



Record of Decision

DEC 22-H12

In the Matter of

Applicant Cameco Fuel Manufacturing Inc.

Subject Application to Renew the Class IB Nuclear Fuel
Facility Licence for Cameco Fuel Manufacturing
Inc. in Port Hope, Ontario

Public Hearing
Date November 23, 2022

Record of
Decision Date January 17, 2023

RECORD OF DECISION – DEC 22-H12

Applicant: Cameco Fuel Manufacturing Inc.

Address/Location: 200 Dorset Street East, Port Hope, Ontario L1A 3V4

Purpose: Application to renew the Class IB Nuclear Fuel Facility Licence for Cameco Fuel Manufacturing Inc. in Port Hope, Ontario

Application received: October 4, 2021

Date of public hearing: November 23, 2022

Location: Hybrid Hearing – Best Western Plus Cobourg Inn & Convention Centre, 930 Burnham St., Cobourg, Ontario and virtual.

Members present: R. Velshi, Chair
T. Berube
M. Lacroix

Registrar: D. Saumure
Recording Secretary: C. Moreau
Senior General Counsel: L. Thiele

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Intervenors		
See appendix A		
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Licence: Renewed

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1.0 INTRODUCTION	
1.	Cameco Fuel Manufacturing Inc. ¹ (CFM) has applied to the Canadian Nuclear Safety Commission ² (CNSC or the Commission), under subsection 24(2) of the Nuclear Safety and Control Act ³ (NSCA), for a 20-year renewal of the Class IB nuclear fuel facility licence for CFM’s nuclear fuel manufacturing facility (CFM facility). CFM’s current licence, FFL-3641.00/2023, is valid until February 28, 2023, and authorizes CFM to operate the CFM facility to produce uranium dioxide (UO ₂) fuel pellets and nuclear fuel bundles. The CFM facility is located in the Municipality of Port Hope, Ontario, and on the traditional territory of the Wendat, Mississauga, Haudenosaunee, Anishinabek Nation, and the territory covered by the Williams Treaties First Nations.
2.	The CFM facility has been in operation since the late 1950s. The facility was acquired by Cameco in 2006, when Cameco acquired 100% ownership of the facility’s operator Zircatec Precision Industries Inc. (Zircatec). Zircatec was renamed Cameco Fuel Manufacturing Inc. in 2008. The manufacturing process at the CFM facility involves both uranium fuel pellet manufacturing and fuel bundle assembly. Natural UO ₂ powder is pressed into pellets, fitted into zirconium tubes and then assembled into Canada Deuterium Uranium (CANDU) reactor fuel bundles. The risks associated with the licensed activities at the CFM facility are mainly due to conventional industrial hazards associated with a manufacturing facility, and the chemical and radiological hazards of uranium exposure.
3.	CFM’s previous licence, FFL-3641.00/2022, was issued ⁴ for a period of 10 years from March 1, 2012 until February 28, 2022. At the end of the licence term, CFM applied for a 1-year licence renewal to separate the CFM licence renewal activities from Cameco’s Blind River Refinery licence renewal activities, as both licences were expiring on the same day. The Commission renewed ⁵ the licence until February 28, 2023. For the purpose of this decision, the review period encompasses the period starting March 1, 2012 to February 28, 2023 (licence period).
4.	With this licence renewal application, CFM is requesting an annual production limit of 1,650 tonnes of uranium as uranium dioxide pellets. The current production limit is 125 megagrams of uranium dioxide as pellets during any calendar month. The request equates to an approximate 24% increase ⁶ and reflects the maximum production capacity of the facility.

¹Cameco Fuel Manufacturing Inc. (CFM) is a wholly owned subsidiary of Cameco Corporation (Cameco). CFM is part of Cameco’s Fuel Services Division.

² The *Canadian Nuclear Safety Commission* is referred to as the “CNSC” when referring to the organization and its staff in general, and as the “Commission” when referring to the tribunal component.

³ Statutes of Canada (S.C.) 1997, c. 9

⁴ Record of Proceedings, Including Reasons for Decision, *Application for the Renewal of the Operating Licence for Cameco Fuel Manufacturing Inc. in Port Hope, Ontario*, April 2012

⁵ Record of Decision, *Application to Renew the Class IB Nuclear Fuel Facility Operating Licence FFL-3641.00/2022 for the Cameco Fuel Manufacturing Inc. Facility*, February 2022

