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CMD: 23-H107

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Issue Required Approval(s) for

Délivrer l'approbation requise pour

Cameco Corporation's Port Hope Conversion Facility Financial Guarantee

Garantie financière pour l'installation de conversion de Port Hope de la corporation Cameco

Hearing in writing based solely on written submissions

Audience par écrit fondée uniquement sur des mémoires

Submitted by:
CNSC Staff

Soumise par :
Le personnel de la CCSN

Summary

This CMD pertains to a request for a decision regarding:

- Revision to the financial guarantee for Cameco Corporation's Port Hope Conversion Facility.

The following actions are requested of the Commission:

- Accept CNSC staff's recommendation for the proposed revision to Cameco Corporation's Port Hope Conversion Facility financial guarantee.

The following items are attached:

- Current licence FFOL-3631.00/2027

Résumé

Le présent CMD concerne une demande de décision au sujet de :

- Une révision à la garantie financière de l'installation de conversion de Port Hope de la corporation Cameco.

La Commission pourrait considérer prendre les mesures suivantes :

- Accepter la recommandation du personnel de la CCSN au sujet de la révision proposée à la garantie financière de l'installation de conversion de Port Hope de la corporation Cameco.

Les pièces suivantes sont jointes :

- Le permis actuel, FFOL-3631.00/2027

Signed/signé le

06 October 2023

Kavita Murthy

Director General

Directorate of Nuclear Cycle and Facilities Regulation

Directrice générale de la

Direction de la réglementation du cycle et des installations nucléaires

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EXECUTIVE SUMMARY

Cameco Corporation (Cameco) owns and operates the Port Hope Conversion Facility (PHCF), which is located in Port Hope, Ontario, within the traditional territory of the Wendat, Anishinabek Nation, and the territory covered by the Williams Treaties with the Michi Saagiig and Chippewa Nations. The facility is situated on the north shore of Lake Ontario, approximately 100 km east of Toronto.

In accordance with subsection 24(5) of the [Nuclear Safety and Control Act](#) (NSCA), a licence may contain a condition that the applicant provide a financial guarantee in a form that is acceptable to the Commission. For Cameco, this is licence condition 1.3 of the current licence (FFOL-3631.00/2027) [1]. The financial guarantee must be reviewed and updated every 5 years, or when there are material changes to the licensee's operational activities.

Cameco currently maintains a financial guarantee of \$128.6 million for the safe decommissioning of existing operations at PHCF. To fulfill the 5-year update requirement, Cameco conducted a review and submitted a revised preliminary decommissioning plan (PDP) and cost estimate to the CNSC in September 2022 [2]. Cameco's revised cost estimate for decommissioning is \$138.2 million, an increase of \$9.6 million. This increase takes into consideration labour rates, progress on the Vision in Motion project, and costs associated with the Centre Pier remediation and harbour retaining wall.

Cameco currently funds its 2016 PDP using an irrevocable letter of credit and has proposed to use the same financial instrument to fund the updated cost estimate. CNSC staff recommend that the Commission accept the revised financial guarantee proposed by Cameco for PHCF as specified in CNSC [REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*](#).

CNSC staff reviewed the revised PDP and confirmed that there are no major changes to the decommissioning strategy previously accepted in 2016 and that it meets regulatory requirements as specified in [CSA N294:19, *Decommissioning of Facilities Containing Nuclear Substances*](#) and [REGDOC-2.11.2, *Decommissioning*](#). The end-state objective is for the facility to be decommissioned to a condition that will permit its release from any further regulatory control by the CNSC.

Referenced documents in this CMD are available to the public upon request.

1 OVERVIEW

1.1 Background

The Port Hope Conversion Facility (PHCF) is located in Port Hope on the north shore of Lake Ontario, approximately 100 km east of Toronto as shown in figure 1-1. The PHCF converts UO_3 (uranium trioxide) powder produced by Cameco's Blind River Refinery (BRR) into uranium dioxide (UO_2) and uranium hexafluoride (UF_6) under the Class 1B operating licence, FFOL-3631.00/2027 [1]. UO_2 is used in the manufacturing of Canada Deuterium Uranium (CANDU) reactor fuel, while UF_6 is exported for further processing before being converted into fuel for light-water reactors.

