proposed financial guarantee relating to the activity to be licensed.
- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraph:
 - 3(k), the proposed plan for the decommissioning of the nuclear facility or of the site.

Licensee's Public Information and Disclosure Program

- The [*Class I Nuclear Facilities Regulations*](#) require that an application for a licence shall contain, under paragraph:
 - 3(j), information on the licensee's public information program.



A2: Detailed Summary of CNSC Assessment of Application

CNSC's staff assessment of the PHCF licence application included a completeness check, a sufficiency check, and a technical assessment against regulatory requirements. The completeness check verified whether the application included the prescribed information in accordance with the [Nuclear Safety and Control Act](#) and applicable regulations. For all facilities (i.e., Class I and Class II facilities), it is important to consider and address all licence application requirements within the applicable CNSC regulations.

The sufficiency check verified whether the application included sufficient and quality information in order for CNSC staff to conduct the technical assessment. The technical assessment verified whether the application included adequate safety and control measures to address CNSC requirements. Documents originally submitted as part of the application may have been revised, updated, or replaced over the course of the assessment to address CNSC requirements.

Pursuant to Section 3 of the General Nuclear Safety and Control Regulations Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(1) An application for a licence shall contain the following information:				
(a) the applicant's name and business address;	Application Section 1.1	Y	Y	Y
(b) the activity to be licensed and its purpose;	Application Sections 1.3 & 2.3, Facility Licensing Manual	Y	Y	Y



Pursuant to Section 3 of the <i>General Nuclear Safety and Control Regulations</i> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(c) the name, maximum quantity, and form of any nuclear substance to be encompassed by the licence;	Application Sections 1.3, 2.3, and 4.3.1	Y	Y	Y
(d) a description of any nuclear facility, prescribed equipment, or prescribed information to be encompassed by the licence;	Application Sections 1.3 & 2.3	Y	Y	Y



Pursuant to Section 3 of the <i>General Nuclear Safety and Control Regulations</i> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(e) the proposed measures to ensure compliance with the <i>Radiation Protection Regulations</i> , the <i>Nuclear Security Regulations</i> and the <i>Packaging and Transport of Nuclear Substances Regulations, 2015</i> ;	Application Documents referenced in application Appendix 2 Supporting Documents FSD Packaging and Transport, Facility Security Plan, FSD External Dosimetry Programs – Process for estimation of external doses, Radiation Protection Program Manual, Emergency Response Plan, and Facility Licensing Manual	Y	Y	Y
(f) any proposed action level for the purpose of section 6 of the <i>Radiation Protection Regulations</i> ;	Application Sections 4.7.3 and 4.7.5	Y	Y	Y



Pursuant to Section 3 of the <i>General Nuclear Safety and Control Regulations</i> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(g) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment, or prescribed information;	Application Sections 4.7 and 4.12, Facility Licensing Manual, Radiation Protection Program Manual, Facility Security Plan	Y	Y	Y
(h) the proposed measures to prevent loss or illegal use, possession, or removal of the nuclear substance, prescribed equipment, or prescribed information;	Application Section 4.12, Facility Security Plan	Y	Y	Y
(i) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;	Application Sections 4.4, 4.7, 4.9 and 4.11, Facility Licensing Manual, Derived Release Limits, Environmental Risk Assessment and Safety Analysis Report	Y	Y	Y



Pursuant to Section 3 of the <i>General Nuclear Safety and Control Regulations</i> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(j) the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed, or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;	Application Sections 4.4 and 4.11, Facility Licensing Manual, Safety Analysis Report, Fuel Services Division Waste Management Program, Waste Management Plan, and Clean Up Program	Y PHCF provided current waste inventory information in response to CNSC staff request.	Y	Y



Pursuant to Section 3 of the <i>General Nuclear Safety and Control Regulations</i> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(k) the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the [NSCA] and the regulations made under it, including the internal allocation of functions, responsibilities and authority;	Application Sections 2.1 and 4.1.1, Facility Licensing Manual	Y	Y	Y
(l) a description of any proposed financial guarantee relating to the activity to be licensed;	Application Section 2.5, Preliminary Decommissioning Plan	Y	Y	Y



Pursuant to Section 3 of the <i>General Nuclear Safety and Control Regulations</i> Licences – General Application Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(m) any other information required by the [NSCA] or the regulations made under it for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence.	All relevant information is contained within the application, the Facility Licensing Manual and supporting documents referenced in the application and Facility Licensing Manual.	Y	Y	Y



Pursuant to Section 3 (1.1) of the <u>General Nuclear Safety and Control Regulations</u> Other Information Requested by CNSC Staff	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(1.1) The Commission or a designated officer authorized under paragraph 37(2)(c) of the <u>Act</u> may require any other information that is necessary to enable the Commission or the designated officer to determine whether the applicant: (a) is qualified to carry on the activity to be licensed; or (b) will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.	As required	Y	Y	Y



Pursuant to Section 5 of the <u>General Nuclear Safety and Control Regulations</u> Obligations – Representatives of Applicants and Licensees	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
5 An application for the renewal of a licence shall contain:				
(a) the information required to be contained in an application for that licence by the applicable regulations made under the Act; and	Application and identified supporting documents	Y	Y	Y
(b) A statement identifying the changes in the information that was previously submitted.	Not applicable	-	-	-

Pursuant to Section 15 of the <u>General Nuclear Safety and Control Regulations</u> Obligations – Representatives of Applicants and Licensees	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
15 Every applicant for a licence and every licensee shall notify the Commission of:				



Pursuant to Section 15 of the <i>General Nuclear Safety and Control Regulations</i> Obligations – Representatives of Applicants and Licensees	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(a) the persons who have authority to act for them in their dealings with the Commission;	Cover Letter, Application Sections 2.1 and 4.1.1, Facility Licensing Manual	Y	Y	Y
(b) the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence; and	Application Sections 2.1 and 4.1.1, Facility Licensing Manual	Y PHCF provided specific names for position titles in response to CNSC staff request.	Y	Y
(c) any change in the information referred to in paragraphs (a) and (b), within 15 days after the change occurs.	Facility Licensing Manual	Y	Y	Y



Pursuant to Section 3 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
3 An application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the following information in addition to the information required by Section 3 of the <i>General Nuclear Safety and Control Regulations</i> :				
(a) a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;	Application Section 2.2, General Plant Layout – Site 1 - Drawing No. 99101 sheet 71, and General Plant Layout – Site 2 - Drawing No. 99101 sheet 73	Y	Y	Y
(b) plans showing the location, perimeter, areas, structures and systems of the nuclear facility;	General Plant Layout – Site 1 - Drawing No. 99101 sheet 71, and General Plant Layout – Site 2 - Drawing No. 99101 sheet 73	Y	Y	Y



Pursuant to Section 3 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(c) evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed;	Copies of relevant deeds and leases have previously been submitted to the CNSC and are available upon request	Y PHCF provided Sites 1 and 2 Facility Legal Description in response to CNSC staff request.	Y	Y
(d) the proposed management system for the activity to be licensed, including measures to promote and support safety culture;	Application Sections 4.1 and 4.1.3, Facility Licensing Manual, Management System Program Manual	Y	Y	Y



Pursuant to Section 3 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(d.1) the proposed human performance program for the activity to be licensed, including measures to ensure workers' fitness for duty;	Application Section 4.2, Facility Licensing Manual, Port Hope Training Plan	Y PHCF provided Alcohol and Substance Abuse Program in response to CNSC staff request.	Y	Y
(e) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on;	Application Sections 4.4. 4.4.1, 4.8.2, Facility Licensing Manual, Safety Analysis Report, Environmental Risk Assessment, Derived Release Limit	Y	Y	Y
(f) the proposed worker health and safety policies and procedures;	Application Section 4.8, Occupational Health and Safety Management Program Manual	Y	Y	Y



Pursuant to Section 3 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(g) the proposed environmental protection policies and procedures;	Application Section 4.9, FSD Environmental Management System, Environmental Protection Program	Y	Y	Y
(h) the proposed effluent and environmental monitoring programs;	Application Section 4.9, Environmental Management System, Environmental Protection Program	Y	Y	Y
(i) if the application is in respect of a nuclear facility referred to in paragraph 2(b) of the <i>Nuclear Security Regulations</i> , the information required by section 3 of those Regulations;	Not applicable to PHCF	-	-	-



Pursuant to Section 3 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(j) the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed; and	Application Section 2.4, FSD Public Information Program	Y	Y	Y
(k) the proposed plan for the decommissioning of the nuclear facility or of the site.	Application Section 2.5, Facility Licensing Manual, Preliminary Decommissioning Plan	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
6 An application for a licence to operate a Class I nuclear facility shall contain the following information in addition to the information required by section 3:				
(a) a description of the structures at the nuclear facility, including their design and their design operating conditions;	Application Sections 2.2. 2.3. 4.4, 4.5 and 4.6, Facility Licensing Manual, Safety Analysis Report, Asset Management and Reliability Program Manual. Detailed information on specific structures and their design and operation was previously submitted to the CNSC (AECB) at the time the structures were commissioned.	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(b) a description of the systems and equipment at the nuclear facility, including their design and their design operating conditions;	Application Sections 2.2, 2.3, 4.4, 4.5 and 4.6, Facility Licensing Manual, Safety Analysis Report, Asset Management and Reliability Program Manual. Detailed information on specific structures and their design and operation was previously submitted to the CNSC (AECB) at the time the structures were commissioned.	Y PHCF provided updated information in response to CNSC staff request.	Y	Y
(c) a final safety analysis report demonstrating the adequacy of the design of the nuclear facility;	Application Section 4.4, Facility Licensing Manual, Safety Analysis Report	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(d) the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility;	Application Sections 4.1, 4.2, 4.3, 4.5 and 4.6, Facility Licensing Manual, Management System Program Manual, and referenced documents	Y	Y	Y
(e) the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances;	Application Sections 4.2, 4.3, 4.7, and 4.14, Facility Licensing Manual, FSD Packaging and Transport, Radiation Program Manual	Y	Y	Y
(f) the proposed measures to facilitate Canada's compliance with any applicable safeguards agreement;	Application Section 4.13, Facility Licensing Manual, FSD Safeguards Program	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(g) the proposed commissioning program for the systems and equipment that will be used at the nuclear facility;	Application Sections 4.1 and 4.5, Facility Licensing Manual, Management System Program Manual	Y	Y	Y
(h) the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects;	Application Sections 4.4, 4.7 and 4.9, Facility Licensing Manual, Environmental Risk Assessment, Safety Analysis Report, Derived Release Limit	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(i) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;	Application Sections 4.4, and 4.9, Facility Licensing Manual, Safety Analysis Report, Environmental Risk Assessment, Derived Release Limit, Environmental Protection Program	Y	Y	Y
(j) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;	Application Sections 4.4, and 4.9, Facility Licensing Manual, Safety Analysis Report, Environmental Risk Assessment, Derived Release Limit, Environmental Protection Program	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(k) the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of national security, including measures to:	Application Sections 4.4, 4.9 and 4.10, Facility Licensing Manual, Safety Analysis Report, Environmental Risk Assessment, Derived Release Limit, Environmental Protection Program, Fire Protection Program, Fire Safety Plan	Y	Y	Y
(i) assist offsite authorities in planning and preparing to limit the effects of an accidental release;	Application Sections 4.4, 4.9 and 4.10, Facility Licensing Manual, Safety Analysis Report, Environmental Risk Assessment, Derived Release Limit, Environmental Protection Program, Fire Protection Program, Fire Safety Plan	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(ii) notify offsite authorities of an accidental release or the imminence of an accidental release;	Application Sections 4.4, 4.9 and 4.10, Facility Licensing Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y
(iii) report information to offsite authorities during and after an accidental release;	Application Sections 4.4, 4.9 and 4.10, Facility Licensing Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y
(iv) assist offsite authorities in dealing with the effects of an accidental release; and	Application Sections 4.4, 4.9 and 4.10, Facility Licensing Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y



Pursuant to Section 6 of the <i>Class I Nuclear Facilities Regulations</i> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(v) test the implementation of the measures to prevent or mitigate the effects of an accidental	Application Sections 4.4, 4.9 and 4.10, Facility Licensing Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y
(l) the proposed measures to prevent acts of sabotage or attempted sabotage at the nuclear facility, including measures to alert the licensee to such acts;	Application Section 4.12, Facility Security Plan	Y	Y	Y
(m) the proposed responsibilities of and qualification requirements and training program for workers, including the procedures for the requalification of workers; and	Application Section 4.2, Facility Licensing Manual, Port Hope Training Plan	Y	Y	Y



Pursuant to Section 6 of the <u><i>Class I Nuclear Facilities Regulations</i></u> Licence Applications – Licence to Operate	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(n) the results that have been achieved in implementing the program for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility.	Application Section 4.2, Facility Licensing Manual, Port Hope Training Plan	Y	Y	Y

Pursuant to Section 3 of the <u><i>Nuclear Substances and Radiation Devices Regulations</i></u> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
3(1) An application for a licence in respect of a nuclear substance or a radiation device, other than a licence to service a radiation device, shall contain the following information in addition to the information required by section 3 of the <u><i>General Nuclear Safety and Control Regulations</i></u> :				



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(a) the methods, procedures and equipment that will be used to carry on the activity to be licensed;	Application Sections 2.3, 4.4, 4.7, 4.9 and 4.10, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y
(b) the methods, procedures and equipment that will be used while carrying on the activity to be licensed, or during and following an accident, to:				



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(i) monitor the release of any radioactive nuclear substance from the site of the activity to be licensed;	Application Sections 4.7 and 4.9, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y
(ii) detect the presence of and record the radiation dose rate and quantity in becquerels of radioactive nuclear substances at the site of the activity to be licensed;	Application Sections 4.7 and 4.9, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(iii) limit the spread of radioactive contamination within and from the site of the activity to be licensed; and	Application Sections 4.7 and 4.9, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y
(iv) decontaminate any person, site or equipment contaminated as a result of the activity to be licensed.	Application Sections 4.7 and 4.9, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Emergency Response Plan	Y	Y	Y



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(c) a description of the circumstances in which the decontamination referred to in subparagraph (b)(iv) will be carried out;	Application Sections 4.4, 4.7, 4.9, 4.10 and 4.11, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Emergency Response Plan, Fuel Services Division Waste Management Program	Y	Y	Y
(d) the proposed location of the activity to be licensed, including a description of the site;	Application Section 2.2, General Plant Layout – Site 1 - Drawing No. 99101 sheet 71, General Plant Layout – Site 2 - Drawing No. 99101 sheet 73	Y	Y	Y
(e) the roles, responsibilities, duties, qualifications and experience of workers;	Application Section 4.2, Port Hope Training Plan	Y	Y	Y



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(f) the proposed training program for workers;	Application Section 4.2, Port Hope Training Plan	Y	Y	Y
(g) the proposed instructions for dealing with accidents, including fires and spills, in which the nuclear substance may be involved;	Application Section 4.4, 4.7, 4.9 and 4.10, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Fuel Services Division Waste Management Program, Fire Protection Program, Fire Safety Plan, Emergency Response Plan	Y	Y	Y



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(h) the proposed inspection program for the equipment and systems that will be used to carry on the activity to be licensed;	Application Section 4.4, 4.5, 4.6, 4.7, 4.9 and 4.10, Facility Licensing Manual, Radiation Protection Program Manual, Environmental Protection Program, Fuel Services Division Waste Management Program, Fire Protection Program, Fire Safety Plan, Asset Management and Reliability Program Manual, In Service Inspection of Safety Significant Systems/Structures. Components, Pressure and Safety Significant Piping and Vessel Control, Registration and Inspection Requirements of Pressure Piping and Pressure Vessels	Y	Y	Y



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(i) the methods, procedures and equipment that will be used to calibrate radiation survey meters in accordance with these Regulations;	Application Section 4.7, Radiation Protection Program Manual and referenced procedures	Y	Y	Y
(j) the methods, procedures and equipment that will be used to calibrate and verify the calibration of dosimeters referred to in paragraphs 30(3)(d) and (e);	Application Section 4.7, Radiation Protection Program Manual and referenced procedures	Y	Y	Y
(k) the methods, procedures and equipment that will be used to conduct the leak tests and surveys required by these Regulations;	Application Section 4.7, Radiation Protection Program Manual and referenced procedures	Y	Y	Y
(l) where the application is in respect of a nuclear substance that is an unsealed source and that is to be used in a room, the proposed design of the room;	Application Section 4.7, Radiation Protection Program Manual and referenced procedures	Y	Y	Y



Pursuant to Section 3 of the <u><i>Nuclear Substances and Radiation Devices Regulations</i></u> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(m) if the application is in respect of a nuclear substance that is contained in a radiation device, the brand name and model number of the radiation device, and the quantity of the devices;	Application Section 4.7, Radiation Protection Program Manual and referenced procedures, Radioisotope Source Control	Y	Y	Y
(n) where the application is in respect of Category I, II or III nuclear material, as defined in section 1 of the <u><i>Nuclear Security Regulations</i></u> :				
(i) the measures that will be taken to prevent nuclear criticality; and	Application Section 4.15.3, Nuclear Criticality Safety Program Manual	Y	Y	Y
(ii) the information required by section 3 or 4 of the <u><i>Nuclear Security Regulations</i></u> , as applicable.	Application Section 4.15.3, Nuclear Criticality Safety Program Manual	Y	Y	Y



Pursuant to Section 3 of the <i>Nuclear Substances and Radiation Devices Regulations</i> : Licence Applications – General Requirements	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
(o) if the applicant will be manufacturing or distributing radiation devices referred to in paragraph 5(1)(c) or section 6 or 7, or check sources mentioned in section 8.1, the proposed procedure for the disposal of each radiation device or check source or for its return to the manufacturer.	Not applicable	-	-	-



Pursuant Part 2 of the <u>Nuclear Security Regulations</u> : PART 2 SECURITY OF NUCLEAR FACILITIES LISTED IN SCHEDULE 2 – LICENCE APPLICATIONS	Location in Application or Supporting Document(s) as Noted by PHCF	Complete?	Sufficient?	Adequate?
41 An application for a licence in respect of a nuclear facility shall contain, in addition to the information required by sections 3 to 8 of the <u>Class I Nuclear Facilities Regulations</u> , a description of the physical protection measures to be taken to ensure compliance with sections 42 to 48.	Application Section 4.12, Facility Security Plan	Y	Y	Y

A3: Technical Basis

The technical basis for the recommendations presented in this CMD are listed in the table

Applicable Standards and Codes per Safety and Control Area

SCA	Document Title	Sufficient?	Adequate?
Management System	CSA N286-12 (reaffirmed 2022): <i>Management System Requirements for Nuclear Facilities</i>	Y	Y
	<u>CNSC REGDOC-2.1.2 (2018): Safety Culture</u>	Y	Y



SCA	Document Title	Sufficient?	Adequate?
Human Performance Management	CNSC REGDOC-2.2.2 (2016): Personnel Training, Version 2	Y	Y
Operating Performance	CNSC REGDOC-3.1.2 (2018): Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills	Y	Y
Safety Analysis	CNSC REGDOC-2.4.3 (2019), Nuclear Criticality Safety	Y	Y
Physical Design	CSA B51 (2019): Boiler Pressure Vessel and Pressure Piping Code	Y	Y
	CSA N393-13 (2022): Fire Protection for facilities that process, store and handle nuclear substances	Y	Y
	NRCC 56190 (2020): National Building Code of Canada	Y	Y
	NRCC 56192 (2020): National Fire Code of Canada	Y	Y
Fitness for Service	CSA N393-13 (2022): Fire Protection for facilities that process, store and handle nuclear substances	Y	Y
	NRCC 56192 (2020): National Fire Code of Canada	Y	Y
Radiation Protection	CNSC REGDOC-3.1.2 (2018): Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills	Y	Y
Conventional Health and Safety	CSA Z94.4 (2018), Selection, Use and Care of Respirators	Y	Y
	CNSC REGDOC-2.9.1 (2020): Environmental Protection:	Y	Y