⁶ p. 98 of CMD 22-H12

	<u>Issues</u>
5.	The Commission is required to determine whether and what requirements the Impact Assessment Act ⁷ (IAA) imposes in relation to the activities sought to be authorized in CFM’s application to renew the licence for its Class IB nuclear substance processing facility. Satisfying any such requirements can be a prerequisite to licensing.
6.	Pursuant to paragraphs 24(4)(a) and (b) of the NSCA, the Commission must be satisfied that: a) CFM is qualified to carry on the activity that the licence would authorize; and b) in carrying on that activity, CFM 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.
7.	As an agent of the Crown, the Commission recognizes its role in fulfilling the Crown’s constitutional obligations, along with advancing reconciliation with Canada’s Indigenous peoples. The Commission’s responsibilities include the duty to consult and, where appropriate, accommodate Indigenous interests where the Crown contemplates conduct which may adversely impact potential or established Aboriginal ⁸ or treaty rights ⁹ . As such, the Commission must determine what engagement and consultation steps and accommodation measures are called for respecting Indigenous interests.
	<u>Public Hearing</u>
8.	On March 7, 2022, the Commission published a Notice of Public Hearing and Participant Funding for this matter. The Commission subsequently published a revised notice on September 6, 2022 to specify the hearing venue.
9.	Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission over which she would preside, including Commission Members Dr. T. Berube and Dr. M. Lacroix, to decide on the application. The Commission, in making its decision, considered all the information submitted for the public hearing held on November 23, 2022. The public hearing was conducted in

⁷ S.C. 2019, c. 28, s. 1.

⁸ “Aboriginal” is the term used in this document when referring to the Crown’s duty to consult as that is the term used in S. 35 of the Constitution Act, 1982. In all other cases, “Indigenous” is the preferred terminology and used accordingly.

⁹ *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73; *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, 2004 SCC 74

	<p>accordance with the Canadian Nuclear Safety Commission Rules of Procedure¹⁰ (the Rules). During the public hearing, the Commission considered written submissions and heard oral presentations from CFM (CMD 22-H12.1, CMD 22-H12.1A and CMD 22-H12.1B) and CNSC staff (CMD 22-H12, CMD 22-H12.A). The Commission also considered oral and written submissions from 42 intervenors (see Appendix A for a list of interventions). The hearing was webcast live via the CNSC website, and video archives are available on the CNSC’s website.</p>
	<u>Participant Funding Program</u>
10.	<p>Pursuant to paragraph 21(1)(b.1) of the NSCA, the Commission has established a Participant Funding Program (PFP) to facilitate the participation of Indigenous Nations and communities, members of the public and stakeholders in Commission proceedings. In March 2022, up to \$75,000 in funding was made available through the CNSC’s PFP to review CFM’s licence renewal application and associated documents, and to provide the Commission with value-added information through topic-specific interventions. A Funding Review Committee (FRC), independent of the CNSC, reviewed the funding applications received and made recommendations on the allocation of funds. Based on the recommendations from the FRC, the CNSC awarded a total of \$58,352.34 to 5 applicants:</p> <ul style="list-style-type: none"> • Curve Lake First Nation – up to \$12,980 • Mississaugas of Scugog Island First Nation – up to \$20,863 • Métis Nation of Ontario – up to \$4,354.44¹¹ • Port Hope Community Health Concerns Committee – up to \$4,860 • Northwatch – up to \$15,294.90¹²
	<u>Mandate of the Commission</u>
11.	<p>Several intervenors provided the Commission with information about the economic impact of the CFM facility. The Commission notes that, as the regulatory authority over nuclear matters in Canada, it has no economic mandate and will not base its decisions on the economic impact of a facility. It is the health, safety and security of persons, the protection of the environment, national security, and the implementation of the international obligations to which Canada has agreed that guide its decisions, in accordance with the NSCA.</p>

¹⁰ Statutory Orders and Regulations (SOR)/2000-211.

¹¹ Métis Nation of Ontario did not file a submission, therefore it did not receive funding

¹² Northwatch canceled its contribution agreement before filing its submission, therefore it did not receive funding

	2.0 DECISION
12.	<p>Based on its consideration of the matter, as described in more detail in the following sections of this <i>Record of Decision</i>, the Commission concludes the following:</p> <ul style="list-style-type: none">• the Impact Assessment Act (IAA) does not impose any obligation upon the Commission in this matter• the contemplated activities do not present any novel adverse impact on any potential or established Aboriginal claim or right• the Commission’s responsibility to uphold the honour of the Crown and its constitutional obligations with regard to engagement and consultation respecting Indigenous interests has been satisfied• CFM is qualified to carry on the activity that the licence will authorize• CFM, in carrying on these activities, 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. <p>Therefore,</p>
	<p>the Commission, pursuant to section 24 of the <i>Nuclear Safety and Control Act</i>, renews the Class IB Nuclear Fuel Facility Licence issued to Cameco Fuel Manufacturing Inc. for its Cameco Fuel Manufacturing facility located in Port Hope, Ontario. The renewed licence, FFL-3641.00/2043, is valid from March 1, 2023 to February 28, 2043, unless suspended, amended, revoked or replaced.</p>
13.	<p>The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 22-H12. The Commission also delegates authority for the purposes of licence condition 3.2, as recommended by CNSC staff. Licence conditions and the delegation of authority are further discussed in section 4.5 of this <i>Record of Decision</i>. The Commission authorizes the increased annual production limit of 1,650 tU, as UO₂ pellets. The increased production limit is further discussed in section 4.5.4 in this <i>Record of Decision</i>.</p>
14.	<p>With this decision, the Commission directs CNSC staff to report on the performance of CFM and its processing facility, as part of the periodic Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada. CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate. The Commission directs CNSC staff to inform the Commission, as part of the <i>Regulatory Oversight Report</i>, of any changes made to the Licence Conditions Handbook. CNSC staff may bring any matter to the Commission’s attention, as required.</p>