Figure 1-1: Aerial view of the PHCF



(Source: Cameco)

In 2016, the Commission renewed Cameco's operating licence for PHCF for a 10-year period, expiring in February 2027 ([Record of Decision](#)). There have been no amendments to Cameco's operating licence for PHCF.

Licence condition 12.2 of Cameco's PHCF licence requires Cameco to maintain a decommissioning strategy. To meet this licence condition, Cameco maintains a preliminary decommissioning plan (PDP) that includes the expected costs associated with decommissioning the PHCF facility. Licence condition 1.3 requires Cameco to maintain a financial guarantee for decommissioning that is acceptable to the Commission, to ensure that the financial guarantee remains valid and in effect, and adequate to fund the PDP.

Cameco is required to conduct a review of the PDP every 5 years or when requested by the Commission to ensure the PDP remains adequate. In accordance with this requirement, Cameco conducted a PDP review for PHCF and submitted a revised PDP and cost estimate to the CNSC in September 2022 [2].

1.2 Vision in Motion (VIM)

[VIM](#) is Cameco's project to clean up and renew the site. The project builds on work now under way through the Port Hope Area Initiative (PHAI) to address historic low-level radioactive waste issues in the Municipality of Port Hope. The VIM project is being carried out under Cameco's operating licence, FFOL-3631.00/2027 licence condition 16.1 that requires, "*The licensee shall implement and maintain a program to carry out clean-up, decontamination and remediation work*".

1.3 Highlights

- Cameco's preferred decommissioning strategy for PHCF is a combination of "prompt decommissioning" and "in-situ decommissioning" as outlined in [CSA, N294:19, Decommissioning of Facilities Containing Nuclear Substances](#). This strategy is unchanged from what Cameco proposed and was accepted by CNSC staff during the 2016 licence renewal.
- The proposed Financial Guarantee to cover decommissioning costs is C\$138.2 million, which is an increase of C\$9.6 million from the existing financial guarantee current amount of C\$128.6 million.
- The proposed financial instrument remains the same as current – an irrevocable letter of credit.
- The increase in the cost estimate takes the following into consideration: increase in labour rates on direct costs between 2016 and 2022; progress of the VIM project, including demolition of the buildings at the Centre Pier, accumulated waste disposal and changes to infrastructure at the Main Site; costs attributed to Cameco for the Centre Pier remediation and harbour retaining wall and; indirect costs including contingency, engineering and construction management less some minor decreases in the direct costs.
- Acceptance of the proposed financial guarantee by the Commission does not require an amendment to the terms and conditions set out in Cameco's operating licence for PHCF (FFOL-3631.00/2027) [1].

1.4 Overall Conclusions

CNSC staff have concluded that:

- Cameco's revised preliminary decommissioning plan for PHCF provides an acceptable strategy and credible cost estimate, and is consistent with CNSC [REGDOC-2.11.2, Decommissioning](#) and CSA, N294-19, *Decommissioning of Facilities Containing Nuclear Substances, 2019*.
- Cameco's proposed financial guarantee is acceptable and adequate for future decommissioning of PHCF and is consistent with CNSC REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*.

1.5 Overall Recommendations

CNSC staff recommend the following:

- That the Commission accept CNSC staff's recommendation for the proposed revision to Cameco's PHCF financial guarantee in the amount of C\$138.2 million.

2 MATTERS FOR CONSIDERATION

2.1 Background Information

In accordance with subsection 24(5) of the [Nuclear Safety and Control Act](#) (NSCA), a licence may contain a condition that the applicant provide a financial guarantee in a form that is acceptable to the Commission.

Accordingly, licence condition 1.3 of the current licence (FFOL-3631.00/2027) [1] held by Cameco Corporation (Cameco) for PHCF requires the licensee to maintain a financial guarantee 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.

The 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.

Cameco currently maintains a financial guarantee of C\$128.6 million to cover the decommissioning costs for PHCF. This financial instrument and amount was accepted by the Commission during the 2016 licence renewal ([Record of Decision](#)).