SCA	Document Title	Sufficient?	Adequate?
Environmental Protection	<u>Policies, Programs and Procedures</u>		
	<u>CNSC REGDOC-2.9.2 (2024): Environmental Protection: Controlling Releases to the Environment</u>	Y	Y
	<u>CNSC REGDOC-3.1.2 (2018): Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills</u>	Y	Y
	CSA N288.1 (R2019): <i>Guidelines for Calculating Derived Release Limits for Radioactive Material in Airborne and Liquid Effluents for Normal Operation of Nuclear Facilities</i>	Y	Y
	CSA N288.4 (R2015): <i>Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills</i>	Y	Y
	CSA N288.5 (R2016): <i>Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills</i>	Y	Y
	CSA N288.6 (R2017): <i>Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills</i>	Y	Y
	CSA N288.7 (2015): <i>Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills</i>	Y	Y



SCA	Document Title	Sufficient?	Adequate?
	CSA N288.8 (2017): <i>Establishing and implementing action levels for releases to the environment from nuclear facilities</i>	Y	Y
Emergency Management and Fire Protection	CNSC REGDOC-2.10.1 (2016): Nuclear Emergency Preparedness and Response	Y	Y
	NRCC 56190 (2020): <i>National Building Code of Canada</i>	Y	Y
	NRCC 56192 (2020): <i>National Fire Code of Canada</i>	Y	Y
	CSA N393-13 (2022): <i>Fire Protection for facilities that process, store and handle nuclear substances</i>	Y	Y
Waste Management	CSA N292.0-14 (2019): <i>General Principles for the Management of Radioactive Waste and Irradiated Fuel</i>	Y	Y
	CSA N292.3-14 (2014): <i>Management of Low- and Intermediate –level Radioactive Waste</i>	Y	Y
	CNSC REGDOC-2.11.1 (2021): Waste Management, Volume 1: Management of Radioactive Waste	Y	Y
	CSA N294-19 (2019): <i>Decommissioning of Facilities Containing Nuclear Substances</i>	Y	Y
	CNSC REGDOC-2.11.2 (2021): Decommissioning	Y	Y
Security	CNSC REGDOC-2.12.3 (2020): Security of Nuclear Substances:	Y	Y



SCA	Document Title	Sufficient?	Adequate?
	<i>Sealed Sources and Category I, II and III Nuclear Material, Version 2.1</i>		
Safeguards and Non-Proliferation	<i>CNSC REGDOC-2.13.1 (2018): Safeguards and Nuclear Material Accountancy</i>	Y	Y
Public Information and Disclosure Program	<i>CNSC REGDOC-3.2.1 (2018): Public Information and Disclosure</i>	Y	Y
Indigenous Engagement	<i>CNSC REGDOC-3.2.2, Indigenous Engagement, Version 1.2</i>	Y	Y
Financial Guarantee	<i>CNSC REGDOC-3.3.1 (2021): Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities</i>	Y	Y

A4: Specific Areas for this Facility Type

The following table identifies the specific areas that comprise each SCA for PHCF.

SPECIFIC AREAS FOR THIS FACILITY TYPE		
Functional Area	Safety and Control Area	Specific Areas
Management	Management System	- Management System - Organization - Performance Assessment, Improvement and Management Review - Change Management - Safety Culture - Records Management - Supply and contractor management
	Human Performance Management	- Human Performance Programs - Personnel Training



SPECIFIC AREAS FOR THIS FACILITY TYPE		
Functional Area	Safety and Control Area	Specific Areas
		- Work Organization and Job Design - Fitness for Duty
	Operating Performance	- Conduct of Licensed Activity - Procedures - Reporting and Trending
Facility and Equipment	Safety Analysis	- Deterministic Safety Analysis - Hazard Analysis - Criticality Safety
	Physical Design	- Design Governance - Site Characterization - Facility Design - Structure Design - System Design
	Fitness for Service	- Equipment Fitness for Service/Equipment Performance - Maintenance - Structural Integrity - Aging Management - Periodic Inspection and Testing
Core Control Processes	Radiation Protection	- Application of ALARA - Worker Dose Control - Radiation Protection Program Performance - Radiological Hazard Control
	Conventional Health and Safety	- Performance - Practices - Awareness
	Environmental Protection	- Effluent and Emissions Control (releases) - Environmental Management System (EMS) - Assessment and Monitoring



SPECIFIC AREAS FOR THIS FACILITY TYPE		
Functional Area	Safety and Control Area	Specific Areas
		- Protection of People - Environmental Risk Assessment
	Emergency Management and Fire Protection	- Conventional Emergency Preparedness and Response - Nuclear Emergency Preparedness and Response - Fire Emergency Preparedness and Response
	Waste Management	- Waste Characterization - Waste Minimization - Waste Management Practices - Decommissioning Plans
	Security	- Facilities and Equipment - Response Arrangements - Security Practices
	Safeguards and Non-Proliferation	- Nuclear Material Accountancy and Control - Access and Assistance to the IAEA - Operational and Design Information - Safeguards Equipment, Containment and Surveillance - Import and Export
	Packaging and Transport	- Package design and maintenance - Packaging and transport



APPENDIX B:

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

Facility	Indigenous Nations, communities and/or organizations
Port Hope Conversion Facility	• Williams Treaties First Nations, which include: ○ Alderville First Nation ○ Curve Lake First Nation ○ Hiawatha First Nation ○ Mississaugas of Scugog Island First Nation ○ Chippewas of Beausoleil First Nation ○ Chippewas of Georgina Island First Nation ○ Chippewas of Rama First Nation • Métis Nation of Ontario • Mohawks of the Bay of Quinte

APPENDIX C:

Proposed Licence Changes

Overview

PHCF currently operates under a Nuclear Fuel Facility Operating Licence, FFOL-3631.0/2027. The proposed licence incorporates standardized licence conditions.

Licence Conditions

The proposed licence incorporates the standardized licence conditions applicable to PHCF as a uranium processing facility as developed by CNSC staff. Notable changes to the proposed Nuclear Fuel Facility Licence are described below:

- For consistency, the numbering under the General sub-header has been updated to align with the formatting of other CNSC-issued licences. The wording of the conditions under the General sub-header remains the same;
- Packaging and transport have been removed as licensed activities from Part IV of the proposed licence. For PHCF, these activities are not licensed activities as per the [Nuclear Safety and Control Act](#) and [Packaging and Transport of Nuclear Substances Regulations, 2015](#) (PTNSR 2015). Section 26 of the NSCA subjects PHCF to the PTNSR 2015, where subsection 6 (1) states that a person may transport a nuclear substance without a licence issued under subsection 24 (2) of the Act for that purpose, except for 6 conditions (paragraphs 6 (1) (a) to (f) of the PTNSR 2015). CNSC staff determined that the conditions that would require a licence under paragraphs 6 (1) (a) to (f) of the PTNSR 2015 do not apply to PHCF activities; and
- The wording of Licence Condition 11.2: Decommissioning Plan, has been updated to align more closely with CNSC staff's standardized licence conditions.

PROPOSED LICENCE CHANGES	
Numbering of General Section (current licence)	Numbering of General Section (proposed licence)
1. GENERAL	G. GENERAL
1.1	G.1
1.2	G.2



1.3	G.3
1.4	G.4
Part IV, Licensed Activities (current licence)	Part IV, Licensed Activities, item ii (proposed licence)
ii) possess, transfer, use, import, process, package, transport, manage, store and dispose nuclear substances, other than enriched uranium compounds, that are required for, associated with, or arise from the activities described in (i);	ii) possess, transfer, use, import, process, manage, store and dispose nuclear substances, other than enriched uranium compounds, that are required for, associated with, or arise from the activities described in (i);
Licence Condition 11.2 (current licence)	Licence Condition 11.2 (proposed licence)
The licensee shall implement and maintain a decommissioning strategy.	The licensee shall maintain a decommissioning plan.

Licence Format

PHCF's current licence is written in the current standardized format. The proposed licence will use the same current format; however the GENERAL section will be updated as described above to align with the formatting of other CNSC-issued licences.

Licence Period

PHCF has requested a renewal of its licence for a period of 20 years. As discussed in section 5.6 of this CMD, CNSC staff conclude that the regulatory framework is in place to maintain regulatory oversight of the PHCF facility regardless of the licence term. Additionally, based on PHCF's performance over the current licence term and information submitted in the licence renewal application, their justification for a 20-Year licence is reasonable. Based on these considerations, CNSC staff recommend the Commission approve PHCF's request for a renewal of its licence for a 20-year period.

PROPOSED CHANGES TO THE LICENCE PERIOD	
Licence Period (current licence)	Licence Period (proposed licence)
10-year licence period	20-year licence period



Current Licence

The current licence is provided on the following pages of this document.



PDF Ref: e-Doc 5068156

Word Ref: e-Doc 4861336

File / Dossier: 2.02

NUCLEAR FUEL FACILITY OPERATING LICENCE

CAMECO CORPORATION PORT HOPE CONVERSION FACILITY

- I) **LICENCE NUMBER:** **FFOL-3631.00/2027**
- II) **LICENSEE:** Pursuant to section 24 of the [*Nuclear Safety and Control Act*](#), this licence is issued to:
- Cameco Corporation**
2121 – 11th Street West
Saskatoon, Saskatchewan
S7M 1J3
- III) **LICENCE PERIOD:** This licence is valid from **March 01, 2017**, to **February 28, 2027**, unless otherwise suspended, amended, revoked or replaced.
- IV) **LICENSED ACTIVITIES:**
- This licence authorizes the licensee to:
- (i) operate the Cameco Corporation Port Hope Conversion Facility (hereinafter “the facility”) located in the Municipality of the Town of Port Hope, Ontario;
 - (ii) possess, transfer, use, import, process, package, transport, manage, store and dispose nuclear substances, other than enriched uranium compounds, that are required for, associated with, or arise from the activities described in (i);



- (iii) possess and use prescribed equipment and prescribed information that are required for, associated with, or arise from the activities described in (i);
- (iv) possess, use, process, store and dispose enriched uranium compounds for experimental and developmental purposes;
- (v) store and dispose enriched uranium compounds contained in legacy waste material and in historically contaminated buildings.



V) EXPLANATORY NOTES:

- (i) Nothing in this licence shall be construed to authorize non-compliance with any other applicable legal obligation or restriction.
- (ii) Unless otherwise provided for in this licence, words and expressions used in this licence have the same meaning as in the [*Nuclear Safety and Control Act*](#) and associated Regulations.
- (iii) The Cameco Corporation Port Hope Conversion Facility Licence Conditions Handbook (LCH) provides compliance verification criteria including the codes, standards and regulatory documents used to verify compliance with the conditions in the licence. The LCH also provides information regarding applicable versions of documents and non-mandatory recommendations and guidance on how to achieve compliance.

VI) CONDITIONS:

1. General

- 1.1 The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as:
- (i) the regulatory requirements set out in the applicable laws and regulations;
 - (ii) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence;
 - (iii) the safety and control measures described in the licence application and the documents needed to support that licence application;

unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter “the Commission”).

- 1.2 The licensee shall give written notification of changes to the facility or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis.
- 1.3 The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission.



- 1.4 The licensee shall implement and maintain a public information and disclosure program.
- 2. Management System**
 - 2.1 The licensee shall implement and maintain a management system.
- 3. Human Performance Management**
 - 3.1 The licensee shall implement and maintain a human performance program.
 - 3.2 The licensee shall implement and maintain a training program.
- 4. Operating Performance**
 - 4.1 The licensee shall implement and maintain an operating program, which includes a set of operating limits.
 - 4.2 The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.
- 5. Safety Analysis**
 - 5.1 The licensee shall implement and maintain a safety analysis program.
- 6. Physical Design**
 - 6.1 The licensee shall implement and maintain a design program.
 - 6.2 The licensee shall implement and maintain a pressure boundary program and have in place a formal agreement with an Authorized Inspection Agency.
- 7. Fitness for Service**
 - 7.1 The licensee shall implement and maintain a fitness for service program.
- 8. Radiation Protection**
 - 8.1 The licensee shall implement and maintain a radiation protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.
- 9. Conventional Health and Safety**
 - 9.1 The licensee shall implement and maintain a conventional health and safety program.



10. Environmental Protection

10.1 The licensee shall implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

11. Emergency Management and Fire Protection

11.1 The licensee shall implement and maintain an emergency preparedness program.

11.2 The licensee shall implement and maintain a fire protection program.

12. Waste Management

12.1 The licensee shall implement and maintain a waste management program.

12.2 The licensee shall implement and maintain a decommissioning strategy.

13. Security

13.1 The licensee shall implement and maintain a security program.

14. Safeguards and Non-Proliferation

14.1 The licensee shall implement and maintain a safeguards program.

15. Packaging and Transport

15.1 The licensee shall implement and maintain a packaging and transport program.

16. Nuclear Facility-Specific

16.1 The licensee shall implement and maintain a program to carry out clean-up, decontamination, demolition and remediation work.

16.2 The licensee shall not exceed the limit for a small quantity of fissionable material.

16.3 The licensee shall implement and maintain a nuclear criticality safety program.

SIGNED at OTTAWA, this day of February, 2017.

Original signed February 27, 2017

Michael Binder, President

on behalf of the Canadian Nuclear Safety Commission



Proposed Licence

The proposed licence is provided on the following pages of this document.



**CAMECO CORPORATION PORT HOPE
CONVERSION FACILITY**

FFL-3631.00/2047

NUCLEAR FUEL FACILITY LICENCE

[TITLE OF LICENCE-FRENCH]

I) LICENCE NUMBER FFL-3631.00/2047

II) LICENSEE Pursuant to subsection 24(2) of the *Nuclear Safety and Control Act*, this licence is issued to:

Cameco Corporation
2121—11th Street West, Saskatoon, Saskatchewan, S7M 1J3

Corporation number: 2609754 (Saskatchewan)

III) LICENCE PERIOD

This licence is valid from: March 01, 2027, to February 28, 2047, unless otherwise suspended in whole or in part, amended, revoked, or replaced.

IV) LICENSED ACTIVITIES

In accordance with section 26 of the *Nuclear Safety and Control Act*, this licence authorizes the licensee to:

- i) operate the Cameco Corporation Port Hope Conversion Facility (hereinafter “the facility”) located in the Municipality of the Town of Port Hope, Ontario;
- ii) possess, transfer, use, import, process, manage, store and dispose nuclear substances, other than enriched uranium compounds, that are required for, associated with, or arise from the activities described in (i);



- iii) possess and use prescribed equipment and prescribed information that are required for, associated with, or arise from the activities described in (i);
- iv) possess, use, process, store and dispose enriched uranium compounds for experimental and developmental purposes;
- v) store and dispose enriched uranium compounds contained in legacy waste material and in historically contaminated buildings.

V) EXPLANATORY NOTES

- i) Nothing in this licence shall be construed to authorize non-compliance with any other applicable legal obligation or restriction.
- ii) Unless otherwise provided for in this licence, words and expressions used in this licence have the same meaning as in the Nuclear Safety and Control Act and associated Regulations.
- iii) The Cameco Corporation Port Hope Conversion Facility Licence Conditions Handbook (LCH) provides compliance verification criteria including the codes, standards and regulatory documents used to verify compliance with the conditions in the licence. The LCH also provides information regarding applicable versions of documents and non-mandatory recommendations and guidance on how to achieve compliance.

VI) CONDITIONS

17. General

G.1 The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as:

- (iv) the regulatory requirements set out in the applicable laws and regulations;
- (v) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence;
- (vi) the safety and control measures described in the licence application and the documents needed to support that licence application;

unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter "the Commission").



- G.2 The licensee shall give written notification of changes to the facility or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis.
- G.3 The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission.
- G.4 The licensee shall implement and maintain a public information and disclosure program.

1. Management System

- 1.1 The licensee shall implement and maintain a management system.

2. Human Performance Management

- 2.1 The licensee shall implement and maintain a human performance program.
- 2.2 The licensee shall implement and maintain a training program.

3. Operating Performance

- 3.1 The licensee shall implement and maintain an operating program, which includes a set of operating limits.
- 3.2 The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.

4. Safety Analysis

- 4.1 The licensee shall implement and maintain a safety analysis program.

5. Physical Design

- 5.1 The licensee shall implement and maintain a design program.
- 5.2 The licensee shall implement and maintain a pressure boundary program and have in place a formal agreement with an Authorized Inspection Agency.

6. Fitness for Service

- 6.1 The licensee shall implement and maintain a fitness for service program.



7. Radiation Protection

- 7.1 The licensee shall implement and maintain a radiation protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

8. Conventional Health and Safety

- 8.1 The licensee shall implement and maintain a conventional health and safety program.

9. Environmental Protection

- 9.1 The licensee shall implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

10. Emergency Management and Fire Protection

- 10.1 The licensee shall implement and maintain an emergency preparedness program.
- 10.2 The licensee shall implement and maintain a fire protection program.

11. Waste Management

- 11.1 The licensee shall implement and maintain a waste management program.
- 11.2 The licensee shall maintain a decommissioning plan.

12. Security

- 12.1 The licensee shall implement and maintain a security program.

13. Safeguards and Non-Proliferation

- 13.1 The licensee shall implement and maintain a safeguards program.

14. Packaging and Transport

- 14.1 The licensee shall implement and maintain a packaging and transport program.

15. Nuclear Facility-Specific

- 15.1 The licensee shall implement and maintain a program to carry out clean-up, decontamination, demolition and remediation work.
- 15.2 The licensee shall not exceed the limit for a small quantity of fissionable material.
- 15.3 The licensee shall implement and maintain a nuclear criticality safety program.



Draft Licence Conditions Handbook

The proposed licence conditions handbook is provided on the following pages of the document.



SharePoint ID: [3KEUWM3NAEAP-1467035006-358](#) (Word)

SharePoint ID: (PDF)

LICENCE CONDITIONS HANDBOOK

CAMECO PORT HOPE CONVERSION FACILITY

Nuclear Fuel Facility Licence

FFL-3631.00/2047

Revision 0



Licence Conditions Handbook

Effective: March 01, 2027

LCH-FFL-3631.00/2047

Port Hope Conversion Facility

Nuclear Fuel Facility Licence

FFL-3631.00/2047

SIGNED at OTTAWA this **X** day of **MONTH 202X**

Claire Pike, Director

Nuclear Processing Facilities Division

Directorate of Nuclear Cycle and Facilities Regulation

CANADIAN NUCLEAR SAFETY COMMISSION



REVISION HISTORY

Effective Date	Rev. #	LCH Sharepoint ID	Section(s) Changed	Description of Changes
2026-03-27	0	3KEUWM3NA EAP- 1467035006- 358	All	Document prepared for PHCF licence FFL-3631.00/2047

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INTRODUCTION

The general purpose of the Licence Conditions Handbook (LCH) is to identify and clarify the relevant parts of the licensing basis for each licence condition (LC). This will help ensure that Cameco's Port Hope Conversion Facility (PHCF) performs the licensed activities at PHCF in accordance with the licensing basis and the intent of the licence. The LCH should be read in conjunction with the licence.