15.	The Commission directs that, at the midpoint of the 20-year licence period and no later than 2033, CFM shall provide to the Commission a comprehensive midterm update on the conduct of its licensed activities and compliance with requirements. This midterm presentation will take place in a public Commission proceeding and will include public participation. The Commission will plan to offer participant funding for this proceeding.
3.0 APPLICABILITY OF THE <i>IMPACT ASSESSMENT ACT</i>	
16.	In coming to its decision, the Commission was first required to determine whether any requirement under the IAA applied to the licence renewal application and whether an impact assessment was required.
17.	The IAA came into force on August 28, 2019. Pursuant to the IAA and the <i>Physical Activities Regulations</i> ¹³ made under it, impact assessments are to be conducted in respect of projects identified as having the greatest potential for adverse environmental effects in areas of federal jurisdiction. A licence renewal is not a project designated under the <i>Physical Activities Regulations</i> .
18.	The Commission is satisfied that there is no requirement under the IAA for an impact assessment to be completed. The Commission is also satisfied that there are no other applicable requirements of the IAA to be addressed in this matter. ¹⁴ The Commission notes that the NSCA provides a strong regulatory framework for environmental protection and the health and safety of persons. Environmental protection is further discussed in section 4.2.9 of this <i>Record of Decision</i> .
4.0 ISSUES AND COMMISSION FINDINGS	
19.	In making its licensing decision, the Commission considered specific relevant issues and submissions relating to CFM’s qualification to carry on the licensed activities. The Commission also considered the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.
20.	The Commission’s decision focuses on the issues relevant for this application, specifically: <ul style="list-style-type: none"> • Completeness of the licence application

¹³ SOR/2019-285.

¹⁴ The IAA can impose other requirements on federal authorities in respect of authorizing projects that are not designated as requiring an impact assessment, including projects that are to be carried out on federal lands, or projects outside of Canada. This licence renewal does not engage any such applicable IAA requirements.

	<ul style="list-style-type: none"> • CFM’s performance in relevant safety and control areas (SCAs) over the past two licence periods • Indigenous engagement and consultation • Other matters of regulatory importance • Licence length and conditions, including the delegation of authority • The proposed production limit increase
	4.1 Completeness of Licence Application
21.	CFM submitted a licence renewal application for its nuclear fuel fabrication facility on October 4, 2021 . In its consideration of this matter, the Commission examined the completeness of the application and the adequacy of the information submitted by CFM, as required by the NSCA, the General Nuclear Safety and Control Regulations ¹⁵ (GNSCR), and the Class I Nuclear Facilities Regulations ¹⁶ , and other applicable regulations made under the NSCA, including the Radiation Protection Regulations ¹⁷ , the Nuclear Security Regulations ¹⁸ , and the Packaging and Transport of Nuclear Substances Regulations, 2015 ¹⁹ .
22.	<p>The GNSCR call on an applicant for a licence renewal to provide information regarding any changes in information to the CNSC as part of its application. Section 5 provides:</p> <p style="padding-left: 40px;">An application for the renewal of a licence shall contain</p> <p style="padding-left: 80px;">(a) the information required to be contained in an application for that licence by the applicable regulations made under the Act; and</p> <p style="padding-left: 80px;">(b) a statement identifying the changes in the information that was previously submitted.</p> <p>Section 7 of the GSNCR also provides that:</p> <p style="padding-left: 40px;">An application for a licence or for the renewal, suspension in whole or in part, amendment, revocation or replacement of a licence may incorporate by reference any information that is included in a valid, expired or revoked licence.</p> <p>Additionally, Sections 3 and 6 of the <i>Class I Nuclear Facilities Regulations</i> specify the application information required in respect of an operating licence and production limit.</p>
23.	CFM’s application contains a request for an amendment regarding the maximum annual production. Therefore, the Commission must be satisfied that the information

¹⁵ SOR/2000-202.

¹⁶ SOR/2000-204.

¹⁷ SOR/2000-203.

¹⁸ SOR/2000-209.

¹⁹ SOR/2015-145.