Cameco's revised PDP estimates the decommissioning cost of PHCF is C\$138.2 million. Since this amount is higher than the amount previously accepted by the Commission, a revised financial guarantee is required. Cameco has proposed to use the same financial instrument with the same terms and conditions to reflect the increase in decommissioning costs. Acceptance of the proposed financial guarantee by the Commission does not require an amendment to the terms and conditions set out in Cameco's operating licence for PHCF (FFOL-3631.00/2027) [1].

2.2 Preliminary Decommissioning Plan (PDP)

In September 2022, Cameco submitted to the CNSC a revised PDP for PHCF [2]. This submission of the PDP is pursuant to licence condition 12.2 of the PHCF licence FFOL-3631.00/2027 [1] outlining that Cameco shall maintain a decommissioning strategy. Cameco is required to review the PDP every 5 years or when requested by the Commission.

The preferred decommissioning strategy for PHCF has remained unchanged. Cameco's preferred decommissioning strategy is a combination of "prompt decommissioning" and "in situ decommissioning" as outlined in [CSA, N294:19, *Decommissioning of Facilities Containing Nuclear Substances*](#). Decommissioning by prompt removal of the PHCF will occur in 2 stages with wastes from each stage subjected to in situ confinement by placement in encapsulated mounds at approved locations. The first stage is already underway through the VIM site restoration program. The second stage would comprise demolition of remaining buildings and services, excavation of contaminated soil, and repurposing of the Dorset Street site. The end state objective for the facility is to be decommissioned to a condition that will permit the release of the facility from any further regulatory control by the CNSC.

The revised PDP includes a breakdown of decommissioning costs associated with the proposed decommissioning strategy for PHCF. The total costs of decommissioning PHCF are estimated to be C\$138.2 million [2]. This value represents an increase of C\$9.6 million from the existing financial guarantee of C\$128.6 million. The increase in the cost estimate is attributed to the following changes since the PDP was last submitted in 2016:

- increase in labour rates on direct costs between 2016 and 2022
- progress of the VIM project, including demolition of the buildings at the Centre Pier, accumulated waste disposal and changes to infrastructure at the Main Site
- costs attributed to Cameco for the Centre Pier remediation and harbour retaining wall
- indirect costs including contingency, engineering, and construction management less some minor decreases in the direct costs.

CNSC staff assessed and concluded that the submitted PDP meets the criteria and guidance set in CNSC [REGDOC-2.11.2, *Decommissioning*](#) and CSA, N294-19, *Decommissioning of Facilities Containing Nuclear Substances*, 2019. The revised PDP provides a credible cost estimate for the future decommissioning of PHCF.

2.3 Financial Guarantee Proposal

Financial guarantees are intended to ensure that sufficient funding is available to cover the cost of decommissioning of nuclear facilities or termination of licensed activities authorized by the current licence as specified in [REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*](#).

Licence condition 1.3 of the Cameco licence FFOL-3631.00/2027 [1] for PHCF dictates that Cameco shall maintain a financial guarantee for decommissioning that is acceptable to the Commission. Cameco currently maintains a financial guarantee, in the form of an irrevocable letter of credit that was accepted by the Commission during the PHCF licence renewal in 2016 ([Record of Decision](#)).

If the PDP is revised and significantly impacts the cost estimate for the financial guarantee, the expectation is that the financial guarantee will be revised and submitted to the Commission for acceptance. In addition, the financial guarantee for decommissioning is to be reviewed and revised by Cameco every 5 years, and when the Commission requires.

CNSC staff reviewed Cameco's proposal to continue using an irrevocable letter of credit as a financial instrument and concluded that it meets the criteria for financial instruments in CNSC [REGDOC-2.11.2, *Decommissioning*](#) and [CSA, N294:19, *Decommissioning of Facilities Containing Nuclear Substances*](#).

3 INDIGENOUS CONSULTATION AND ENGAGEMENT

The common law duty to consult with Indigenous peoples applies when the Crown contemplates actions that may adversely affect potential or established Indigenous and/or treaty rights. Based on the information reviewed, including the information received in Cameco's revised PDP for PHCF, CNSC staff have determined that the request is an administrative change and is not likely to cause any new adverse impacts to Indigenous and/or treaty rights. Therefore, the duty to consult is not triggered in relation to this request.