The LCH typically has 3 parts under each LC: the Preamble, Compliance Verification Criteria (CVC) and Guidance. The Preamble explains, as needed, the regulatory context, background and/or history related to the LC. CVC are criteria used by Canadian Nuclear Safety Commission (CNSC) staff to verify and oversee compliance with the LC. Guidance is non-mandatory information on how to comply with the LC.

Current versions of the licensing basis publications, licensee documents that require notification of change and guidance documents referenced in the LCH are tracked in the document *Cameco PHCF LCH Written Notification Table [associated with licence FFOL-3631.00/2047]* (SharePoint ID [3KEUWM3NAEAP-1467035006-30](#)). This document is controlled by the Nuclear Processing Facilities Division (NPF) and is available to the licensee upon request.

Most CNSC documents referenced in the LCH are available through the [CNSC website](#). The links provided in the LCH are references to the internal CNSC electronic filing system, and these links cannot be accessed from outside of the CNSC network. Most licensee documents referenced in the LCH are not publicly available as they contain proprietary information or prescribed information as defined by the [General Nuclear Safety and Control Regulations](#) (GNSCR).

The CNSC is required to protect the information under its control as per the [Access to Information Act](#). As such, if a request for a Cameco document were received, CNSC staff would consult with Cameco for their direction on the release of any information, per the law.

Domestic and international standards (in particular consensus standards produced by the CSA Group) are an important component of the CNSC's regulatory framework. Standards support the regulatory requirements established through the [Nuclear Safety and Control Act](#) (NSCA), its regulations and licences by setting out the necessary elements for acceptable design and performance at a regulated facility or a regulated activity. Standards are one of the tools used by the CNSC to evaluate whether licensees are qualified to carry out licensed activities.

The CNSC offers complimentary access to the [CSA Group suite of nuclear standards](#) through the CNSC website. This access platform allows interested stakeholders to view these standards online through any device that can access the Internet. Standards applicable to the licensees are documented in the CVC or guidance as appropriate.



This LCH has 2 appendices:

- Appendix A: which provides definitions of terms and a list of acronyms used throughout the LCH.
- Appendix B: which provides a list of version-controlled documents referenced in the LCH.

Part IV “Licensed Activities” of Nuclear Fuel Facility Licence FFL-3631.00/2047 authorizes the licensee to:

- (vi) operate the Cameco Corporation Port Hope Conversion Facility (hereinafter “the facility”) located in the Municipality of Port Hope, Ontario;
- (vii) possess, transfer, use, import, process, manage, store and dispose nuclear substances, other than enriched uranium compounds, that are required for, associated with, or arise from the activities described in (i);
- (viii) possess and use prescribed equipment and prescribed information that are required for, associated with, or arise from the activities described in (i);
- (ix) possess, use, process, store and dispose enriched uranium compounds for experimental and developmental purposes;
- (x) store and dispose enriched uranium compounds contained in legacy waste material and in historically contaminated buildings.

Cameco is authorized to operate the facility. The facility is located at two sites in the Municipality of Port Hope, Ontario on the north shore of Lake Ontario. Site 1 consists of the main site property for operations and storage located at 1 Eldorado Place. Site 2 consists of a single property for storage facilities located at 158 Dorset Street East. The general plant and site layout drawings that describe the facility are written notification documents found under LC 5.1.



GENERAL

Licence Condition G.1: Licensing Basis for Licensed Activities

The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as:

- (i) the regulatory requirements set out in the applicable laws and regulations;**
- (ii) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence;**
- (iii) the safety and control measures described in the licence application and the documents needed to support that licence application**

unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter “the Commission”).

Preamble

The licensing basis sets the boundary conditions for acceptable performance at a regulated facility or activity, and thus establishes the basis for the CNSC's compliance program with respect of that regulated facility or activity. The degree to which the regulatory requirements are applied should reflect their importance to the health and safety of persons, environment, national security, international obligations to which Canada has agreed, licensee's quality and economic expectations, the complexity of facility or activity, and the possible consequences if accidents occur or the activity is carried out incorrectly.

Where the LC requires the licensee to implement and maintain a particular program, the licensee documents that describe how these safety and control area requirements are implemented at the facility are part of the licensing basis.

Compliance Verification Criteria

Regulatory Role of the Licensing Basis

The licensing basis is established when the Commission renders its decision regarding the licence application. LC G.1 requires the licensee to conduct the licensed activities in accordance with the licensing basis. For activities that are not in accordance with the licensing basis, the licensee shall take action as soon as practicable to return to a state consistent with the licensing basis, taking into account the risk significance of the situation.

The licensing basis is not intended to unduly inhibit the ongoing management and operation of the facility or the licensee's ability to adapt to changing circumstances and continuously improve, in accordance with its management system.



Part (i) of the Licensing Basis

Part (i) of the licensing basis refers to applicable laws and regulations. There are many federal and provincial acts and regulations, and international laws, agreements, guidelines, etc., applicable to activities performed at Cameco's PHCF.

The laws, regulations and international agreements for which CNSC has a regulatory role include:

- [Nuclear Safety and Control Act](#) (NSCA) and its Regulations;
- [Impact Assessment Act](#) and its Regulations;
- [Canadian Environment Protection Act](#);
- [Nuclear Liability and Compensation Act](#);
- [Transportation of Dangerous Goods Act](#) and its Regulations;
- [Radiation Emitting Devices Act](#);
- [Access to Information Act](#);
- [Canada/IAEA Safeguards Agreements](#);
- [Canada Labour Code, Part II](#), and [Canada Occupational Health and Safety Regulations](#)
- *Ontario Ministry of the Environment, Conservation and Parks Acts and Regulations*; and
- *Environment and Climate Change Canada Acts and Regulations*.

Part (ii) of the Licensing Basis

Part (ii) of the licensing basis refers to the conditions and the safety and control measures included in the licence and in the documents directly referenced in the licence.

Under the standardized format and content, the licence requires the licensee to implement and maintain certain programs. There are no documents directly referenced in the standardized PHCF licence. For the purpose of licence requirement, a program may be a series of documented, coordinated activities, not necessarily a single document.

Part (iii) of the Licensing Basis

Part (iii) of the licensing basis consists of the safety and control measures described in the licence application and in the documents in support of that licence application. The safety and control measures include important aspects of that documentation, as well as important aspects of analysis, design, operation, etc. They may be found in high-level, programmatic licensee documents but might also be found in lower level, supporting licensee documentation. LC G.1 requires the licensee to conform to, and/or implement, all these safety and control measures.



Part (iii) of the licensing basis also includes the safety and control measures in the standards, codes and CNSC regulatory documents referenced in the application or in the licensee's supporting documentation. Note, however, this does not mean that all details in these referenced documents are part of the licensing basis; some of these documents may contain administrative, informative or guidance sections that are not considered to be part of the licensing basis.

Applicable licensee documents are listed in the LCH under the heading "Licensee Documents that Require Notification of Change". Applicable CNSC regulatory documents, CSA standards and other documents are listed in the LCH under the heading "Licensing Basis Publications". The documents listed in the LCH could cite other documents that also contain safety and control measures. Applicable licensing basis publications are listed in tables in this LCH under the most relevant LC. All "shall" or normative statements in licensing basis publications are considered CVC unless stated otherwise. If any "should" or informative statements in licensing basis publications are also considered CVC, this is also explained under the most relevant LC.

Details that are not directly relevant to safety and control measures for facilities or activities authorized by the licence are excluded from the licensing basis. Details that are relevant to a different safety and control area (i.e., not the one associated with the main document), are only part of the licensing basis to the extent they are consistent with the main requirements for both safety and control areas.

In the event of any perceived or real conflict or inconsistency between 2 elements of the licensing basis, the licensee shall consult CNSC staff to determine the approach to resolve the issue.

CNSC Staff's Approach to Assessing the Licensing Basis for PHCF

In accordance with LC G.2, Cameco will submit relevant documentation for CNSC staff review regarding proposed changes to the facility or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis. This includes, but is not limited to changes to equipment, processes, supporting activities, specific licensee documentation or any other item considered a safety or control measure under the licensing basis. There are specific licensee documents listed in the LCH, which require written notification every time a new version of the document is approved by Cameco. CNSC staff will review the information submitted by Cameco to confirm Cameco's assessment that the proposed change remains within the licensing basis. CNSC staff assess a proposed change as being within the licensing basis based on changes or impact on the overall safety at the PHCF. Cameco may proceed with the proposed initiatives if they are found to be within the licensing basis.

Any proposed activity, facility or other change, which CNSC staff consider to be outside the licensing basis, will be discussed with Cameco and should Cameco choose to proceed with the change, CNSC staff will submit the matter to the Commission for consideration. If the Commission grants approval to the change, it will become part of the licensing basis for PHCF and reflected in updates to the LCH as appropriate.



Licence Application Documents and Supporting Documents

Submission Date	Document Title	SharePoint ID
September 29, 2025	Cameco Corporation – Port Hope Conversion Facility renewal of Licence FFOL-3631.00/2027 for a 20-year term	DAMZHJW66V33-166150894-8034
November 18, 2025	Supplemental Letter of Justification - Application from Cameco Corporation to renew the Class IB Nuclear Fuel Facility Operating Licence for the Port Hope Conversion Facility for a period of 20 years	3KEUWM3NAEAP-1467035006-164

Guidance

Guidance Document

Document Number	Document Title	Version
REGDOC- 3.5.3	Regulatory Fundamentals	2018

When the licensee becomes aware that a proposed change or activity might not be in accordance with the licensing basis, it should first seek direction from CNSC staff regarding the potential acceptability of this change or activity. The licensee should take into account that certain types of proposed changes might require significant lead times before CNSC staff can make recommendations and/or the Commission can properly consider them. Guidance for notifications to CNSC related to licensee changes are discussed under LC G.2.



Licence Condition G.2: Notification of Changes

The licensee shall give written notification of changes to the facility or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis.

Preamble

CNSC staff track the version history of licensee documents that require written notification of change in: *Cameco PHCF LCH Written Notification Table [associated with licence FFL-3631.00/2047]* (SharePoint ID [3KEUWM3NAEAP-1467035006-30](#)) (with the exception of security-related documents).

The objective of the licensing basis, as defined in the LCH under LC G.1, is to set the boundary conditions for acceptable performance at the facility. The licensee is encouraged to make continuous improvements to their programs and documents throughout the licensing period as long as they remain within the licensing basis authorized by the Commission.

Compliance Verification Criteria

Written notification is a physical or electronic communication from a person authorized to act on behalf of the licensee to the CNSC.

Under the licensee's management system, a change control process requires justifying changes and the review of changes by relevant stakeholders. Proposed changes with the potential to negatively impact designs, operating conditions, policies, programs, methods, or other elements that are integral to the licensing basis, are documented and written notification of the change shall be provided to the CNSC. Written notifications shall include a summary description of the change, the rationale for the change, expected duration (if not a permanent change), and a summary explanation of how the licensee has concluded that the change remains in accordance with the licensing basis (e.g., an evaluation of the impact on health, safety, security, the environment and Canada's international obligations). A copy of the revised document shall accompany the notification. All written notifications shall be transmitted to CNSC per established communications protocols.

Many changes for which the licensee shall notify the CNSC are captured as changes to licensee documents under part (iii) of the licensing basis. The LCH identifies specific documents that require written notification under the most relevant LC. However, other documents identified in the application or in the licensee's supporting documentation may require notification of change if they describe safety and control measures applicable to the licensing basis. For example, if a licensee document in the CVC refers to another document, including a third-party document, without citing the revision number of that document, if that document changes and the licensee uses the revised version, the licensee shall determine if it is necessary to notify the CNSC of the change.

The documents needed to support the licence application may include documents produced by third parties (e.g., reports prepared by third party contractors). Changes to these documents require written notification to the CNSC only if the new version continues to form part of the licensing basis. That is, if the licensee implements a new version of a document prepared by a third party, it shall inform the CNSC of the change(s), per LC G.2. On the other hand, if a third party has updated a certain document, but the licensee has not adopted the new version as part of its safety and control measures, the licensee is not required to inform the CNSC that the third party has changed the document.

Licensee documents listed in the CVC of the LCH are subdivided into categories having different requirements for notification of change:

Notification Category for Licensee Documents Listed in the LCH

Category	Definition
PN	Prior notification – The licensee shall submit the notice to the CNSC prior to implementing the change; typically, the requirement is to submit the proposed changes 30 days prior to planned implementation; however the licensee shall allow sufficient time for the CNSC to review the change proportionate to its complexity and the importance of the safety and control measures being affected
NT	Notification - The licensee shall submit the notice at time of making the change

Notification of some proposed changes (i.e., engineered physical changes, new processes/activities for the facility) may not be best captured through an update to a licensee document. In these cases, a standalone submission may be made that includes the summary description of the change, the rationale for the change, expected duration (if not a permanent change), and a summary explanation of how the licensee has concluded that the change remains in accordance with the licensing basis.

Changes that are not clearly in the safe direction require further assessment of impact to determine if Commission approval is required in accordance with LC G.1.

Guidance

For proposed changes that would not be in accordance with the licensing basis, the guidance for LC G.1 applies.

Licence Condition G.3: Financial Guarantee

The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission.

Preamble

The [General Nuclear Safety and Control Regulations](#) requires that a licence application contain a description of any proposed financial guarantee relating to the activity to be licensed.

CNSC REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*, sets out requirements and guidance for the establishment and maintenance of funding for the decommissioning of facilities and termination of activities.

The licensee's cost estimate for decommissioning should include all decommissioning activities as per the facility's most up-to-date preliminary decommissioning plan and reflect the assumed decommissioning strategy and end state of the facility.

The facility's current financial guarantee is covered by irrevocable letters of credit for the full value of the estimated decommissioning cost.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
REGDOC-3.3.1	Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities	2021	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
N/A	Port Hope Conversion Facility Preliminary Decommissioning Plan	PN

The licensee shall report annually to confirm that their financial guarantee for decommissioning remains, valid, in effect and sufficient to meet the decommissioning needs according to the current PDP. The licensee shall submit this report as part of the Annual Compliance Report, or at any time as the Commission may request.



Guidance

None Provided

Licence Condition G.4: Public Information and Disclosure Program

The licensee shall implement and maintain a public information and disclosure program.

Preamble

The [Class I Nuclear Facilities Regulations](#) require that an application for a licence contain the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed.

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

The program will include, as part of the primary audience, ongoing engagement and communication with the following Indigenous Groups, located in the vicinity of PHCF:

- Mississaugas of Scugog Island First Nation
- Hiawatha First Nation
- Alderville First Nation
- Curve Lake First Nation

The program will include the provision of information and response to inquiries from interested parties and Indigenous groups in PHCF's secondary audience, including:

- Chippewas of Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation
- Mohawks of the Bay of Quinte
- Métis Nation of Ontario Region 6

This LC requires the licensee to implement and maintain a public information and disclosure program to improve the public's level of understanding about PHCF's activities.

Compliance Verification Criteria



Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
REGDOC-3.2.1	Public Information and Disclosure	2018	Implemented
REGDOC-3.2.2	Indigenous Engagement, Version 1.2	2022	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
FSD-PGR-PIP-001	FSD Public Information Program	NT

Guidance

None provided.



SCA – MANAGEMENT SYSTEM

Licence Condition 1.1: Management System

The licensee shall implement and maintain a management system.

Preamble

The [Class I Nuclear Facilities Regulations](#) require that a licence application contain information on the proposed quality assurance program for the activity to be licensed, including the measures to promote and support safety culture.

The [General Nuclear Safety and Control Regulations](#) requires that a licence application contain the applicant's organizational management structure, including the internal allocation of functions, responsibilities and authority.

CSA N286, *Management system requirements for nuclear facilities*, contains the requirements for a management system throughout the life cycle of a nuclear facility and extends to all safety and control areas.

CSA N286.0.1, *Commentary on N286-12, Management systems requirements for nuclear facilities*, provides background information concerning certain clauses and requirements in CSA N286. This background information can help the user clarify the context of the CSA N286 requirements.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
CSA N286	Management system requirements for nuclear facilities*	2012 (R2022)	Implemented
REGDOC- 2.1.2	Safety Culture	2018	Implemented

*This document is applicable to all LCs.

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
MSPM	Management System Program Manual*	PN
FLM	Facility Licensing Manual*	PN
CQP-113	Process and Design Change Control	NT

*This document is applicable to all LCs.

Guidance

Guidance Documents

Document Number	Document Title	Version
CSA N286.0.1	Commentary on N286-12, Management systems requirements for nuclear facilities	2021
REGDOC-2.1.1	Management System	2019



SCA – HUMAN PERFORMANCE MANAGEMENT

Licence Condition 2.1: Human Performance Program

The licensee shall implement and maintain a human performance program.

Preamble

Human performance is the outcome of human behaviours, functions and actions in a specified environment, reflecting the ability of workers and management to meet the management system's defined performance under the conditions in which the management system will be employed.

The effective management of human performance supports the safe execution of work activities in a manner that systematically accounts for human error with respect to sensory, perceptual, cognitive and physical capacity. Human performance refers to the outcome of human behaviour, functions and actions in a specified environment, reflecting the ability of workers and management to meet the system's defined performance under the conditions in which the system will be employed.

Human Factors are factors that influence human performance as it relates to the safety of a nuclear facility or activity. These factors may include the characteristics of the person, task, equipment, organization, environment, and training. The reliability of humans in performing activities under a variety of conditions may be enhanced by systematically considering human factors, in conjunction with change control and correction action processes, to ensure that topics such as interface design, training, procedures, and organization and job design are appropriately addressed.

The [General Nuclear Safety and Control Regulations](#) require the licensee to: ensure the presence of a sufficient number of qualified workers to carry on the licensed activity safely and in accordance with the NSCA, the regulations made under the NSCA and the licence; and train the workers to carry on the licensed activity in accordance with the NSCA, the regulations made under the NSCA and the licence. The [Class I Nuclear Facilities Regulations](#) require that a licence application contain information on the proposed human performance program, including measures to ensure workers' fitness for duty.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
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REGDOC- 2.2.2	Personnel Training, Version 2	2016	Implemented
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Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
PHF.UF ₆ .SO70.3	Standard for Minimum Crew Compliment in UF ₆ Operations	NT
SO40	Minimum Staffing Requirements UO ₂ Production Plant	NT
SOG019	Emergency Response Team Minimum Staffing	NT

Guidance

Guidance Documents

Document Number	Document Title	Version
REGDOC-2.2.5	Minimum Staff Complement	2019
REGDOC-2.2.1	Human Performance, Version 2	2023



Licence Condition 2.2: Training Program

The licensee shall implement and maintain a training program.

Preamble

This LC requires the licensee to develop and implement training programs for workers. It also provides the requirements regarding the program and processes necessary to support responsibilities, qualifications and requalification training of persons at the nuclear facility.

As defined by the [General Nuclear Safety and Control Regulations](#), a worker is a person who performs work that is referred to in a licence. This includes contractors and temporary employees. Training requirements apply equally to these types of workers as to the licensee's own employees. The [General Nuclear Safety and Control Regulations](#) require that licensees ensure the presence of sufficient number of qualified workers to carry on the licensed activity safely and in accordance with the NSCA, the regulations made under the NSCA and the licence; and train the workers to carry on the licensed activity in accordance with the NSCA, the regulations made under the NSCA and the licence.