	required by sections 5 and 6 of the GNSCR are met, as well as sections 3 and 6 of the <i>Class I Nuclear Facilities Regulations</i> .
24.	CFM’s application provides clause-by-clause responses to the requirements set out in the GNSCR and the <i>Class I Nuclear Facilities Regulations</i> . As detailed in Appendix C of CMD 22-H12, CNSC staff reported that CFM’s application complies with regulatory requirements.
25.	Based on the evidence presented, the Commission concludes that CFM’s licence renewal application is complete and complies with the regulatory requirements respecting an application for licence renewal set in the <i>Class I Nuclear Facilities Regulations</i> . CFM’s application and supporting documents identify how CFM will meet regulatory requirements and CNSC staff’s assessment demonstrates to the Commission’s satisfaction how CFM has adequately addressed the licence renewal application requirements.
	4.2 Safety and Control Areas
26.	The Commission examined CNSC staff’s assessment of CFM’s performance in all 14 SCAs for the purpose of evaluating this renewal application. The Commission considered CFM’s performance over the licence period, as of March 1, 2022, as well as the previous 10-year period, from March 1, 2012 to February 28, 2022. Throughout the licence period, CNSC staff rated CFM’s overall performance in all applicable SCAs as “satisfactory”.
	<i>4.2.1 Management System</i>
27.	<p>CFM’s management system covers the framework that establishes the processes and programs required to ensure that CFM achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture. Section 3.1 of CFM’s application summarizes information about its management system, including its:</p> <ul style="list-style-type: none"> • governing management system document • organization and organizational structure • safety committees and the implementation and maintenance of programs, processes and procedures • safety culture assessments <p>CFM submitted that its Management System meets CSA N286-12 (R2017), <i>Management system requirements for nuclear facilities</i>²⁰ and CNSC regulatory</p>

²⁰ CSA N286-12 (R2017), *Management system requirements for nuclear facilities*, CSA group, 2012 (reaffirmed 2017)

	document (REGDOC) REGDOC-2.1.1, Management System ²¹ . CFM further submitted that it implemented REGDOC-2.1.2, Safety Culture ²² during the review periods.
28.	The Commission asked for additional details on CFM’s safety culture assessment. A CFM representative reported that CFM’s
29.	In section 3.1 of CMD 22-H12, CNSC staff confirmed that CFM has implemented a management system that meets regulatory requirements, in accordance with CSA N286-12 (R2017), and REGDOCs 2.1.1 and 2.1.2. CNSC staff submitted that it assessed CFM’s performance in this SCA through compliance verification activities, including onsite inspections in 2012, 2013, 2017 and 2019. CNSC staff stated that all findings and recommendations from these compliance verification activities were of low safety significance and were adequately addressed by CFM.
30.	Several intervenors, including C. Polley (CMD 22-H12.25) and C. Roddy (CMD 22-H12.31) were individuals currently employed by CFM. All the intervening employees described CFM as a safe workplace with a good safety culture.
31.	<p>The Commission concludes that CFM has the appropriate organization and management structures in place to carry on the licensed activities. The Commission finds that the information provided by CFM and CNSC staff demonstrates that CFM has acceptable programs in place to ensure that its facility achieves its safety objectives, fosters a healthy safety culture and has an appropriate reporting process applicable to all events for which CFM is required to report. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM has implemented and maintained a management system to operate the facility, and that the management system meets the requirements of CSA N286-12 and REGDOC-2.1.1 • The Commission is satisfied that the evidence presented by CFM demonstrates that CFM has made a continued commitment to maintaining and improving its management system in accordance with regulatory requirements • The Commission is satisfied that the evidence presented by CFM demonstrates that CFM has an acceptable safety culture and a process in place to monitor safety culture in the organization through different avenues, such as safety culture self assessment, in accordance with REGDOC-2.1.2.

²¹ REGDOC-2.1.1, *Management System*, CNSC, May 2019

²² REGDOC-2.1.2, *Safety Culture*, CNSC, April 2018

	<i>4.2.2 Human Performance Management</i>
32.	Human performance management encompasses activities that ensure that CFM staff are sufficient in number in all relevant job areas and have the necessary knowledge, skills, procedures, and tools in place to safely carry out their duties.
33.	In section 3.2 of CMD 22-H12.1, CFM submitted that it has implemented a systematic approach to training (SAT) to all licensed activities, in full compliance with the requirements of REGDOC-2.2.2, Personnel Training, Version 2 . ²³ CFM also noted that it made improvements to its training programs by addressing opportunities identified through routine audits and inspections. CFM further submitted that it has programs and procedures in place to address human resource matters and to ensure that employees are fit for duty.
34.	<p>In section 3.2 of CMD 22-H12, CNSC staff confirmed that CFM maintains training documentation and a SAT-based training program that are in full compliance with the requirements of REGDOC-2.2.2. CNSC staff reported that, during the current and previous licence period, CNSC staff conducted three inspections focused on CFM’s training program. CNSC staff identified non-compliances related to:</p> <ul style="list-style-type: none"> • trainer evaluations • trainee evaluations • training governance misalignments • training records and • qualification verifications. <p>CNSC staff noted that CFM adequately addressed all inspection findings. CNSC staff also confirmed that CFM did not report any safety-significant events that had a root cause in human performance throughout the previous licence terms.</p>
35.	<p>The Commission concludes that CFM has implemented and maintained an appropriate program for training staff for the facility. The Commission is satisfied that CFM’s employees are appropriately trained and qualified in accordance with CNSC requirements, including CNSC REGDOC-2.2.2, <i>Personnel Training</i>. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM has a SAT-based training program in place that meets regulatory requirements • The Commission agrees with CNSC staff’s assessment that CFM has effectively implemented programmatic requirements and good operating practices • The Commission is satisfied that CFM has addressed all inspection findings related to this SCA.