4 OTHER MATTERS OF REGULATORY INTEREST

4.1 Environmental Assessment

CNSC staff have reviewed the application under the NSCA and concluded that there are no impacts to the environment arising from this request.

5 OVERALL CONCLUSIONS AND RECOMMENDATIONS

5.1 Overall Conclusions

CNSC staff have concluded that:

- The revised preliminary decommissioning plan provides a credible cost estimate for the future decommissioning of PHCF, and
- The proposed financial guarantee is adequate for the future decommissioning of PHCF.

5.2 Overall Recommendations

CNSC staff recommend the following:

- That the Commission accept CNSC staff's recommendation for the proposed revision to Cameco Corporation's PHCF financial guarantee in the amount of C\$138.2 million.

REFERENCES

- [1] Nuclear Facility Operating Licence, *Cameco Corporation Port Hope Conversion Facility, FFOl-3631.00/2027*, valid from March 01, 2017 to February 28, 2027 (e-Doc 5068156).
- [2] Submission, Port Hope Conversion Facility Preliminary Decommissioning Plan 2022 (e-Doc 6882566).

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.

Glossary Term	Glossary Definition
BRR	Blind River Refinery
C	Canadian dollars
Cameco	Cameco Corporation
CANDU	Canada Deuterium Uranium
CMD	Commission member document
CNSC	Canadian Nuclear Safety Commission
CSA	Canadian Standards Association
FFOL	Fuel facility operating licence
NSCA	<i>Nuclear Safety and Control Act</i>
PDP	Preliminary decommissioning plan
PHAI	Port Hope Area Initiative
PHCF	Port Hope Conversion Facility
REDGOC	Regulatory document
UO ₂	Uranium dioxide
UO ₃	Uranium trioxide
UF ₆	Uranium hexafluoride
VIM	Vision in Motion

A. BASIS FOR THE RECOMMENDATIONS

A.1 Regulatory Basis

The regulatory basis for the recommendations presented in this CMD is as follows:

Nuclear Safety and Control Act

Subsection 24(5) of the *Nuclear Safety and Control Act* provides that a licence may contain any term or condition that the Commission considers necessary for the purposes of the Act, including a condition that the applicant provide a financial guarantee in a form that is acceptable to the Commission.

Subsection 24(6) of the *Nuclear Safety and Control Act* provides that the Commission may authorize the application of the proceeds of any financial guarantee referred to in subsection (5) in such manner as it considers appropriate for the purposes of this Act.

Subsection 24(7) of the *Nuclear Safety and Control Act* provides for the means by which a refund may be granted for any funds that have not been spent.

General Nuclear Safety and Control Regulations

The *General Nuclear Safety and Control Regulations* requires under paragraph 3(1)(l) that a licence application contains a description of any proposed financial guarantee relating to the activity to be licensed.

Class I Nuclear Facilities Regulations

Paragraph 3(k) of the *Class I Nuclear Facilities Regulations* required that an application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the proposed plan for the decommissioning of the nuclear facility or of the site.

Licence Condition 12.2 of the Cameco Corporation Port Hope Conversion Facility licence FFL-3631.00/2027

The licensee shall implement and maintain a preliminary decommissioning strategy.

Licence Condition 1.3 of the Cameco Corporation Port Hope Conversion Facility licence FFL-3631.00/2027

The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission.

A.2 Technical Basis

The technical basis for the recommendations presented in this CMD is compared against the following:

- CNSC [REGDOC-2.11.2, *Decommissioning*](#)
- CNSC [REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*](#)
- [CSA N294:19 *Decommissioning of Facilities Containing Nuclear Substances*](#)

CURRENT LICENCE



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

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.

e-Doc 4861336 (Word)
e-Doc 5068156 (PDF)

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.

Cameco Corporation Port Hope Conversion Facility
Nuclear Fuel Facility Operating Licence

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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.

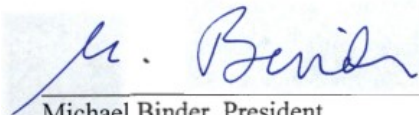
16. Nuclear Facility-Specific

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 27th day of February, 2017.



Michael Binder, President
on behalf of the Canadian Nuclear Safety Commission