The [Class I Nuclear Facilities Regulations](#) require that licence applications include the proposed responsibilities of and qualification requirements and training program for workers, including the procedures for the requalification of workers; and the results that have been achieved in implementing the program for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility.

The [Class I Nuclear Facilities Regulations](#) require every licensee to keep a record of the status of each worker's qualifications, requalification and training, including the results of all tests and examinations completed in accordance with the licence.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
REGDOC-2.2.2	Personnel Training, Version 2	2016	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
TP01	Port Hope Training Plan	PN
CQP 942	UF ₆ Plant Operations Training Procedure	NT
CQP 943	UF ₆ Plant Supervisor Training Procedure	NT



Guidance

None provided.



SCA – OPERATING PERFORMANCE

Licence Condition 3.1: Operating Program

The licensee shall implement and maintain an operating program, which includes a set of operating limits.

Preamble

The [Class I Nuclear Facilities Regulations](#) requires that a licence application contain the following information: the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility. The [Nuclear Substances and Radiation Devices Regulations](#) have requirements for records to be kept and retained for nuclear substances.

An operating program includes an up-to-date set of operating limits for the facility and activities authorized under the licence, including: production limits and limits for the possession, use, management, transfer, storage of nuclear substances, and an inventory of nuclear substances possessed under the licensees' operating licence.

Compliance Verification Criteria

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
EPP	Environmental Protection Program	PN
PHF-MAN-RAD	Radiation Protection Program Manual	PN
CAP:RAD:13	Radioisotope Source Control	PN

Nuclear Substances and Radiation Devices

The licensee shall ensure the sealed sources are controlled (by maintaining an inventory of sealed sources and tracking and reporting their transfer) in order to achieve the objectives of REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material, Version 2.1*.

The licensee shall notify CNSC staff prior to possessing sources with aggregate activity levels which meet or exceed Category 3 sources as defined in REGDOC-2.12.3.

Annual Production Limits for the Facility

The annual production for the facility shall not exceed the following limits:

- 2800 tonnes of uranium as uranium dioxide from the UO₂ plant;
- 12500 tonnes of uranium as uranium hexafluoride from the UF₆ plant; and
- 45 tonnes of uranium as uranium hexafluoride daily production limit for the UF₆ plant.

Guidance

None provided.

Licence Condition 3.2: Reporting Requirements

The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.

Preamble

This LC requires the licensee to implement and maintain a program for reporting information to the Commission. This includes compliance monitoring and operational performance, responses to unusual events, and notifications of various types.

The [Nuclear Safety and Control Act](#) and its applicable regulations describe reporting to the Commission or a person authorized by the Commission. Reporting requirements are found in sections 29 – 32 of the [General Nuclear Safety and Control Regulations](#) and section 27 of the NSCA.

The statement “a person authorized by the Commission” in the LCs or the LCH indicates that the Commission may delegate certain authority to CNSC staff. Unless otherwise specified, the delegation of authority by the Commission to act as a person authorized by the Commission (Delegated Officer) is only applied to the incumbents in the following positions:

- Director, Nuclear Processing Facilities Division
- Director General, Directorate of Nuclear Cycle and Facilities Regulation
- Executive Vice-President and Chief Regulatory Officer, Regulatory Operations Branch

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
REGDOC- 3.1.2	Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills	2018	Implemented

Annual Reporting

The annual compliance and performance report covering the period January 1 to December 31 shall be submitted to CNSC staff by March 31 each year. In addition to the requirements outlined in REGDOC-3.1.2, Cameco is also required to report annually:



- Status of the Vision in Motion (VIM) project, including VIM supplementary monitoring data and
- Review of groundwater and surface water

Quarterly Reporting

The licensee shall submit a quarterly compliance report within 8 weeks of the end of each quarter, covering the following areas:

- Facility operations;
- Radiation protection monitoring data;
- Conventional health and safety;
- Environmental monitoring data;
- Public Information Program summary; and
- Status of the Vision in Motion (VIM) project, including VIM supplementary monitoring data.

Guidance

None provided.



SCA – SAFETY ANALYSIS

Licence Condition 4.1: Safety Analysis Program

The licensee shall implement and maintain a safety analysis program.

Preamble

The [General Nuclear Safety and Control Regulations](#) requires that a licence application contains information that includes a description and the results of any test, analysis or calculation performed to substantiate the information included in the application.

The [Class I Nuclear Facilities Regulations](#) require that a licence application contains information that includes a final safety analysis report demonstrating the adequacy of the design of the nuclear facility, and the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility.

The implementation and maintenance of a safety analysis program includes a process to identify and assess hazards and risks on an ongoing basis. This includes identifying and evaluating new or unforeseen risks that were not considered at the planning and design stages and updating previous risk assessments by replacing important assumptions with performance data. The results of this process will be used to set objectives and targets and to develop preventative and protective measures.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Revision	Implementation Date
REGDOC- 2.4.4	Safety Analysis for Class 1B Nuclear Facilities	2022	Next Update of the SAR*

*Cameco submitted an implementation letter on December 15, 2023. These gaps are to be addressed in the next update of the Safety Analysis Report.

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
PHF-SAR	Safety Report for the Port Hope Conversion Facility	PN

The licensee shall maintain the safety analysis report to ensure it adequately considers the hazards associated with the facility. The safety analysis shall be a systematic evaluation of the



potential hazards associated with the conduct of a proposed activity or facility and consider the effectiveness of preventative measures and strategies in reducing the effects of such hazards.

The licensee shall establish and maintain a process to periodically review and revise existing risk assessments to ensure, at a minimum of every 5 years, new risks and lessons learned are incorporated into an updated safety analysis report. This report shall be provided to CNSC staff for review.

Guidance

The licensee should establish and maintain one or more safety committees at the facility to periodically assess safety issues related to the operation and modification of the facility. These committees should have among their membership the necessary breadth of knowledge and experience to conduct these assessments. The results of these assessments should feed into the safety analysis report.

Guidance Document

Document Number	Document Title	Version
IAEA SSR-4	Safety of Nuclear Fuel Cycle Facilities	2017



SCA – PHYSICAL DESIGN

Licence Condition 5.1: Design Program

The licensee shall implement and maintain a design program.

Preamble

The [Class I Nuclear Facilities Regulations](#) requires that a licence application contain the proposed measures, policies, methods and procedures to maintain the nuclear facility. The [Class I Nuclear Facilities Regulations](#) requires that a licence application contain a description of the structures, systems and equipment, including the relevant design information for the facility.

A design program ensures that the design of the facility is managed using a well-defined systematic approach. This LC requires that the licensee implement and maintain a design program to confirm that safety-related systems, structures and components (SSCs) and any modifications to them continue to meet their design basis given new information arising over time and taking changes in the external environment into account. It also confirms that SSCs continue to be able to perform their safety functions.

This LC requires that the licensee implement and maintain a design control process to ensure that design outputs (both interim and final) are reviewed, verified and validated against the design inputs and performance requirements, and to ensure that the design inputs are selected such that safety, performance and dependability of the design item are achieved.

CSA N393, *Fire Protection for Facilities that Process, Handle or Store Nuclear Substances*, provides the minimum fire protection requirements for the design, construction, commissioning, operation, and decommissioning of facilities, which process, handle, or store nuclear substances, and other hazardous substances that directly relate to the nuclear substances being regulated.

The *National Fire Code of Canada 2020* sets out technical provisions regulating:

- (a) activities related to the construction, use or demolition of buildings and facilities;
- (b) the condition of specific elements of buildings and facilities;
- (c) the design or construction of specific elements of facilities related to certain hazards;
and
- (d) protection measures for the current or intended use of buildings.

The *National Building Code of Canada 2020*, sets out technical provisions for the design and construction of new buildings. It also applies to the alteration, change of use and demolition of existing buildings.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
NRCC 56190	National Building Code of Canada 2020	2020	Implemented
NRCC 56192	National Fire Code of Canada 2020	2020	Implemented
CSA N393	Fire Protection for Facilities that Process, Handle or Store Nuclear Substances	2022	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
CQP-113	Process and Design Change Control	NT
Drawing no.99101 Sheet 71	General Plant Layout - Site 1- Main Site Operations and Storage	PN
Drawing no.99101 Sheet 73	General Site Layout - Site 2	PN

Guidance

Guidance Document

Document Number	Document Title	Version
REGDOC-2.5.1	General Design Considerations: Human Factors	2019



Licence Condition 5.2: Pressure Boundary Program and Authorized Inspection Agency Agreement

The licensee shall implement and maintain a pressure boundary program and have in place a formal agreement with an Authorized Inspection Agency.

Preamble

A pressure boundary is a boundary of any pressure retaining vessel, system or component of a nuclear or non-nuclear system, where the vessel, system or component is registered or eligible for registration. This LC provides regulatory oversight with regards to the licensee's implementation of a pressure boundary program and holds the licensee responsible for all aspects of pressure boundary registration and inspections. A pressure boundary program is comprised of processes and procedures and associated controls that are required to ensure compliance with the requirements set out in CSA B51, *Boiler, Pressure Vessel and Pressure Piping Code*.

This LC also ensures that an Authorized Inspection Agency (AIA) will be subcontracted directly by the licensee. An AIA is an organization recognized by the CNSC as authorized to register designs and procedures, perform inspections, and other functions and activities as defined by CSA B51 and its applicable referenced publications.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Revision	Implementation Date
CSA B51	Boiler, Pressure Vessel and Pressure Piping Code	2019	Implemented

Transition

The licensee has committed to submitting a gap analysis and an implementation plan for the 2024 edition of CSA B51, *Boiler, Pressure Vessel and Pressure Piping Code*, by end of Q4, 2026.

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
CQP - 501	In Service Inspection of Safety Significant Systems/Structures/Components	NT



CQP - 706	Pressure and Safety Significant Piping and Vessel Control	NT
CQP - 707	Registration and Inspection Requirements of Pressure Piping and Pressure Vessels	NT
N/A	Authorized Inspection Agency Services Agreement	NT*
N/A	Quality Control Manual for TSSA Certificate of Authorization	NT

*Termination of the agreement is considered a change that requires prior notification to CNSC.

Formal Agreement with an Authorized Inspection Agency

The licensee shall always have a valid AIA agreement, and shall adhere to the following:

- (a) the licensee shall arrange for the AIA inspectors to have access to all areas of Cameco's facilities and records, and to the facilities and records of Cameco's pressure boundary contractors and material organizations, as necessary for the purposes of performing inspections and other activities required by the standards;
- (b) the licensee shall provide the inspectors of the AIA with: information, reasonable advance notice and time necessary to plan and perform inspections and other activities required by the standards;
- (c) where a variance or deviation from the standard exists, the licensee shall submit the proposed resolution to the AIA for evaluation; and
- (d) design registration services shall be provided by an AIA legally entitled under the applicable provincial boilers and pressure vessels acts and regulations to register designs in the province of installation.

The licensee shall obtain AIA acceptance for implementation of the licensee's programs and procedures for:

- (a) calibration, repair and maintenance of overpressure protection devices;
- (b) repair and maintenance of mechanical joints; and
- (c) periodic inspection of boilers and pressure vessels designed according to CSA B51.

The licensee shall provide a copy of the signed AIA Agreement to the CNSC. The licensee shall notify the CNSC in writing of any change to the terms and conditions of the Agreement, including termination of the Agreement.

For safety significant systems or components, the licensee shall submit a preliminary report immediately and submit a full report within 21 days on the following:

- a pressure boundary failure, deformation, degradation or leak; and



- the degradation of an over-pressure protection device for the pressure boundary that prevented, or could have prevented, the proper functioning of that device.

Guidance

None provided.



SCA – FITNESS FOR SERVICE

Licence Condition 6.1: Fitness for Service Program

The licensee shall implement and maintain a fitness for service program.

Preamble

The [Class I Nuclear Facilities Regulations](#) require that a licence application contain information including the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility. It is expected that the licensee will conduct routine maintenance, inspection and testing to ensure the availability, reliability and effectiveness of facilities and equipment that may impact the health, safety and protection of the environment.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
CSA N393	Fire Protection for Facilities that Process, Handle or Store Nuclear Substances	2022	Implemented
NRCC 56192	National Fire Code of Canada 2020	2020	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
PHF-MAN-AMR	Asset Management and Reliability Program Manual for the Port Hope Conversion Facility	NT

The maintenance program shall form part of an integrated fitness-for-service and aging management strategy. This strategy shall include testing, inspection, and condition monitoring, performed in such a manner that the availability, reliability, and effectiveness of the facility remain consistent with the design and safety analysis documents submitted in support of the licence application.

The program shall document the frequency of maintenance, inspection, and testing activities and shall be informed by a proactive aging management process that considers known degradation mechanisms, operating experience, and the extended operating lifetime of the facility.



Guidance

None provided.



SCA – RADIATION PROTECTION

Licence Condition 7.1: Radiation Protection Program

The licensee shall implement and maintain a radiation protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

Preamble

The [Radiation Protection Regulations](#) require that the licensee implement a radiation protection program and also ascertain and record doses for each person who performs any duties in connection with any activity that is authorized by the [Nuclear Safety and Control Act](#) or is present at a place where that activity is carried on. This program must ensure that doses to workers do not exceed prescribed dose limits and are kept As Low As Reasonably Achievable (ALARA), social and economic factors being taken into account.

The regulatory dose limits are explicitly provided in the [Radiation Protection Regulations](#).

Action levels (ALs) are designed to alert licensees before regulatory dose limits are reached. By definition, if an AL is reached, a loss of control of some part of the associated radiation protection program may have occurred, and specific action is required, as defined in the [Radiation Protection Regulations](#). ALs are not intended to be static and are to reflect operating conditions in the facility.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
REGDOC- 3.1.2	Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills	2018	Implemented
CSA Z94.4	Selection, Use and Care of Respirators	2018	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
PHF-MAN-RAD	Radiation Protection Program Manual	PN
FSD-PRC-RAD-04	FSD External Dosimetry Programs – Process for Estimation of External Doses	PN

ALs for radiation protection are shown in the table below. In the event of a discrepancy between the table and the licensee documentation upon which they are based, the licensee

documentation shall be considered the authoritative source considering that the licensee has followed its own change control process, including providing written notification to CNSC staff.

Parameter	Period	Action Level
Whole body dose (NEW)	Monthly	2.0 mSv
	Quarterly	2.0 mSv
	Monthly - Pregnant Worker	1.0 mSv
	Cumulative dose during pregnancy - Pregnant Worker	2.0 mSv
Skin dose (NEW)	Monthly	15 mSv
	Quarterly	15 mSv
Urinalysis (NEW)	Bi-Weekly - UO ₂ /UF ₆ Operators, Maintenance, Technical Support	65 µg U/L
	Monthly - Administrative Support	25 µg U/L
	Bi-Weekly - Long-term Contractors	65 µg U/L
	Daily - Short-term Contractors	80 µg U/L
	Chemical toxicity – post shift sample	500 µg U/L
	Fluoride toxicity – all samples	7 mg F/L
Urinalysis (Non-NEW)	Daily - Routine Sample	40 µg U/L
	Chemical Toxicity - Post Shift Sample	500 µg U/L
	Fluoride Toxicity – All Samples	4 mg F/L
Lung Counting (NEW)	Semi-Annual - UO ₂ /UF ₆ Operators, Maintenance	5 mSv
	Annual - Technical Support	5 mSv
	Administrative Support (as required)	5 mSv
	Long-term and Short-term Contractors (as required)	5 mSv
Lens of an Eye Dose (NEW)	Monthly	6 mSv*
	Quarterly	12 mSv*

* Interim action level

The licensee shall review and, if necessary, revise the ALs specified above at least once every 5 years in order to validate their effectiveness. The results of such reviews shall be provided to CNSC staff.

Guidance

Guidance Documents

Document Identifier	Document Title	Version
REGDOC-2.7.1	Radiation Protection, Version 1.1	2025



REGDOC-2.7.2	Dosimetry, Volume I: Ascertaining Occupational Dose	2021
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SCA – CONVENTIONAL HEALTH AND SAFETY

Licence Condition 8.1: Conventional Health and Safety Program

The licensee shall implement and maintain a conventional health and safety program.

Preamble

The [Class I Nuclear Facilities Regulations](#) requires that a licence application contain information including the proposed worker health and safety policies and procedures. As a federal regulated site, Cameco is also subject to the requirements of [Canada Labour Code Part II](#) and [Canada Occupational Health and Safety Regulations](#).

CSA Z94.4, *Selection, Use and Care of Respirators*, sets out requirements for the selection, use, and care of respirators and for the administration of an effective respiratory protection program in the workplace.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
CSA Z94.4	Selection, Use and Care of Respirators	2018	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
PHF-MAN-OHS	Occupational Health and Safety Management Program Manual	PN

Employment and Social Development Canada is mandated with overseeing and enforcing compliance with the [Canada Labour Code](#) and its underlying regulations. CNSC staff monitor licensee compliance with its conventional health and safety program, and will take regulatory actions for any potential unsafe work practice situations.

Guidance

Guidance Document

Document Number	Document Title	Version
REGDOC-2.8.1	Conventional Health and Safety	2019



SCA – ENVIRONMENTAL PROTECTION

Licence Condition 9.1: Environmental Protection Program

The licensee shall implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

Preamble

The [Class I Nuclear Facilities Regulations](#) require that a licence application contain the proposed environmental protection policies, procedures, effluent and environmental monitoring programs. The [General Nuclear Safety and Control Regulations](#) require that every licensee take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances. The [Radiation Protection Regulations](#) prescribe the radiation dose limits for the general public of 1 mSv per calendar year.

The release of hazardous substances is regulated by the CNSC as well as both the Ontario Ministry of the Environment, Conservation and Parks and Environment and Climate Change Canada through various acts and regulations.

CSA N288.1, *Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities*, provides guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities.

CSA N288.4, *Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills*, provides requirements for the design and implementation of an environmental monitoring program at nuclear facilities.

CSA N288.5, *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills*, provides requirements for the design and implementation of an effluent monitoring program at nuclear facilities.

CSA N288.6, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills*, provides requirements for the performance and maintenance of an environmental risk assessment at nuclear facilities.

CSA N288.7, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*, provides requirements and guidance, which facilitate groundwater protection at nuclear facilities.