²³ REGDOC-2.2.2, *REGDOC-2.2.2, Personnel Training, Version 2*, CNSC, December 2016

	<i>4.2.3 Operating Performance</i>
36.	Operating performance includes an overall review of the conduct of the licensed activities and the activities that enable effective performance, as well as improvement plans and significant future activities at CFM facility.
37.	Section 3.3 of CFM’s CMD provides information on how CFM ensures that licensed activities are conducted safely at its facility. CFM noted that its operations program monitors, measures and tracks parameters to ensure that its facility is operated in a manner consistent with regulatory requirements. CFM reported that its operating performance program includes operating limits for the site and that CFM has robust systems in place to ensure that its performance is maintained and continuously improved.
38.	CFM noted that it had 24 reportable events during the current and previous licence periods. CFM stated that it investigated each incident in accordance with its corrective action process, with corrective actions identified, implemented and tracked.
39.	CNSC staff reported in section 3.3 of CMD 22-H12 that CFM has operated its facility in compliance with CNSC regulatory requirements. CNSC staff’s assessment of CFM’s performance over the previous two licence periods was informed by compliance verification activities, including 29 inspections. CNSC staff noted that the majority of non-compliances were found to be of low safety significance, and that CFM adequately addressed and corrected all inspection findings. CNSC staff also reported that CFM continues to provide updates on operating performance via submission of annual compliance reports in accordance with REGDOC-3.1.2 <i>Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills</i> . ²⁴ In addition, CNSC staff confirmed that CFM maintains comprehensive procedures across all of its programs. CNSC staff stated that it periodically reviews procedures to ensure that they reflect actual practices.
40.	The Commission concludes that CFM remains qualified to carry out the activities under the proposed renewed licence. The evidence presented demonstrates that CFM has operated its facility in accordance with regulatory requirements over the current and previous licence periods, and that its programs and procedures meet regulatory requirements. The Commission is satisfied that CFM will continue to ensure that appropriate programs are in place at its facility to provide for the protection of the health and safety of persons and the environment. The Commission comes to this conclusion on the following basis:

²⁴ REGDOC-3.1.2 *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*, January 2018

	<ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM operated in accordance with regulatory requirements over the licence period • The Commission agrees with CNSC staff’s assessment that CFM maintains a program for reporting, in accordance with REGDOC-3.1.2 • The Commission agrees with CNSC staff’s assessment that CFM has appropriate measures in place for reporting, investigating and implementing corrective actions for events, and is satisfied by the evidence provided by CFM that it will follow those measures.
	<i>4.2.4 Safety Analysis</i>
41.	Safety analysis, which supports the overall safety case for the facility, includes a systematic evaluation of the potential hazards associated with the conduct of the licensed activity or the operation of a facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.
42.	CFM described its safety analysis program in section 3.4 of its CMD. CFM submitted that its Safety Analysis Report (SAR) describes the conditions, safe boundaries, and hazard controls for its operations, and that a technical summary of the updated SAR is available on its website . CFM explained that it evaluates hazards to establish their probability of occurrence and potential consequences using a What-If analysis technique to determine potentially hazardous scenarios in terms of safety, the environment and facility operability. CFM also committed to implement CNSC REGDOC 2.4.4, Safety Analysis for Class 1B Facilities , ²⁵ which was published in October 2022, and to identify and address any gaps in the facility safety analysis on a schedule acceptable to CNSC staff.
43.	CNSC staff confirmed that, based on the results of desktop reviews and compliance inspections, CFM’s safety analysis program meets regulatory requirements. As described in section 3.4 of its CMD, CNSC staff evaluated CFM’s SAR against CSA N292.0-14, <i>General principles for the management of radioactive waste and irradiated fuel</i> ²⁶ and the International Atomic Energy Agency (IAEA) SSR-4, Safety of Nuclear Fuel Cycle Facilities ²⁷ . CNSC staff reported that CFM adequately assessed the hazards associated with licensed activities and demonstrated an adequate level of protection of a broad range of operating conditions.
44.	CNSC staff reported that CFM has a nuclear criticality safety program in place to control the handling and processing of fissionable materials, including enriched uranium. CFM currently possesses a small quantity of enriched uranium (i.e., less than

²⁵ REGDOC 2.4.4, *REGDOC 2.4.4, Safety Analysis for Class 1B Facilities*, October 2022

²⁶ CSA Group, CSA N292.0-14, *General principles for the Management of Radioactive Waste and Irradiated Fuel*, January 2014.

²⁷ IAEA Specific Safety Requirements, SSR-4, *Safety for Nuclear Fuel Cycle Facilities*, 2017.