CSA N288.8, *Establishing and implementing action levels for releases to the environment from nuclear facilities*, provides requirements for establishing and implementing action levels at nuclear facilities.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
REGDOC-2.9.1	Environmental Principles, Assessments and Protection Measures, Version 1.2	2020	Implemented
REGDOC-2.9.2	Controlling Releases to the Environment	2024	Implemented
REGDOC-3.1.2	Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills	2018	Implemented
CSA N288.1	Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities	2020 (R2025)	Implemented
CSA N288.4	Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills	2010 (R2015)	Implemented
CSA N288.5	Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills	2011 (R2016)	Implemented
CSA N288.6	Environmental risk assessments at Class I nuclear facilities and uranium mines and mills	2012 (R2017)	Implemented
CSA N288.7	Groundwater Protection Programs at Class I nuclear facilities and Uranium Mines and Mills	2015	Implemented
CSA N288.8	Establishing and implementing action levels for releases to the	2017	Implemented



Document Number	Document Title	Version	Implementation Date
	environment from nuclear facilities		

Transition

The licensee has committed to submitting a gap analysis and an implementation plan for the following documents by end of Q2, 2026:

- CSA N288.0, *Environmental Management of Nuclear Facilities: Common Requirements of the CSA N288 Series of Standards*, Version 2022
- CSA N288.4, *Environmental Monitoring Programs at Nuclear Facilities and Uranium Mines and Mills*, Version 2019
- CSA N288.5, *Effluent and Emissions Monitoring Programs at Nuclear Facilities*, Version 2022
- CSA N288.6, *Environmental Risk Assessment at Nuclear Facilities and Uranium Mines and Mills*, Version 2022
- CSA N288.7, *Groundwater Protection and Monitoring Programs for Nuclear Facilities and Uranium Mines and Mills*, Version 2023
- CSA N288.8, *Establishing and implementing action levels for releases to the environment from nuclear facilities*, Revision 2022

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
FSD-PGR-EMS-001	FSD Environmental Management System	PN
EPP	Environmental Protection Program	PN
N/A	Environmental Risk Assessment for the Port Hope Conversion Facility	PN
N/A	Derived Release Limit and Operating Release Level Reports for the Port Hope Conversion Facility	PN
N/A	Port Hope Conversion Facility (PHCF) Air Exposure Based Release Limits (EBRLs)	PN
N/A	Derivation of EBRL for Liquid Releases – Port Hope Conversion Facility	PN



Document Number	Document Title	Notification
N/A	Review of Dose to the Public calculation for the Port Hope Conversion Facility	PN
N/A	Review of the Environmental Action Levels to Support the Environmental Protection Program	PN
N/A	Action Level for Uranium in Sanitary Sewer for Port Hope Conversion Facility	PN

The licensee shall review and revise the ERA in accordance with REGDOC-2.9.1. On a minimum 5-year frequency, the licensee shall also review the basis and modelling of public dose estimation, and revise in accordance with CSA N288.1 if necessary. The results of such reviews shall be provided to CNSC staff.

The licensee's environmental protection program shall ensure the control, monitoring and recording of environmental emissions from the facility such that the releases to the environment do not exceed release limits as defined below:

Release Source	Substance	Limit
Air – UF ₆ Plant Main Stack	Uranium, U (g/h)	105*
	Fluorides (as Hydrogen Fluoride, HF) (g/h)	299**
Air – UO ₂ Plant Main Stack	Uranium, U (g/h)	105*
	Ammonia, NH ₃ (kg/h)	33**
Air – UO ₂ Plant Depleted Operations Stack	Nitrogen Oxides, NO _x (kg/h)	2.1**
Water – Sanitary Sewer	Uranium, U (µg/L)	275***
Gamma – Site 1	Gamma radiation (µSv/h)	0.57 ^a
Gamma – Site 1	Gamma radiation (µSv/h)	0.61 ^b
Gamma – Site 2	Gamma radiation (µSv/h)	0.26 ^c

* Limits are based on an annual averaging period

**Limits are based on a 24-hour averaging period

*** Limits are based on a monthly averaging period

a) Fisherperson at OSLD 2

b) Infant resident at OSLD 10

c) Resident at OSLD 21



The licensee's environmental protection program shall have action levels for environmental emissions as shown below. In the event of a discrepancy between the tables and the licensee documentation upon which they are based, the licensee documentation shall be considered the authoritative source considering that the licensee has followed its own change control process, including providing written notification to CNSC staff.

Source	Parameter	Action Level	Averaging period
Air - UF ₆ Main Plant Stack	Uranium (g/h)	40	Daily
	Fluorides (as Hydrogen Fluoride, HF) (g/h)	230	Daily
Air - UO ₂ Main Plant Stack	Uranium (g/h)	10	Daily
	Ammonia (NH ₃) (kg/h)	10	Daily
Water - Sanitary Sewer	Uranium (µg/L)	150	Monthly
Gamma – Site 1A group (Stations 1, 8, 9, 10, 31 and 32)	Gamma radiation (µSv/h)	0.40	Monthly
Gamma – Site 1B group (Stations 2, 3, 4, 5, 6, 7, 17 and 33)	Gamma radiation (µSv/h)	0.40	Monthly
Gamma – Site 2 group (Stations 18, 19, 20, 21, 22 and 23)	Gamma radiation (µSv/h)	0.25	Monthly

The licensee shall review and, if necessary, revise action levels specified above at least once every 5 years in order to validate their effectiveness. The results of such reviews shall be provided to CNSC staff.



The licensee shall maintain a liquid effluent program that allows only the following discharges:

- a) Sanitary sewer discharge primarily consisting of contributions from Powerhouse operations, personnel showers, general facility operations (lunchrooms, bathrooms, condensates, instrument cooling water, etc.), and contributions otherwise approved by the Municipality of Port Hope;
- b) Process waste water stream consisting of all process waste water effluents, which are directed to a wastewater treatment system, re-used within the process and/or disposed of via an external waste management contractor; and
- c) Groundwater recovered from pumping wells or construction dewatering activities, which is discharged to a wastewater treatment system, re-used within the process and/or disposed of via external waste management contractor.

Guidance

None provided.



SCA – EMERGENCY MANAGEMENT AND FIRE PROTECTION

Licence Condition 10.1: Emergency Preparedness Program

The licensee shall implement and maintain an emergency preparedness program.

Preamble

The [Class I Nuclear Facilities Regulations](#) requires measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of national security, including measures to assist, notify, report to off-site authorities including the testing of the implementation of these measures.

This LC requires the licensee to establish an emergency preparedness program to prepare for, to respond to, and to recover from the effects of accidental radiological/nuclear and/or hazardous substance release. As part of the emergency preparedness program, the licensee shall prepare an onsite emergency plan and establish the necessary organizational structure for clear allocation of responsibilities, authorities, and arrangements for coordinating onsite activities and cooperating with external response organizations throughout all phases of an emergency.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
REGDOC-2.10.1	Nuclear Emergency Preparedness and Response	2016	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
ERP	Emergency Response Plan	PN

Guidance

None provided.

Licence Condition 10.2: Fire Protection Program

The licensee shall implement and maintain a fire protection program.

Preamble

Licensees require a comprehensive fire protection program (the set of planned, coordinated, controlled and documented activities) to ensure the licensed activities do not result in an unreasonable risk to the health and safety of persons and to the environment due to fire and to ensure that the licensee is able to efficiently and effectively respond to emergency fire situations.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
NRCC 56192	National Fire Code of Canada 2020	2020	Implemented
NRCC 56190	National Building Code of Canada 2020	2020	Implemented
CSA N393	Fire Protection for Facilities that Process, Handle or Store Nuclear Substances	2022	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
CQP-1200	Fire Protection Program	PN
CQP-1201	Fire Safety Plan	PN

Guidance

None provided.



SCA – WASTE MANAGEMENT

Licence Condition 11.1: Waste Management Program

The licensee shall implement and maintain a waste management program.

Preamble

The [General Nuclear Safety and Control Regulations](#) require that a licence application contain information related to the in-plant management of radioactive waste or hazardous waste resulting from the licensed activities.

The [Class I Nuclear Facilities Regulations](#) require that a licence application contain the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances.

CNSC REGDOC-2.11, *Framework for Radioactive Waste Management and Decommissioning in Canada*, describes the national framework and philosophy underlying the CNSC's approach to regulating the management of radioactive waste and the decommissioning of facilities, and explains the principles taken into account in CNSC regulatory decisions.

CNSC REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*, defines radioactive waste as any material (liquid, gaseous, or solid) that contains a radioactive nuclear substance, as defined in section 2 of the NSCA, for which no further use is foreseen. In addition to containing nuclear substances, radioactive waste may also contain hazardous substances that are not radioactive, as defined in section 1 of the *General Nuclear Safety and Control Regulations*.

CSA N292.0, *General principles for the management of radioactive waste and irradiated fuel*, specifies common requirements for the management of radioactive waste and irradiated fuel from generation to storage or disposal.

CSA N292.3, *Management of low- and intermediate-level radioactive waste*, provides requirements specific to the management of low- and intermediate-level radioactive waste in solid, liquid, or gaseous states.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
CSA N292.0	General Principles for the Management of Radioactive Waste and Irradiated Fuel	2019	Implemented
CSA N292.3	Management of low- and intermediate-level radioactive waste	2014	Implemented
REGDOC 2.11.1	Waste Management, Volume I: Management of Radioactive Waste	2021	Implemented

Transition

The licensee has committed to submitting a gap analysis and an implementation plan for the 2024 edition of CSA N292.0, *General Principles for the Management of Radioactive Waste and Irradiated Fuel*, by end of Q4, 2026.

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
FSD-PGR-WM-001	Fuel Services Division Waste Management Program	PN
WMP-01	Waste Management Plan	PN
WMP-02	Clean Up Program	PN

Guidance

Guidance Document

Document Number	Document Title	Version
REGDOC-2.11	Framework for Radioactive Waste Management and Decommissioning in Canada, Version 2	2021



Licence Condition 11.2: Decommissioning Plan

The licensee shall maintain a decommissioning plan.

Preamble

The [Class I Nuclear Facilities Regulations](#) require that a licence application contain information including the proposed plan for the decommissioning of the nuclear facility or of the site. This LC requires that the licensee maintain a decommissioning plan.

CNSC REGDOC-2.11.2, *Decommissioning*, defines decommissioning as the administrative and technical actions taken to allow the removal of some, or all of, the regulatory controls from a facility, location or site where nuclear substances are managed, used, possessed or stored. Decommissioning actions are the procedures, processes and work activities (e.g., storage with surveillance, decontamination, dismantling or cleanup) that are taken to retire a facility, location or site from service with due regard for the health and safety of people and the environment.

CSA N294, *Decommissioning of facilities containing nuclear substances*, specifies requirements for the decommissioning of licensed facilities and other locations where nuclear substances are managed, possessed, or stored.

The decommissioning plan forms the basis for establishing a financial guarantee for decommissioning to ensure that adequate funding will be available.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
CSA N294	Decommissioning of facilities containing nuclear substances	2019	Implemented
REGDOC-2.11.2	Decommissioning	2021	Implemented
REGDOC-3.3.1	Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities	2021	Implemented



Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
N/A	Port Hope Conversion Facility Preliminary Decommissioning Plan	PN

The licensee shall revise the PDP at a minimum every 5 years, or if there are any changes to the facility operations or design that affect the estimated cost of decommissioning. When the PDP is revised, the cost of decommissioning shall be reviewed.

Guidance

None provided.



SCA – SECURITY

Licence Condition 12.1: Security Program

The licensee shall implement and maintain a security program.

Preamble

The [General Nuclear Safety and Control Regulations](#) require that a licence application contain information including the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information.

The [Class I Nuclear Facilities Regulations](#) requires that a licence application contain information including the proposed measures to prevent acts of sabotage or attempted sabotage at the nuclear facility, including measures to alert the licensee to such acts.

The [Nuclear Security Regulations](#) describes the application of Part 2 of these regulations, which is relevant to this licensee.

Compliance Verification Criteria

Licensing Basis Publication

Document Number	Document Title	Version	Implementation Date
REGDOC-2.12.3	Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material, Version 2.1	2020	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
SECURITY PLAN001	Facility Security Plan	PN

Guidance

None provided.



SCA – SAFEGUARDS AND NON PROLIFERATION

Licence Condition 13.1: Safeguards Program

The licensee shall implement and maintain a safeguards program.

Preamble

The [General Nuclear Safety and Control Regulations](#) require the licensee to take all necessary measures to facilitate Canada's compliance with any applicable safeguards agreement, and defines reporting requirements for safeguards events.

The [Class I Nuclear Facilities Regulations](#) require that a licence application contain information on the licensee's proposed measures to facilitate Canada's compliance with any applicable safeguards agreement.

Safeguards is a system of inspection and other verification activities undertaken by the IAEA in order to evaluate a Member State's compliance with its obligations pursuant to its safeguards agreements with the IAEA.

Canada has entered into a Safeguards Agreement and an Additional Protocol (hereinafter referred to as "safeguards agreements") with the IAEA pursuant to its obligations under the [Treaty on the Non-Proliferation of Nuclear Weapons](#) (INFCIRC/140). The objective of the Canada-IAEA safeguards agreements is for the IAEA to provide assurance on an annual basis to Canada and to the international community that all declared nuclear materials are in peaceful, non-explosive uses and that there is no indication of undeclared nuclear materials or activities. This conclusion confirms that Canada is in compliance with its obligations under the following Canada-IAEA safeguards agreements:

- (i) *Agreement between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons; and*
- (ii) *Protocol Additional to the Agreement between Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons.*

These are reproduced in information circulars [INFCIRC/164](#) and [INFCIRC/164/Add.1](#).

The scope of the non-proliferation program carried out under this licence is limited to tracking and reporting of foreign obligations and origins of nuclear material. Additionally, the import and export of controlled nuclear substances, equipment and information identified in the [Nuclear Non-proliferation Import and Export Control Regulations](#) require separate



authorization from the CNSC, consistent with subsection 3(2) of the *General Nuclear Safety and Control Regulations*. The guidance to seek such an authorization is provided in REGDOC-2.13.2, *Import and Export*.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
REGDOC-2.13.1	Safeguards and Nuclear Material Accounting	2018	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
FSD-PGR-SG-01	FSD Safeguards Program	PN

Guidance

None provided.



SCA – PACKAGING AND TRANSPORT

Licence Condition 14.1: Packaging and Transport Program

The licensee shall implement and maintain a packaging and transport program.

Preamble

The [Transportation of Dangerous Goods Regulations](#) (TDGR) and the [Packaging and Transport of Nuclear Substances Regulations, 2015](#) (PTNSR 2015), apply to the packaging and transport of nuclear substances in Canada. Both regulations provide specific requirements for the design of transport packages, the packaging, marking and labeling of packages and the handling and transport of nuclear substances.

Compliance Verification Criteria

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
FSD-PGR-TRN-001	FSD Packaging and Transportation	PN

The licensee shall implement and maintain a packaging and transport program that will ensure their compliance with all the requirements set out in the TDGR and PTNSR 2015 for all transport activities involving regulated nuclear substances.

Guidance

Guidance Document

Document Number	Document Title	Version
REGDOC-2.14.1	Information Incorporated by Reference in Canada's Packaging and Transport of Nuclear Substances Regulations, 2015, Volume I, Version 2	2021



NUCLEAR FACILITY - SPECIFIC

This section contains the specific requirements for licence conditions that are not associated with the Safety and Control Areas.

Licence Condition 15.1: Site Clean Up Program

The licensee shall implement and maintain a program to carry out clean-up, decontamination, demolition and remediation work.

Preamble

The licensee has established a Clean-Up Program (CUP) for the purpose of reducing environmental liabilities, addressing health and safety hazards in underutilized buildings, creating useable space and improving the appearance of the facility. This program covers the removal of obsolete buildings, equipment, contaminated soils, building materials, and wastes at the facility. The licensee's CUP describes the work carried out under this program; the roles, responsibilities and qualifications and training required to carry out this work; and other steps undertaken by the licensee to carry out this work safely and in a manner that provides adequate provision of protection to workers and the environment.

Compliance Verification Criteria

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
WMP-02	Clean Up Program	PN
EPP	Environmental Protection Program	PN
PHF-MAN-RAD	Radiation Protection Program Manual	PN
N/A	Supplemental VIM Submission (VIM description)	N/A
N/A	Addendum to Supplemental VIM Submission	N/A
EMP-VIM and CUP	Supplementary Environmental Monitoring Plan for Vision in Motion and other Clean-Up Program Projects	NT

The licensee shall submit the following information to CNSC staff for review and feedback in advance of starting any large CUP project work:

- a summary of the project and work activity descriptions; proposed timelines; statement on whether the work is within the licensing basis and the reasons for that determination; and



- b) a CUP Work Plan Assessment, a CUP Planning Envelope Assessment and, a Screening Level Risk Assessment (only required for large projects such as building demolitions, large excavations, etc.).

The licensee shall implement and maintain environmental monitoring plans to ensure:

- a) adequate safety and control measures are in place to carry out this work; and
- b) the environmental assessment follow-up commitments for the VIM project are met.

Guidance

None provided.



Licence Condition 15.2: Quantity of Fissionable Material

The licensee shall not exceed the limits for a small quantity of fissionable material.

Preamble

The licence authorizes the licensee to carry out certain activities with respect to enriched uranium.

Compliance Verification Criteria

Licensing Basis Publications

Document Number	Document Title	Version	Implementation Date
REGDOC-2.4.3	Nuclear Criticality Safety	2019	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
PHF-MAN-NCS	Nuclear Criticality Safety Program Manual	PN

The licensee shall not possess enriched material at the facility that exceeds the limits for a small quantity of fissionable material as defined in CNSC REGDOC-2.4.3, *Nuclear Criticality Safety*.

Guidance

None provided.



Licence Condition 15.3: Nuclear Criticality Program

The licensee shall implement and maintain a nuclear criticality safety program.

Preamble

The licence authorizes the licensee to carry out certain activities with respect to enriched uranium.

Compliance Verification Criteria

Licensing Basis Document

Document Number	Document Title	Version	Implementation Date
REGDOC-2.4.3	Nuclear Criticality Safety	2019	Implemented

Licensee Documents that Require Notification of Change

Document Number	Document Title	Notification
PHF-MAN-NCS	Nuclear Criticality Safety Program Manual	PN

Since LC 15.2 limits the total amount of enriched material at the facility to a small quantity of fissionable material, the licensee shall implement and maintain a reduced scope nuclear criticality program as defined in CNSC REGDOC-2.4.3, *Nuclear Criticality Safety*.

Guidance

None provided.

APPENDIX A – DEFINITIONS AND ACRONYMS

A.1 Definitions

The following is a list of definitions of words or expressions used in the LCH that may need clarification; they are defined for the purpose of the LCH only. All other terms and expressions used in the LCH are consistent with the definitions provided in the NSCA, the regulations made pursuant to the NSCA, or in the CNSC regulatory document [REGDOC-3.6, Glossary of CNSC Terminology](#).

Accept/ed/able/ance – meets regulatory requirements, which mean it is in compliance with the documents referenced in the LCH.

Approval – Commission’s permission to proceed, for situations or changes where the licensee would be:

- not compliant with regulatory requirements set out in applicable laws and regulations;
- not compliant with a licence condition; and
- not in the safe direction but the objective of the licensing basis is met.

Boundary Conditions – procedural, administrative rules and operating limits for ensuring safe operation of the facility based on safety analyses and any applicable regulatory requirements.

Compliance Verification Criteria – regulatory criteria used by CNSC staff to verify compliance with the licence conditions.

Design Basis – the entire range of conditions for which the nuclear facility is designed, in accordance with established design criteria, and for which damage to the fuel and/or the release of radioactive material is kept within authorized limits.

Guidance – guidance in the LCH is non-mandatory information, including direction, on how to comply with the licence condition.

Implementation Date – the date that a given document is implemented by the licensee. If the licensee implemented the document at the time of the LCH revision, then “implemented” will be stated.

Notification Document – a document which is submitted to the CNSC at the time of implementing the change.

Prior Notification Document – a document which is submitted to the CNSC prior to implementing the change.



Program(s) – a documented group of planned activities, procedures, processes, standards and instructions coordinated to meet a specific purpose.

Qualified Staff – trained licensee staff, deemed competent and qualified to carry out tasks associated with their respective positions.

Safe Direction – changes in facility safety levels that would not result in:

- (a) a reduction in safety margins;
- (b) a breakdown of barrier;
- (c) an increase (in certain parameters) above accepted limits;
- (d) an increase in risk;
- (e) impairment(s) of safety systems;
- (f) an increase in the risk of radioactive releases or spills of hazardous substances;
- (g) injuries to workers or members of the public;
- (h) introduction of a new hazard;
- (i) reduction of the defence-in-depth provisions;
- (j) causing hazards or risks different in nature or greater in probability or magnitude than those stated in the safety analysis of the nuclear facility.

Safety and Control Measures – measures or provisions which demonstrate that the applicant:

- (i) is qualified to carry on the licensed activities; and
- (ii) has made adequate provision for the protection of the environment, the health and safety of persons, the maintenance of national security and any measures required to implement international obligations to which Canada has agreed.

Written Notification – a physical or electronic communication between CNSC staff and a person authorized to act on behalf of the licensee.

2. ACRONYMS LIST

Acronym	Definition
AIA	Authorized Inspection Agency
ALARA	As Low As Reasonably Achievable
AL	Action Level
CLC	Canada Labour Code
CNSC	Canadian Nuclear Safety Commission
CSA	Canadian Standards Association
CUP	Clean-Up Program
CVC	Compliance Verification Criteria
EMS	Environmental Management System
FFOL	Nuclear Fuel Facility Licence
FSD	Fuel Services Division
GNSCR	<i>General Nuclear Safety and Control Regulations</i>
IAEA	International Atomic Energy Agency
kg	Kilograms
LC	Licence Condition
LCH	Licence Conditions Handbook
LTI	Lost-Time Injury
mSv	Millisievert
N/A	Not Applicable
NEW	Nuclear Energy Worker
NOx	Nitrogen Oxides
NPFD	Nuclear Processing Facilities Division
NSCA	<i>Nuclear Safety and Control Act</i>
NT	Notification
PDP	Preliminary Decommissioning Plan
PHCF	Port Hope Conversion Facility
PN	Prior Notification
PTNSR	<i>Packaging and Transport of Nuclear Substances Regulations</i>



Acronym	Definition
SCA	Safety and Control Area
SSCs	Systems, Structures and Components
TDGR	<i>Transportation of Dangerous Goods Regulations</i>
TLD	Thermoluminescent Dosimeter
µg	Microgram
µSv	Microsievert
U	Uranium
UF ₆	Uranium Hexafluoride
UO ₂	Uranium Dioxide
VIM	Vision In Motion



APPENDIX B – LIST OF VERSION CONTROLLED DOCUMENTS

B.1 Codes, Standards and Regulatory Documents

Document	Document Title	Revision
REGDOC-2.1.1	Management System	2019
REGDOC- 2.1.2	Safety Culture	2018
REGDOC- 2.2.1	Human Performance	2023
REGDOC- 2.2.2	Personnel Training, Version 2	2016
REGDOC-2.2.5	Minimum Staff Complement	2019
REGDOC-2.4.3	Nuclear Criticality Safety	2019
REGDOC-2.4.4	Safety Analysis for Class 1B Nuclear Facilities	2022
REGDOC-2.5.1	General Design Considerations: Human Factors	2019
REGDOC-2.7.1	Radiation Protection, Version 1.1	2025
REGDOC-2.7.2	Dosimetry, Volume I: Ascertaining Occupational Dose	2021
REGDOC-2.8.1	Conventional Health and Safety	2019
REGDOC-2.9.1	Environmental Principles, Assessments and Protection Measures, Version 1.2	2020
REGDOC-2.9.2	Controlling Releases to the Environment	2024
REGDOC-2.10.1	Nuclear Emergency Preparedness and Response	2016
REGDOC-2.11	Framework for Radioactive Waste Management and Decommissioning in Canada, Version 2	2021



Document	Document Title	Revision
REGDOC 2.11.1	Waste Management, Volume I: Management of Radioactive Waste	2021
REGDOC-2.11.2	Decommissioning	2021
REGDOC-2.12.3	Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material, Version 2.1	2020
REGDOC- 2.13.1	Safeguards and Nuclear Material Accounting	2018
REGDOC-2.14.1	Information Incorporated by Reference in Canada's Packaging and Transport of Nuclear Substances Regulations, 2015, Volume I, Version 2	2021
REGDOC-3.1.2	Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills	2018
REGDOC-3.2.1	Public Information and Disclosure	2018
REGDOC-3.3.1	Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities	2021
REGDOC-3.5.3	Regulatory Fundamentals	2018
REGDOC-3.6	Glossary of CNSC Terminology	2016
IAEA SSR-4	Safety of Nuclear Fuel Cycle Facilities	2017
CSA Z94.4	Selection, Use and Care of Respirators	2018
CSA N286	Management systems requirements for nuclear facilities	2012 (R2022)
CSA N286.0.1	Commentary on N286-12, Management systems requirements for nuclear facilities	2021
CSA N288.1	Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities	2020 (R2025)



Document	Document Title	Revision
CSA N288.4	Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills	2010 (R2015)
CSA N288.5	Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills	2011 (R2016)
CSA N288.6	Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills	2012 (R2017)
CSA N288.7	Groundwater Protection Programs at Class I nuclear facilities and Uranium Mines and Mills	2015
CSA N288.8	Establishing and implementing action levels for releases to the environment from nuclear facilities	2017
CSA N292.0	General Principles for the Management of Radioactive Waste and Irradiated Fuel	2019 (R2024)
CSA N292.3	Management of Low-and Intermediate-Level Radioactive Waste	2014
CSA N294	Decommissioning of Facilities Containing Nuclear Substances	2019
CSA N393	Fire Protection for Facilities that Process, Handle or Store Nuclear Substances	2022
CSA B51	Boiler, Pressure Vessel and Pressure Piping Code	2024
NRCC 56190	National Building Code of Canada 2020	2020
NRCC 56192	National Fire Code of Canada 2020	2020



B.2 Licensee Documents

Document #	Document Title	Notification
CAP:RAD:13	Radioisotope Source Control	PN
CQP-113	Process and Design Change Control	NT
CQP-1200	Fire Protection Program	PN
CQP-1201	Fire Safety Plan	PN
CQP-501	In Service Inspection of Safety Significant Systems/Structures/Components	NT
CQP-706	Pressure and Safety Significant Piping and Vessel Control	NT
CQP-707	Registration and Inspection Requirements of Pressure Piping and Pressure Vessels	NT
CQP-942	UF ₆ Plant Operations Training Procedure	NT
CQP-943	UF ₆ Plant Supervisor Training Procedure	NT
PHF-MAN-AMR	Asset Management and Reliability Program Manual for the Port Hope Conversion Facility	NT
Drawing no.99101 Sheet 71	General Plant and Site Layout Drawings	PN
Drawing no.99101 Sheet 73	General Site Layout - Site 2	PN
EPP	Environmental Protection Program	PN
N/A	Environmental Risk Assessment for the Port Hope Conversion Facility	PN
N/A	Derived Release Limit and Operating Release Level Reports for the Port Hope Conversion Facility	PN
N/A	Port Hope Conversion Facility (PHCF) Air Exposure Based Release Limits (EBRLs)	PN



Document #	Document Title	Notification
N/A	Derivation of EBRL for Liquid Releases – Port Hope Conversion Facility	PN
N/A	Review of Dose to the Public calculation for the Port Hope Conversion Facility	PN
N/A	Review of the Environmental Action Levels to Support the Environmental Protection Program	PN
N/A	Action Level for Uranium in Sanitary Sewer for Port Hope Conversion Facility	PN
ERP	Emergency Response Plan	PN
FLM	Facility Licensing Manual	PN
FSD-PGR-EMS-001	FSD Environmental Management System	PN
FSD-PGR-SG-01	FSD Safeguards Program	PN
FSD-PGR-TRN-001	FSD Packaging and Transportation	PN
FSD-PGR-WM-001	FSD Waste Management Program	PN
MSPM	Management System Program Manual	PN
N/A	Port Hope Conversion Facility Preliminary Decommissioning Plan	PN
PHF-SAR	Safety Report for the Port Hope Conversion Facility	PN
N/A	Authorized Inspection Agency Services Agreement	NT
N/A	Quality Control Manual for TSSA Certificate of Authorization	NT
N/A	Supplementary VIM Submission and VIM description	N/A
N/A	Addendum to Supplementary VIM Submission	N/A
EMP-VIM and CUP	Supplementary Environmental Monitoring Plan for Vision in Motion and other Clean-Up Program Projects	NT
PHF-MAN-NCS	Nuclear Criticality Safety Program Manual	PN



Document #	Document Title	Notification
PHF.UF ₆ .SO70.3	Standard for Minimum Crew Compliment in UF ₆ Operations	NT
PHF-MAN-OHS	Occupational Health and Safety Management Program Manual	PN
PHF-MAN-RAD	Radiation Protection Program Manual	PN
FSD-PGR-PIP-001	Fuel Services Division Public Information Program	NT
SECURITY PLAN001	Facility Security Plan	PN
SO40	Minimum Staffing Requirements UO ₂ Production Plant	NT
SOG019	Emergency Response Team Minimum Staffing	NT
TP01	Port Hope Training Plan	PN
WMP-01	Waste Management Plan	PN
WMP-02	Clean Up Program	PN

Appendix D: Inspections

The following table includes inspections conducted at PHCF during the previous licence period.

Inspection Title	SCA(s) covered
CAMECO-PHCF-2017-01	Operating Performance and Packaging and Transport
CAMECO-PHCF-2017-02	Management System
CAMECO-PHCF-2017-03	Management System, Fitness for Service, Radiation Protection, Conventional Health and Safety, Packaging & Transport
CAMECO-PHCF-2017-04	Emergency Management and Fire Protection
CAMECO-PHCF-2017-05	Human Performance Management (Training)
CAMECO-PHCF-2018-01	Fitness for Service
CAMECO-PHCF-2018-02	Waste Management, Management System
CAMECO-PHCF-2018-03	Radiation Protection, Clean-Up Program, Environmental Protection, Waste Management
CAMECO-PHCF-2018-04	Emergency Management and Fire Protection (Emergency Response Exercise)
CAMECO-PHCF-2018-05	Environmental Protection, Waste Management
CAMECO-PHCF-2018-06	Management System
CAMECO-PHCF-2019-01	Security
CAMECO-PHCF-2019-02	Management System, Human Performance Management, Fitness for Service, Radiation Protection, Conventional Health and Safety, Environmental Protection



CAMECO-PHCF-2019-03	Emergency Management and Fire Protection (Fire Protection)
CAMECO-PHCF-2019-04	Management System, Fitness for Service, Operating Performance, Radiation Protection, Conventional Health and Safety
CAMECO-PHCF-2020-01	Pressure Boundary and Operating Performance
CAMECO-PHCF-2020-02	Safety Analysis, Fitness for Service, Radiation Protection, Environmental Protection, Conventional Health and Safety, Emergency Management and Fire Protection, Waste Management, Vision in Motion
CAMECO-PHCF-2020-03	Security
CAMECO-PHCF-2021-01	Human Performance Management (Training)
CAMECO-PHCF-2021-02	Management System
CAMECO-PHCF-2021-03	Emergency Management and Fire Protection (Emergency Response Exercise)
CAMECO-PHCF-2021-04	Fitness for Service, Safety Analysis, Radiation Protection, Conventional Health and Safety, Waste Management
CAMECO-PHCF-2022-01	Environmental Protection
CAMECO-PHCF-2022-02	Packaging and Transport, Conventional Health and Safety
CAMECO-PHCF-2022-03	Waste Management
CAMECO-PHCF-2022-04	Management System, Operating Performance, Safety Analysis, Environmental Protection, Radiation Protection, Conventional Health and Safety, Human Performance Management, Emergency Management and Fire Protection, Waste Management
CAMECO-PHCF-2023-01	Radiation Protection



CAMECO-PHCF-2023-02	Physical Design, Fitness for Service, Operating Performance, Conventional Health and Safety
CAMECO-PHCF-2023-03	Security
CAMECO-PHCF-2023-04	Environmental Protection, Radiation Protection, Waste Management, Conventional Health and Safety, Vision in Motion
CAMECO-PHCF-2023-05	Human Performance Management (Training)
CAMECO-PHCF-2023-06	Management System
CAMECO-PHCF-2024-01	Safety Analysis, Fitness for Service
CAMECO-PHCF-2024-02	Physical Design, Waste Management, Conventional Health and Safety, Environmental Protection, Packaging and Transport
CAMECO-PHCF-2024-03	Fitness for Service, Operating Performance, Conventional Health and Safety
CAMECO-PHCF-2024-04	Emergency Management, Management System
CAMECO-PHCF-2024-05	Emergency Management and Fire Protection (Fire Protection)
CAMECO-PHCF-2025-01	Management System, Fitness for Service, Operating Performance, Conventional Health and Safety
CAMECO-PHCF-2025-02	Management System, Human Performance Management
CAMECO-PHCF-2025-03	Environmental Protection, Human Performance Management
CAMECO-PHCF-2025-04	Human Performance Management, Operating Performance, Fitness for Service, Conventional Health and Safety
CAMECO-PHCF-2025-05	Radiation Protection

Appendix E: **Environmental Protection Review Report**

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1 Introduction

1.1 Background

The Canadian Nuclear Safety Commission (CNSC) conducts environmental protection reviews (EPRs) for all nuclear facilities with potential interactions with the environment, in accordance with its mandate under the *Nuclear Safety and Control Act* (NSCA) (1). An EPR is an evidence-based environmental technical assessment conducted by CNSC staff to support the CNSC's mandate for the protection of the environment and human health and safety, as set out in the NSCA. The fulfillment of other aspects of the CNSC's mandate is met through other regulatory oversight activities and is outside the scope of this report. An EPR is typically conducted for each facility every 5 years and is informed by the licensee's environmental protection program (EPP) and documentation submitted by the licensee as per regulatory reporting requirements. EPRs are typically published every 5 years because licensees are required to update their environmental risk assessments (ERAs) at least every five years under REGDOC-2.9.1. The purpose of this EPR is to report the outcome of CNSC staff's assessment of Cameco Corporation's (Cameco's) Environmental Protection (EP) measures and CNSC staff's environmental compliance activities for the Port Hope Conversion Facility (PHCF). This review serves to assess whether the EP measures at the PHCF meet regulatory requirements and adequately protect the environment and health and safety of persons.

This EPR report is based on documentation and information submitted by Cameco, compliance activities completed by CNSC staff from 2017 to 2025, as well as the following:

- CNSC staff's review of Cameco's annual compliance monitoring reports for EP from 2020 to 2024 (2) (3) (4) (5) (6)
- CNSC staff's review of Cameco's 2025 environmental risk assessment (ERA) for the PHCF (7)
- the CNSC's [Independent Environmental Monitoring Program](#) (8) (IEMP) results, including discussions with Indigenous Nations and communities
- community health and health studies with relevance to the PHCF

CNSC staff's findings may inform recommendations to the Commission in future licensing and regulatory decision making, as well as inform CNSC staff's ongoing and future compliance verification activities.



1.2 Facility

The CNSC acknowledges that the PHCF lies within the traditional lands and waters of the Michi Saagiig Anishinaabeg, and the territory covered by the Gunshot Treaty (1787-88), the Williams Treaties (1923), and the Williams Treaties Settlement Agreement (2018). The facility is in Port Hope, Ontario, which is along the Northern shore of Lake Ontario, approximately 100 km East of Toronto (Figure 1.1). Owned and operated by Cameco, the PHCF site is licensed to process uranium trioxide (UO_3) into both uranium dioxide (UO_2) and uranium hexafluoride (UF_6).

Cameco is also currently undertaking the Vision in Motion (VIM) project at the PHCF (9). This ongoing project is addressing legacy contamination and modernizing site infrastructure at the facility. Since the early 2000s, Cameco has safely demolished historically contaminated buildings, removed or remediated contaminated soil, and removed and transported inherited waste to the Canadian Nuclear Laboratories' (CNL's) Port Hope Long-Term Waste Management Facility (LTWMF). Through the VIM project, Cameco will also improve site buildings and infrastructure, and improve flood protection measures and storm water management. The VIM project also ties into CNL's broader Port Hope Area Initiative (PHAI).

The PHAI is also relevant to the PHCF. The PHAI represents the Government of Canada's commitment to the cleanup and safe, local, long-term management of historic low-level radioactive waste in two Southern Ontario municipalities – Port Hope and Clarington (10). The PHAI is based on community-recommended solutions for the cleanup and safe long-term management of approximately 1.7 million cubic meters of low-level radioactive waste. The PHAI is being carried out as two projects – the Port Hope Project (PHP) and the Port Granby Project (PGP) – and includes two LTWMFs, one in Port Hope and the other in Clarington (Port Granby). The Port Hope LTWMF is for the long-term storage of low-level radioactive waste, it is not a disposal facility. The Port Hope LTWMF aims to safely contain and isolate the waste for an extended period until a final disposal path is identified and executed. The Port Hope LTWMF is currently in Phase 2, construction and development. Once all the waste has been placed into the Engineered Containment Mound and it has been capped, the Port Hope LTWMF will enter Phase 3, maintenance and monitoring, for 500 years.

Section 2.3, Cumulative Effects, and Section 3, Monitoring and Assessment, provide detail on how the PHAI remediation activities are interacting with the PHCF.