	<p>80% of smallest critical mass). CNSC staff noted that it inspected CFM’s criticality safety program, and that CFM had satisfactorily addressed the identified findings. CNSC staff added that CFM revised its nuclear criticality safety program, that met the requirements of RD 327 Nuclear Criticality Safety, to meet the requirements of CNSC regulatory document REGDOC-2.4.3, Nuclear Criticality Safety, following its publication in September 2020.</p>
<p>45.</p>	<p>The Commission concludes that CFM’s safety analysis program for its facility meets regulatory requirements and ensures that all operations with fissionable materials will be carried out in accordance with the requirements set out in the CNSC document RD 327 Nuclear Criticality Safety and REGDOC-2.4.3. The Commission is satisfied that the information provided by CFM and CNSC staff demonstrates that the systematic evaluation of the potential hazards and the preparedness for reducing the effects of such hazards is adequate for the operation of the facility and the activities under the proposed license. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission is satisfied that the evidence provided by CFM and CNSC staff sufficiently demonstrates that the design of the CFM facility will continue to be adequate for the proposed licence period • The Commission agrees with CNSC staff’s assessment that CFM’s facility Safety Analysis Report is adequate • The Commission is satisfied that the evidence provided by CFM and CNSC staff sufficiently demonstrates that CFM meet the requirements of REGDOC-2.4.3 on nuclear criticality safety²⁸ • The Commission is satisfied that CFM has committed to implement REGDOC-2.4.4 on a schedule acceptable to CNSC staff. <p>The Commission expects to be updated on the implementation of REGDOC-2.4.4as part of the Regulatory Oversight Report.</p>
	<p><i>4.2.5 Physical Design</i></p>
<p>46.</p>	<p>Physical design includes the activities to design systems, structures and components to meet and maintain the design basis of a facility. The design basis is the range of conditions, according to established criteria, that the facility must withstand without exceeding authorized limits for the planned operation of safety systems. CFM noted that, since 2012, it has made significant upgrades to automate both the handling of UO₂ powder and pellets within the facility, as well as to the fuel bundle assembly process.</p>
<p>47.</p>	<p>In section 3.5 of its CMD, CFM described its physical design program, which includes facility and process changes, third party review for fire protection and a pressure boundary program. CFM noted that it implemented an electronic process to improve</p>

²⁸ REGDOC 2.4.3 superseded RD 327 in September 2020

	<p>the documentation and traceability of design changes. Furthermore, CFM noted that it implemented CSA standard N393-13 (R2018), <i>Fire protection for facilities that process, handle, or store nuclear substances</i>,²⁹ and the updated version of CSA B51-19, <i>Boiler, pressure vessel and pressure piping code</i>.³⁰ CFM submitted that its requested increase in production would not require any modifications to the facility, as the increased production would be achieved by increasing the operating hours for the facility.</p>
48.	<p>As described in section 3.5 of its CMD, CNSC staff confirmed that CFM is meeting regulatory requirements for the physical design SCA. Through document reviews and one onsite inspection performed during the current licensing periods, CNSC staff confirmed that CFM has appropriately implemented regulatory requirements for the physical design SCA. CNSC staff reported that information related to site characterization and facility design is documented in the CFM Safety Analysis Report, and that CFM has an established Change and Design Control procedure documenting changes to processes, physical plant design, layout and systems design. CNSC staff added that upgrades to existing systems during the current licensing period have positively impacted operations and safety.</p>
49.	<p>The Commission concludes that CFM continues to implement and maintain an effective physical design program at its facility, and that the design is adequate for the requested licence period. The information provided demonstrates that CFM has adequate resources in place to safely manage and implement design changes that are within the licensing basis and that CFM meets regulatory requirements. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission is satisfied that CFM has an adequate process in place to safely manage and implement design changes that are within the licensing basis • The Commission agrees with CNSC staff's assessment that CFM's physical design program meets regulatory requirements.
	<p><i>4.2.6 Fitness for Service</i></p>
50.	<p>Fitness for service covers activities that are performed to ensure that systems, structures and components at the CFM facility continue to effectively fulfill their intended purpose.</p>
51.	<p>In section 3.6 of its submission, CFM describes its fitness for service programs and activities, including details on the programs in place to monitor the performance of structures, systems, and components and ensure sufficient reliability. CFM submitted</p>

²⁹ CSA Group, CSA N393-13 (R2018), *Fire protection for facilities that process, handle, or store nuclear substances*, 2013 (reaffirmed 2018).

³⁰ CSA Group, CSA B51-19, *Boiler, pressure vessel and pressure piping code*, 2019