Figure 1.1: Location of the Port Hope Conversion Facility

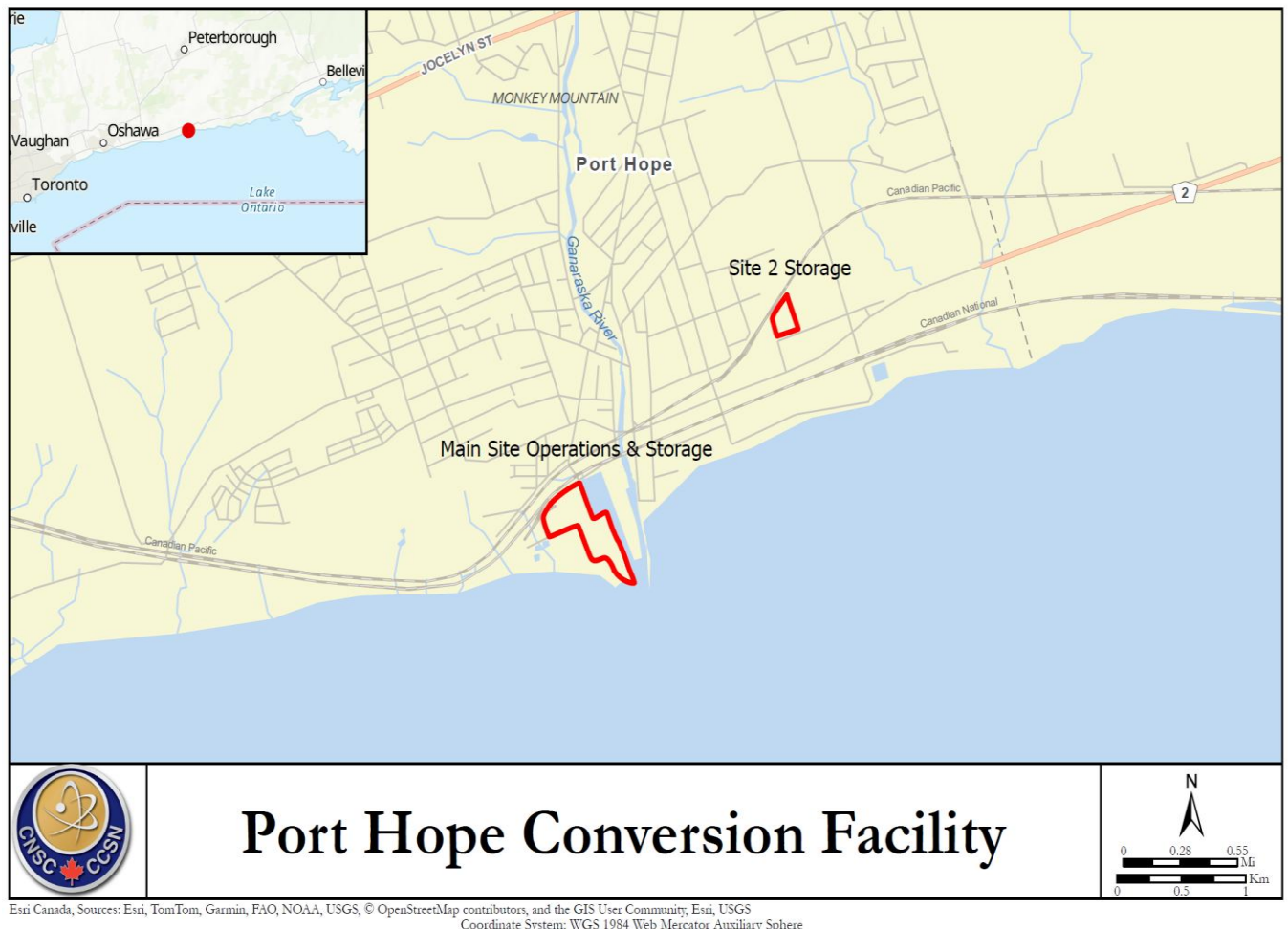


Figure 1.1 description: This figure displays the location of the PHCF in Southern Ontario and outlines in red the PHCF main site operations and storage (where the main operations take place), and the Site 2 Storage area (a warehouse where legacy waste is characterized and sorted).



2 Regulatory oversight

The CNSC regulates the use of nuclear energy and materials in Canada to protect the environment and the health, safety and security of persons, to implement Canada's international commitments on the peaceful use of nuclear energy, and to disseminate objective scientific, technical and regulatory information to the public.

The CNSC regulations ensure that the effects of nuclear facilities and activities on human health and the environment are considered for every phase of the lifecycle.

2.1 Environmental protection program

The CNSC has a comprehensive EP regulatory framework which includes the protection of people and the environment and considers environmental interactions resulting from releases of both nuclear and hazardous substances, as well as physical stressors (such as noise, light, etc.). The focus of this section is on the status of Cameco's EPP for the PHCF. The EPP encompasses the following components:

- environmental management system (EMS)
- environmental risk assessment (ERA)
- effluent and emission control and monitoring
- environmental monitoring program (EMP)

A core element of the CNSC's requirement for an EMS is the identification of all regulatory requirements applicable to the facility, whether pursuant to the NSCA or other federal or provincial legislation. Therefore, as part of their EMS, Cameco is required to manage requirements under their provincial environmental compliance approvals (ECAs) and Permit to Take Water (PTTW) for the PHCF, as well as any reporting of greenhouse gas emissions under the Greenhouse Gas Reporting Program (GHGRP).

2.2 Climate change

The CNSC ensures that the potential effects of climate change on the safety of nuclear facilities and on the surrounding environment are considered throughout the nuclear lifecycle. As part of the CNSC's regulatory requirements, potential effects must be identified and mitigated appropriately. The CNSC considers climate change using a graded approach based on level of risk. Further information on how the CNSC assesses the impacts of climate change on nuclear safety in Canada can be found at [climate change impact considerations](#) (11).

As scientific understanding of climate change advances it is increasingly important to evaluate how changing conditions may influence external hazards such as flooding, extreme precipitation, high winds, and extreme temperatures. These hazards must be understood to ensure that the PHCF remains resilient to future climate conditions. Cameco is required to consider the impacts of climate change throughout the licensing lifecycle, and this has most recently been assessed by CNSC staff through the review of Cameco's 2025 Safety Analysis Report (SAR). In reviewing the SAR, CNSC staff noted Cameco's initiative to enhance flood protection through the installation of a protective flood barrier. CNSC staff will review the updated flood hazard assessment once the VIM project is complete to ensure that coastal flooding associated with Lake Ontario, as well as the combined effects of extreme precipitation and high lake levels, are appropriately considered.

As part of the next ERA (refer to section 3.1), Cameco will include an updated discussion of climate change effects and how changing environmental conditions may influence the environmental risk profile for receptors. This will include updates to meteorological and site-specific parameters used in environmental modelling to predict exposure concentrations through various pathways.



2.3 Cumulative effects

Cumulative effects can refer to the combined effects from past, present, and reasonably foreseeable future activities, and natural processes. A formal cumulative effects assessment for EPR reports is not required under the NSCA or other regulatory documents. However, CNSC staff continually assess cumulative effects through the cyclical nature of ERAs, annual monitoring data from licensees, data from the independent environmental monitoring program (IEMP), and results from regional monitoring programs and health studies. An overview of [how CNSC considers cumulative effects](#) is available online (12), which aligns with the [Government of Canada's overarching plan for cumulative effects](#) (13), which is also available online.

Through [REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures](#) (14), Cameco is required to, at a minimum, provide an updated ERA every 5 years. From a cumulative effects perspective this approach requires that the ERA is updated cyclically with new site-specific, local, and/or regional information or influences for consideration. It also provides regular opportunities for incorporating new information into risk management decisions associated with the facility. Thus, the ERA is not stagnant but rather responsive to evolving local and regional concerns.

CNSC staff's assessment of cumulative effects takes into consideration Cameco's VIM project (9) at the PHCF and CNL's PHAI (10). These projects are addressing legacy contamination and modernizing site infrastructure, which are expected to reduce the potential influence of cumulative effects on the surrounding environment. Ahead of the 2025 Licence Renewal application for PHCF, Cameco submitted the 2025 ERA revalidation, which involved documenting and evaluating the accumulated monitoring data since the 2023 ERA review. Cameco is required to submit a full ERA revision upon completion of VIM and the PHAI (See section 3.1 for further ERA details).

In addition to the PHCF, Cameco also operates the Cameco Fuel Manufacturing facility (CMF) in Port Hope. While the scope of this EPRR focuses on the PHCF, CNSC staff assessed the potential cumulative effects from both the PHCF and CFM facility. Additional information about environmental monitoring data is discussed in Section 3.

The potential for cumulative health impacts associated with past and present uranium refining and processing activities in Port Hope has also been examined through multiple health and epidemiological studies over several decades; these are discussed in Section 4.

3 Monitoring and assessment

This section provides a summary of the status of the environment around the facility.

3.1 Environmental Risk Assessment

CNSC staff reviewed the licensee's ERA for impacts on the environment and human health from licensed activities. The ERA includes both a human health risk assessment (HHRA) and an ecological risk assessment (EcoRA). Results from monitoring data inform the ERA conclusions on risks to environmental receptors, such as wildlife, and risk to human receptors, such as the public and Indigenous Nations and communities.

The most recent full ERA was submitted in 2016 (15). Cameco has since submitted updates to that ERA in 2023 and 2025 to confirm whether the conclusions of the 2016 ERA were still valid. In December 2025, Cameco submitted the *Revalidation of the Environmental Risk Assessment for the Port Hope Conversion Facility (PHCF)* (7) in accordance with the requirements of CSA N288.6-22, *Environmental Risk Assessment at Nuclear Facilities and Uranium Mines and Mills* (16). The standard requires licensees to review and revise their ERA at a minimum of every five years.

The 2023 ERA review (17) which incorporated monitoring data from 2015 to 2022, indicated that concentrations of radiological and non-radiological contaminants of potential concern (COPCs) had generally decreased near the facility compared to the values used in the 2016 ERA. Therefore, the 2016 conclusion of no undue risk to the environment or human health from PHCF operations was maintained.

As a result of the remedial activities through VIM and PHAI, the site has been continually changing (e.g., demolition of buildings, removal of obsolete process equipment, decommissioning of harbour water intake and pumphouse facilities). As the changes are still ongoing Cameco has provided another review of their ERA in 2025, rather than a new ERA, in order to update the COPC screening, and assess whether new monitoring data collected in 2023 and 2024 were still within the bounds of the 2016 ERA.

CNSC staff completed a detailed technical assessment of the 2025 ERA review (7) and concluded that it is consistent with the methodology and review requirements of CSA N288.6-22 (16). The dynamic activities from the PHAI and VIM project have altered site conditions and exposure profiles for off-site receptors, which would normally trigger the requirement for a new ERA. However, because remediation and construction activities remain ongoing, the new ERA will not be completed until these activities conclude. The new ERA is anticipated early in the next licence period and within two years of the completion of VIM and PHAI remediation work. The VIM project is expected to be completed in 2029 and the PHAI is expected to be completed in 2030.



The 2025 ERA review noted a key operational change since 2016: the transition to independent, closed-loop cooling systems at the uranium dioxide and uranium hexafluoride plants, allowing decommissioning of the harbour water intake and pumphouse. This transition substantially reduces both the potential for contaminant discharge and thermal loading to Port Hope Harbour. Although these and other remediation activities are expected to reduce overall risks to human and ecological receptors, they have also temporarily required alterations to environmental monitoring programs. For example, the surface water monitoring program which informed the 2016 ERA was suspended in August 2018 due to PHAI harbour remediation work. Similarly, off-site soil monitoring locations were reduced from five (in the 2016 ERA) to two because of PHAI soil remediation activities. Cameco will update these monitoring programs once VIM and PHAI work is complete.

The next full ERA update will incorporate comments from CNSC staff on the 2023 and 2025 reviews. CNSC staff expect that this will include accounting for updates to site infrastructure resulting from VIM activities (such as, demolition of buildings and remediation of subsurface infrastructure), a re-evaluation of exposure pathways—including consideration of traditional hunting and gathering territory for Williams Treaties First Nations—and an assessment of cumulative effects and climate change.

In conclusion, CNSC staff have evaluated the 2025 ERA review and find that no new risks have emerged since the previous ERA. The conclusion of negligible risk to human health and the environment from exposure to PHCF related contaminants remains supported by updated monitoring data.

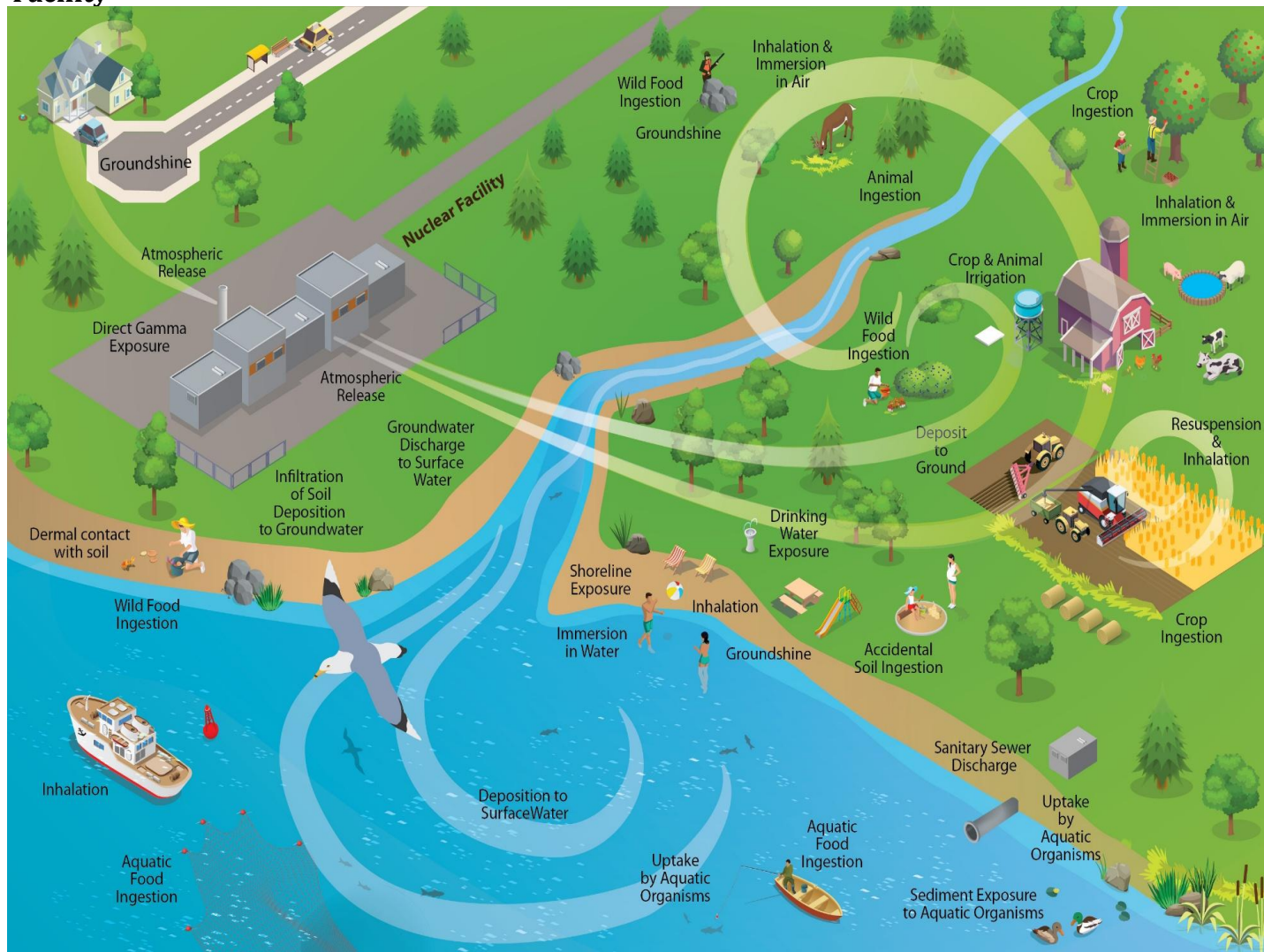
For more information, please refer to the publicly available ERA posted by Cameco (7).



3.2 Environmental Releases

Figure 3.1 illustrates a conceptual model of the environment around a generic nuclear processing facility site to show the relationship between releases (airborne emissions or waterborne effluent) and human and ecological receptors. This graphic is meant to provide an overall conceptual model of the releases, exposure pathways, and receptors for PHCF and thus should not be interpreted as a complete depiction of the PHCF site and its surrounding environment. The specific releases and constituents of potential concern (COPCs) associated with PHCF are explained in detail in the following subsections.

Figure 3.1. Conceptual model of the environment around Port Hope Conversion Facility



3.2.1 Airborne emissions

Cameco controls and monitors airborne emissions from operations at PHCF. This includes releases from the main stacks on the UF₆ plant and UO₂ plants. Air pollution controls include the use of HEPA filters. Cameco measures uranium, hydrogen fluoride, and ammonia to ensure that releases are below licence limits. Table 3.2.1 provides an overview of the monitoring results.

Table 3.2.1: Annual daily average airborne emissions at PHCF

Parameter	2020	2021	2022	2023	2024	Licence limits ¹
Uranium – UF ₆ Plant (g/h)	2.5	2.2	2.5	2.4	2.2	280
Hydrogen Fluoride – UF ₆ Plant (g/h)	28	29	20	12	15	650
Uranium – UO ₂ Plant (g/h)	0.6	0.5	0.5	0.8	0.6	240
Ammonia – UO ₂ Plant (kg/h)	2.0	2.0	2.4	2.0	1.9	58

¹ Licence limits for uranium are based on the derived release limit. Licence limits for HF and NH₃ were proposed by the Atomic Energy Control Board and the Ontario Ministry of Environment. Cameco has proposed new licence limits following the methodology in REGDOC-2.9.2

The monitoring results showed that airborne emissions of uranium, hydrogen fluoride, and ammonia were below licence limits during the monitoring period. As a result, CNSC staff have found that Cameco continues to provide adequate protection of people and the environment.

3.2.2 Waterborne effluent

Cameco controls and monitors waterborne effluent from operations at PHCF. This includes releases from the sanitary sewer, which is sampled on a continuous basis using daily composite sampling. The primary inputs to the sanitary sewer include greywater and blackwater sources (excluding laundry effluent), powerhouse effluent, and condensates. There are no direct uranium processing inputs to the sanitary sewer. Process water that may be contaminated with uranium, including laundry effluent, is evaporated and not released to the sanitary sewer system.

After Cameco installed the independent closed loop cooling systems in 2023, the former once-through cooling water works became permanently inactive. Therefore, starting from 2024, there were no direct releases to the Port Hope Harbour. Cameco measures uranium to ensure that releases are below licence limits. Table 3.2.2 provides an overview of the sanitary sewer monitoring results.

Table 3.2.2: Annual releases to sanitary sewer at PHCF

Parameter	2020	2021	2022	2023	2024	Licence limits ¹
Uranium – annual average (µg/L)	13	23	39	21	4.6	275 µg/L (monthly average)
Uranium – total annual loadings (kg/yr) ²	1.8	3.0	6.0	7.0	0.76	N/A

¹ Licence limits are based on meeting the federal water quality guideline for uranium at the discharge point taking into account dilution

² Total annual loadings are calculated by first multiplying the monthly average concentration and the total volume released, then summing the monthly loadings.

The monitoring results showed that waterborne releases of uranium were below licence limits during the monitoring period. As a result, CNSC staff have found that Cameco continues to provide adequate protection of people and the environment.



3.3 Environmental Monitoring

This section presents an overview of the licensee's environmental monitoring program. Cameco is required to conduct ambient monitoring of the surrounding environment to ensure that results are protective of the environment and human health. Monitoring was conducted for:

- air quality
- soil quality
- surface water quality
- groundwater monitoring
- gamma monitoring
- vegetation

3.3.1 Air quality

Cameco conducts air quality monitoring to confirm that uranium and fluoride emissions from PHCF remain at levels that are protective of the environment and human health. Table 3.3.1.1 presents the average concentrations of uranium measured using dustfall jars monitoring. Table 3.3.1.2 presents the annual concentrations of uranium observed at the four high volume air sampler stations. Table 3.3.1.3 presents the fluoride results from dustfall monitoring.