	that it has implemented a maintenance program and introduced key performance indicators to monitor the effectiveness of the program. CFM noted that it tests its fire protection systems in accordance with the National Fire Code of Canada ³¹ and the National Building Code of Canada , ³² as required by CSA N393-13 <i>Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances</i> .
52.	CNSC staff submitted, in section 3.6 of its CMD, that CFM has adequate preventative maintenance and in-service inspection programs in place at its facility to ensure structures, systems and components remain effective over time. CNSC staff assessed CFM’s fitness for service program and confirmed that it meets regulatory requirements. In addition, CNSC staff confirmed that CFM reviews its fire protection systems as required by CSA N393-13.
53.	The Commission concludes that CFM has implemented and maintained a program for maintenance for the equipment at its facility to carry on the licensed activities under the renewed licence. The Commission comes to this conclusion on the following basis: <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM’s governing documents for the conduct of maintenance meet regulatory requirements • The Commission agrees with CNSC staff’s assessment that implemented and maintained a program for periodic inspection and testing for the facility • The Commission is satisfied that CFM reviews and tests its fire protection systems in accordance with CSA N393-13, <i>Fire protection for facilities that process, handle or store nuclear substances</i> • The Commission agrees with CNSC staff’s assessment that CFM’s fitness for service program meets regulatory requirements.
	<i>4.2.7 Radiation Protection</i>
54.	As part of its evaluation of the adequacy of the measures for protecting the health and safety of persons, the Commission considered the past performance of CFM in radiation protection. The Commission considered the information provided by CFM and CNSC staff to assess whether CFM’s facility radiation protection program satisfies the requirements of the Radiation Protection Regulations . The Commission also considered whether CFM’s radiation protection program ensures that radiation doses to persons and contamination are monitored, controlled and kept as low as reasonably achievable (ALARA), with social and economic factors taken into consideration.
55.	In section 3.7 of its CMD, CFM submitted that doses to CFM workers remained low over the current licence period. CFM listed its controls and programs for worker and public protection, which include dosimetry and radiation control. CFM reported that,

³¹ *National Fire Code of Canada 2015*, National Research Council Canada, 2015.

³² *National Building Code of Canada 2015*, National Research Council Canada, 2015.

	over both licence periods, it did not exceed any regulatory limits with respect to radiation protection. The maximum annual effective dose for a Nuclear Energy Worker (NEW) was 12.6 millisieverts (mSv) in 2015, which was well below the regulatory dose limit. ³³
56.	CFM also reported skin and extremity doses for NEWs at the CFM facility that were well below CNSC regulatory limits. ³⁴ Over both licence periods, the maximum equivalent dose to the skin for a NEW was 108.4 mSv and the maximum equivalent dose to the extremities for a NEW was 107.5 mSv. CNSC staff confirmed that no worker at the CFM facility received a radiation dose in excess of the CNSC's regulatory limits during both licence period.
57.	CFM submitted that it made improvements to aspects of its radiation protection program as part of its continual improvement program, such as transitioning from assigning internal dose from urine analysis to lung counting dosimetry in 2014. CFM noted that it still uses urine analysis as an early screening process for worker internal exposure.
58.	CNSC staff submitted that CFM's radiation protection program meets regulatory requirements and confirmed that CFM's effective dose trends have been maintained well below regulatory dose limits. CNSC staff assessed the compliance of CFM's radiation protection program through various verification activities, including desktop reviews of annual compliance reports, regular inspections and three focused inspections in 2014, 2016 and 2020. CNSC staff reported that the majority of the findings from these inspections were of low safety significance, with 2 findings of medium safety significance. CNSC staff added that all enforcement actions associated with these inspections have been closed to CNSC staff's satisfaction. CNSC staff's assessment was that CFM implemented positive enhancements and appropriate corrective actions to address areas requiring improvement, such as the respiratory protection program, general housekeeping, and posting of radiation warning signs.
59.	The Commission asked for more information concerning the reduction in CFM workers' skin and extremity doses over recent years. A CFM representative explained that, through the introduction of automation, CFM reduced manual handling of uranium pellets or fuel elements, which resulted in lower doses.
60.	CNSC staff submitted that, over the current licence term, 10 action level exceedances related to the radiation protection SCA occurred at the CFM facility. ³⁵ CNSC staff

³³ The regulatory dose limits for nuclear energy workers are 50 mSv in any one year and 100 mSv in a five-year dosimetry period. The regulatory dose limit for members of the public is 1 mSv in one calendar year.

³⁴ The regulatory equivalent dose limit to the skin or to the extremities for a NEW is 500 mSv per year.

³⁵ Action levels are designed to alert licensees before regulatory dose limits are reached. By definition, if an action 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*. The licensee shall notify the Commission or a person authorized by the Commission within 24 hours of becoming aware that an action level has been exceeded and shall file a written report within 45 working days of becoming aware of the matter.