Table 3.3.1.1: Average uranium concentrations in dustfall jars at PHCF, mg/m²/30 days

Monitoring Period	2020	2021	2022	2023	2024	Screening Level
First Quarter	0.0	0.0	0.0	0.0	0.1	10
Second Quarter	0.1	0.0	0.1	0.1	0.0	10
Third Quarter	0.1	0.1	0.2	0.3	0.1	10
Fourth Quarter	0.1	0.1	0.2	0.3	0.1	10
Annual Average	0.1	<0.1	0.1	0.2	0.1	10

* There is no provincial or federal standard for uranium in dust. Cameco compares the results to an internal administrative screening level of 10 mg/m²/30 days



Table 3.3.1.2: Annual concentrations of uranium in air at the PHCF's hi-vol air sampler stations, $\mu\text{g}/\text{m}^3$

Location	2020	2021	2022	2023	2024	Guideline
Waterworks – Average	0.001	0.001	0.001	0.003	0.001	1.5
Waterworks – Maximum	0.007	0.025	0.017	0.381	0.012	1.5
Shuter Substation – Average	0.001	0.001	0.001	0.003	0.001	1.5
Shuter Substation – Maximum	0.009	0.011	0.036	0.409	0.083	1.5
Marsh Street – Average	0.003	0.003	0.003	0.006	0.005	1.5
Marsh Street – Maximum	0.221	0.071	0.031	0.132	0.238	1.5
Hayward Street – Average	0.002	0.002	0.002	0.003	0.003	1.5
Hayward Street – Maximum	0.010	0.011	0.015	0.066	0.030	1.5

Table 3.3.1.3: Average concentrations of fluoride in dustfall jars at the PHCF, mg/m²/30 days

Monitoring Period	2020	2021	2022	2023	2024	Screening Level
First Quarter	1.1	1.3	0.9	0.6	0.8	20
Second Quarter	1.1	1.2	1.5	1.1	1.3	20
Third Quarter	1.1	0.6	0.4	0.8	1.5	20
Fourth Quarter	1.4	1.1	0.8	1.0	1.0	20
Annual Average	1.2	1.1	0.9	0.9	1.2	20

* There is no provincial or federal standard for fluoride in dustfall. Cameco compares the results to an internal administrative screening level of 20 mg/m²/30 days

The air quality monitoring results showed that uranium was below the O.Reg 419/05: Air Pollution – Local Air Quality standard for an upper risk threshold of uranium of 1.5 µg/m³ for a 24-hour period (PM10). The annual average uranium in dustfall concentrations and the annual average fluoride in dustfall concentrations are both below their respective screening levels.

In conclusion, CNSC staff confirm that licensee monitoring of the ambient environment is within guidelines and that people and the environment remain protected.

3.3.2 Soil quality

Cameco conducts soil quality monitoring to confirm that released uranium is not accumulating in local soil and remains at levels that are protective of the environment and human health.

Table 3.3.2 presents the soil monitoring results.

Table 3.3.2: Soil concentrations of uranium at PHCF's clean plot located west of the municipal water treatment plant, µg/g

Parameter	2020	2021	2022	2023	2024	CCME guideline
Uranium – Soil depth of 0-5 cm	0.91	0.87	1.1	N/A	N/A	23

Soil samples weren't collected in 2023 and 2024 at this location because the background monitoring location was impacted by CNL remedial work at west beach. The monitoring results showed that uranium was below the Canadian Council of Ministers of the Environment (CCME) soil guideline for residential and parkland land uses during the monitoring period. The results suggest that current airborne releases of uranium due to PHCF operations do not significantly contribute to the accumulation of uranium in soil. Cameco will redesign/update their soil monitoring program in Port Hope once the PHAI work is complete.

3.3.3 Surface water quality

Cameco conducted harbour water supply monitoring to confirm that uranium, fluoride, nitrate and ammonia in surface water near the PHCF remain at levels that are protective of the environment and human health.

Harbour water supply monitoring did not take place in 2024. The PHCF production facilities fully transitioned to independent, closed loop cooling systems as of July 2023, eliminating cooling water releases to the Port Hope Harbour. Table 3.3.3 presents the harbour water monitoring results.

Table 3.3.3: Harbour water monitoring at PHCF

Parameter	2020	2021	2022	2023	2024	CCME Guidelines
Average Uranium (µg/L)	5.0	70	120	240	N/A	15
Maximum Uranium (µg/L)	12	540	500	740	N/A	15
Average Fluoride (mg/L)	0.09	0.006	0.11	0.10	N/A	0.12
Maximum Fluoride (mg/L)	0.15	0.17	0.22	0.14	N/A	0.12
Average Nitrate (mg/L)	0.92	1.0	0.89	1.3	N/A	13
Maximum Nitrate (mg/L)	1.7	1.9	1.9	2.1	N/A	13
Average Ammonia + ammonium (mg/L)	0.014	0.015	0.045	0.022	N/A	0.3
Maximum Ammonia + ammonium (mg/L)	0.14	0.17	0.76	0.14	N/A	0.3

The harbour water monitoring results for fluoride, nitrate and ammonia were mostly below the respective CCME guidelines for protection of aquatic life during the monitoring period. The elevated uranium concentrations in 2021 to 2023 were caused CNL harbour remedial activities



associated with the PHAI (e.g. dredging) in the inner Port Hope harbour and are not representative of the current PHCF operations. Once the PHAI has finished and the contaminated sediment is removed from the harbour, the water quality is predicted to significantly improve.

Average fluoride levels in harbour water were below the guideline, but maximum fluoride concentrations detected during the monitoring period exceeded the CCME freshwater guideline for the protection of aquatic life of 0.12 mg/L. CNSC staff note that maximum fluoride concentrations were below the chronic effects benchmark of 1.94 mg/L **Invalid source specified.**], indicating low risk to the aquatic environment. The fluoride concentrations were also well below Health Canada's drinking water standard of 1.5 mg/L **Invalid source specified.** and the lowest toxicity benchmark for sensitive aquatic biota of 11.5 mg/L **Invalid source specified..**

In conclusion, CNSC staff confirm that the surface water monitoring results demonstrated that people and the environment remain protected.

3.3.4 Gamma monitoring

Cameco conducts gamma dose rate monitoring at fourteen locations at Site 1 and six locations at Site 2 to confirm that exposure to gamma radiation at the PHCF remain at levels that are protective of the environment and human health. Table 3.3.4 presents the maximum monthly gamma monitoring results.

Table 3.3.4: Maximum monthly public dose gamma monitoring at PHCF, $\mu\text{Sv/h}$

Location	2020	2021	2022	2023	2024	Licence Limit
Station 2 – Sites 1 and 2	0.20	0.21	0.23	0.23	0.16	0.57
Station 10 – Site 1	0.11	0.02	0.01	0.03	0.07	0.61
Station 21 – Site 2	0.09	0.03	0.06	0.06	0.05	0.26

The monitoring results showed that gamma was below the licence limits during the monitoring period. The licence limits are derived from the 2016 Operating Release Level report and ensures that the gamma component of the estimated dose to public is less than 0.3 mSv/year. As a result, CNSC staff confirm that gamma dose rates from PHCF are controlled and that people and the environment remain protected.



3.3.5 Groundwater monitoring

Cameco conducts groundwater monitoring to confirm that COPCs remain at levels that are protective of the environment and human health. Cameco collected groundwater samples at the PHCF on the following schedules:

- Up to 12 active pumping wells monthly
- Up to 59 monitoring wells in the overburden (soil) on a quarterly basis
- Up to 16 monitoring wells in bedrock on an annual basis

The groundwater monitoring results from 2020 to 2024 showed that concentrations of COPCs were generally consistent and there were no evident trends. Groundwater flow patterns were consistent with historical observations, entering the site from the northwest and flowing southeast towards the harbour, with a component of the flow eastward from the UF₆ plant. As a result, CNSC staff confirm that licensee monitoring of groundwater demonstrated that people and the environment remain protected.

3.3.6 Vegetation

Cameco conducts vegetation monitoring to confirm that fluoride emissions from PHCF remain at levels that are protective of the environment and human health. The monitoring involves the collection of composite samples of leaves from trees located in the vicinity of PHCF and in the surrounding community in coordination with MECP. The samples are collected during the growing season, April 15 - October 15. Table 3.3.6 presents the monitoring results.

Table 3.3.6: Fluoride concentrations in Vegetation at PHCF, µg/g

Parameter	2020	2021	2022	2023	2024	MECP's AAQC
Fluoride	5	6	6	6	8	35

The vegetation monitoring results showed that fluoride was below Ministry of Environment Conservation and Parks (MECP)'s Ambient Air Quality Criteria (AAQC) for fluoride in dry forage during the monitoring period. As a result, CNSC staff confirm that licensee monitoring of the ambient environment is within guidelines and that people and the environment remain protected.

3.3.7 Public Dose

The CNSC's [Radiation Protection Regulations](#) (18) prescribe radiation dose limits to protect the public from exposure to radiation from licensed activities. The annual effective dose limit for a member of the public is 1 mSv per year. The estimated annual effective dose from PHCF at both of their sites can be seen in Table 3.3.7.

Table 3.3.7: Estimated annual effective dose at PHCF, mSv

Parameter	2020	2021	2022	2023	2024	Licence limits
Dose at Site 1	0.129	0.072	0.088	0.097	0.053	1
Dose at Site 2	0.117	0.086	0.118	0.128	0.072	1

The public dose from PHCF is calculated from the airborne emissions, gamma, and liquid effluent monitoring results. At PHCF, there are two receptors, one at Site 1 and the other at Site 2. The estimated annual effective dose at PHCF remained below the regulatory public dose limit during the monitoring period.



3.4 Independent Environmental Monitoring Program

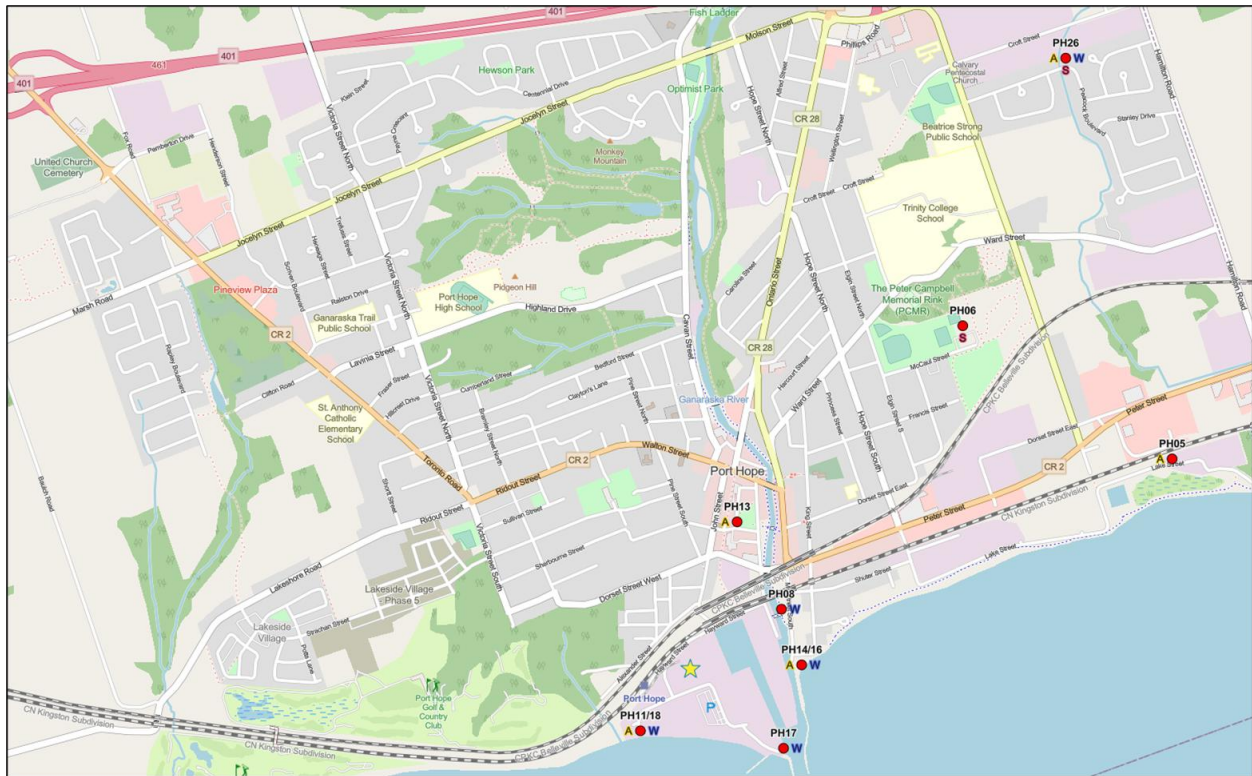
The CNSC has implemented its IEMP to build Indigenous and public trust in the CNSC's regulation of the nuclear industry, via an independent, technical and accessible environmental sampling program around nuclear facilities. It is separate from, but complementary to, the CNSC's ongoing compliance verification program. Under the IEMP, CNSC staff take samples, such as air, water, soil, sediment, vegetation, and/or some local food like meat or vegetables, from public areas near nuclear facilities. The samples are then tested at the CNSC's laboratory for contaminants related to each facility's operations, which in the case of PHCF are uranium, fluoride, ammonia and nitrate.

CNSC staff conducted IEMP sampling around PHCF in 2024, 2020, 2017, 2015 and 2014. For the most recent sampling campaign in 2024 (Figure 4.1), representatives of Mississaugas of Scugog Island First Nation and Curve Lake First Nations participated in the sampling. CNSC staff determined that the levels of COPCs in all the samples were below available guidelines, except for several fluoride concentrations measured in lake water samples at 7 locations. Most of these samples were collected prior to 2020 when the VIM project wasn't yet initiated. The results were above CCME freshwater quality guideline for the protection of aquatic life (0.12 mg/L), but were below Health Canada's guidelines for drinking water quality (1.5 mg/L), and well below the CCME toxicity benchmark (11.5 mg/L) for sensitive aquatic biota. Therefore, adverse effects are not expected.

CNSC staff conclude that the IEMP results are consistent with the results submitted by Cameco, supporting our assessment that the licensee's EPP is effective. The results add to the body of evidence that people and the environment in the vicinity of PHCF are protected and that there are no anticipated health impacts from the operation of the facility.



Figure 4.1: Overview of the 2024 sampling locations for PHCF



The CNSC's [IEMP page](#) has more information, including detailed sampling results for PHCF.

4 Health studies

Understanding health studies is important to help ensure the protection of people living near or working at nuclear facilities. The information presented in this section provides a snapshot of the health of people living near the PHCF. Based on CNSC staff's compliance monitoring of radiation and environmental protection at the facility and available health data, CNSC staff have not observed, and do not expect to observe, any adverse health outcomes attributable to the operation of the PHCF.

CNSC staff review national and international health studies, and at times conduct health studies on specific populations to understand the health of communities living around nuclear facilities, and particularly, any health implications that exposures to ionizing radiation may pose. This information can then be compared to national, provincial and/or regional studies, reports, and data to assess and understand health outcomes (e.g., disease rates) and potential risk factors for disease.

Many studies have been conducted in Port Hope to assess the health of the residents of the town, and to assess health risks as a result of past and present practices of the nuclear industry. The findings from these studies are consistent and supported by studies of similar populations as well as with the international scientific understanding of radiation effects on human health. For example, in 2011, the CNSC conducted a study to assess the types and levels of contaminants of concern in the environment around the community of Port Hope, and the impacts from potential exposures to these contaminants. The conclusions of the study indicated that: (1) levels of exposure to radioactive and non-radioactive contaminants in Port Hope were below levels known to cause adverse health effects; (2) epidemiological studies provided no evidence of health effects as a result of past and present activities of the Port Hope nuclear industries; (3) the ERAs and epidemiological studies were consistent and supported each other; and (4) Port Hope's findings were also consistent with the results of over 40 epidemiological studies conducted elsewhere on populations living around similar facilities or exposed to similar environmental contaminants (19). Additional studies involving Port Hope nuclear workers (20), (21), (22), (23), and the public (24) have been published in the peer reviewed scientific literature since the 2011 CNSC study. These more recent publications do not alter the conclusions from the 2011 report.

CNSC staff continuously work toward strengthening relationships with public health units in regions where nuclear facilities are located. CNSC staff also keep abreast of any new publications and data related to the health of populations living near, or working at, nuclear facilities.

Various organizations monitor the health of people living near the PHCF, such as [Lakelands Public Health](#) (formed by the 2025 merger of the Haliburton, Kawartha Pine Ridge (HKPR) District Health Unit and Peterborough Public Health) (28), [Cancer Care Ontario](#) (29) (30), [Public Health Ontario](#) (31), and the [Canadian Cancer Society](#) (32).



For additional information on health studies related to nuclear facilities, visit the CNSC's webpage on [health studies](#) (25). For recent [publications](#) on the sources, effects, and risks of ionizing radiation, visit the United Nations Scientific Committee on the effects of Atomic Radiation (UNSCEAR) webpage.

5 Findings

Overall, CNSC staff have found that at the PHCF, Cameco continues to implement and maintain effective environmental protection measures to adequately protect the environment and the health of people.

CNSC staff have found that all risks to the environment from any of the releases from PHCF observed over the last 5 years are low and significant effects to people and the environment from the PHCF operations are unlikely <http://www.nuclearsafety.gc.ca/eng/resources/fact-sheets/natural-background-radiation.cfm>.

Dredging within the Port Hope harbour associated with remediation activities by the PHAI, resulted in elevated surface water concentrations of uranium and fluoride. These concentrations were higher than the respective CCME guidelines and not attributable to the PHCF operations. Due to the isolated nature of the temporary remediation work, CNSC staff do not foresee elevated health risks or risks to the environment due to the elevated concentrations of uranium and fluoride in surface water.

CNSC staff reviewed available data on numerous health studies to assess health risks from the PHCF operations. These risks are found to be similar to those existing in and around communities without nuclear facilities. CNSC staff reviewed Cameco's SAR and anticipate additional details about flood prevention measures based on pending 2026 flood assessment. It is expected that more detailed climate change analysis will be completed during the next ERA review by CNSC staff and that potential cumulative effects will be addressed through remediation activities by Cameco (i.e. VIM project) and CNL (i.e. PHAI project). CNSC staff will continue to assess Cameco's compliance and monitoring data and future ERA submissions for PHCF as appropriate.

CNSC staff will ensure that, through ongoing licensing and compliance activities and reviews, the environment and the health and safety of persons near the PHCF are protected and there are no health impacts from the operation of the PHCF.

6 Abbreviations:

6.1 Acronyms:

AAQC	Ambient Air Quality Criteria
CCME	Canadian Council of Ministers of the Environment
CNL	Canadian Nuclear Laboratories
CNSC	Canadian Nuclear Safety Commission
COPCs	contaminants of potential concern
CSA	Canadian Standards Association
DRL	derived release limits
EcoRA	ecological risk assessment
EMP	environmental monitoring program
EMS	environmental management system
EP	Environmental Protection
EPP	environmental protection program
EPR	Environmental Protection Review
ERA	environmental risk assessment
HHRA	human health risk assessment
HKPR	Haliburton, Kawartha, Pine Ridge
HQs	hazard quotients
IEMP	Independent Environmental Monitoring Program
INWORKS	The International Nuclear Workers Study [if applicable]
MECP	Ministry of Environment Conservation and Parks
MOU	memorandum of understanding
NSCA	<i>Nuclear Safety and Control Act</i>
PHAI	Port Hope Area Initiative
PHCF	Port Hope Conversion Facility
RADICON	Radiation and incidence of cancer around Ontario nuclear power plants from 1990 to 2008
SAR	safety analysis report
UF ₆	uranium hexafluoride
UO ₂	uranium dioxide
UO ₃	uranium trioxide
UNSCEAR	United Nations Scientific Committee on the effects of Atomic Radiation
VIM	Vision in Motion

6.2 Units:

mSv	millisievert
mg/L	milligrams per litre
g/h	grams per hour



$\mu\text{g/g}$	micrograms per gram
kg/h	kilograms per hour
kg/yr	kilograms per year
$\mu\text{g/m}^3$	micrograms per metre cubed
$\mu\text{g/L}$	micrograms per litre
$\text{mg/m}^2/30 \text{ days}$	milligrams per metre squared per 30 days
$\mu\text{Sv/h}$	microsieverts per hour



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