	<p>reported that CFM adequately implemented corrective actions in response to each action level exceedance.</p>
61.	<p>In section 3.7 of its CMD, CFM reported that it was performing site-specific studies to develop a more accurate estimation of the dose to the lens of the eye. The Commission noted CFM’s challenge with the assessment of the dose to the lens of the eye and asked for further explanation. A CFM representative reported that commercially available equipment for eye dosimetry is typically for the medical profession and not suitable for industry. The CFM representative added that Cameco was developing an algorithm from an optically stimulated luminescent dosimeter to estimate dose to the eye. The Commission is satisfied with this explanation and expects CNSC staff to continue to monitor CFM’s compliance with this requirement.</p>
62.	<p>The Commission concludes that CFM has implemented and maintained an adequate radiation protection program to protect the health and safety of persons and the environment from radiation hazards associated with the CFM facility. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM has implemented a radiation protection program that meets the requirements of the <i>Radiation Protection Regulations</i> • The Commission is satisfied that effective and equivalent doses to NEWs at the CFM facility are below regulatory requirements • The Commission is satisfied that CFM has adequately addressed all action items raised during radiation protection-related inspections over the current licence period • The Commission is satisfied with CFM’s implementation of corrective actions in response to radiation protection related action level exceedances.
	<p><i>4.2.8 Conventional Health and Safety</i></p>
63.	<p>The conventional health and safety program covers the management of workplace safety hazards. The conventional health and safety program’s objective is to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace. This program includes compliance with applicable labour codes and conventional safety training.</p>
64.	<p>In section 3.8 of its CMD, CFM provided the Commission with information regarding its conventional health and safety program, including the implementation of corporate safety standards and setting site safety and health objectives. CFM also provided information regarding its response to the COVID-19 pandemic. CFM reported that its Workplace Health and Safety Committee was implemented in accordance with the</p>

	<p><u>Canada Labour Code Part II</u>³⁶, and added that its Workplace Health and Safety Committee consists of both management and employee representatives.</p>
65.	<p>CFM submitted that its last lost-time injury (LTI) at the CFM facility was in January 2015 and that it was the sole LTI during both licensing period. CNSC staff reported that CFM’s 2015 lost-time injury resulted in one day of lost time. CNSC staff reported that it CNSC staff reported that CFM implemented adequate corrective actions in response to the lost-time injuries reported in 2015.</p>
66.	<p>In section 3.8 of its submission, CNSC staff reported that CFM is required to implement and maintain a conventional health and safety program, in accordance with the <i>Canada Labour Code Part II</i>, and the associated <u>Canada Occupational Health and Safety Regulations</u>³⁷, which applies to all work performed by CFM employees and contractors. CNSC staff reported that CFM maintains a Health and Safety Policy and Hazard Prevention Program.</p>
67.	<p>CNSC staff noted that it routinely verified CFM’s conventional health and safety program over the licence period. CNSC staff explained that its inspectors observed 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. CNSC staff reported that all inspection findings associated with conventional health and safety were classified as low safety significance, and that CFM had adequately addressed all enforcement actions.</p>
68.	<p>United Steelworkers, Local 14193 (CMD 22-H12.23), a union representing CFM workers, provided information concerning the joint health and safety committee, and commented on the importance of safety at CFM. In response to a question from the Commission, the intervenor confirmed that joint health and safety committee members are able to raise any safety issues that are of concern.</p>
69.	<p>The Commission concludes that CFM’s conventional health and safety program satisfies regulatory requirements. The Commission is satisfied that the evidence provided demonstrates that the health and safety of workers was adequately protected during the operation of the facility for the current licence period, and that the health and safety of persons will continue be adequately protected throughout the proposed licence period. The Commission comes to its conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM’s conventional health and safety program meets regulatory requirements • The Commission is satisfied that CFM adequately addressed inspection findings over the current licence term

³⁶ R.S.C., 1985, c. L-2.

³⁷ SOR/86-304.

	<ul style="list-style-type: none"> The Commission is satisfied that CFM has a low incidence of lost-time injuries, and implemented adequate corrective actions in response to the lost-time injury reported in 2015.
	<i>4.2.9 Environmental Protection</i>
70.	Environmental protection programs are intended to identify, control, and monitor all releases of radioactive and hazardous substances, and aim to minimize the effects on the environment which may result from the licensed activities. These programs include effluent and emission control, environmental monitoring, and estimated doses to the public.
71.	<p>In section 3.9 of its CMD, CFM provided the Commission with detailed information regarding its environmental monitoring and protection program, noting that it meets the requirements of the CSA N288 suite of standards:</p> <ul style="list-style-type: none"> N288.1-14, <i>Guidelines for Calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities</i>³⁸ CSA N288.4-10, <i>Environmental monitoring programs at class I nuclear facilities and uranium mines and mills</i>³⁹ CSA N288.5-11, <i>Effluent monitoring programs at class I nuclear facilities and uranium mines and mills</i>⁴⁰ CSA N288.6-12, <i>Environmental risk assessments at Class I nuclear facilities and uranium mines and mills</i>⁴¹ CSA N288.7-17, <i>Groundwater protection programs at Class I nuclear facilities and uranium mines and mills</i>⁴² CSA N288.8-17, <i>Establishing and implementing environmental action levels to control emissions from nuclear facilities</i>⁴³ <p>CFM submitted that it monitors emissions to air and liquid discharges to the sanitary sewer to ensure they meet requirements. CFM added that each stack in the production line is monitored when that area of the facility is operating.</p>

³⁸ N288.1-14, *Guidelines for Calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*, 2014 (R2019)

³⁹ CSA N288.4-10, *Environmental monitoring programs at class I nuclear facilities and uranium mines and mills*, 2010 (R2015)

⁴⁰ CSA N288.5-11, *Effluent monitoring programs at class I nuclear facilities and uranium mines and mills*, 2011 (R2016)

⁴¹ CSA N288.6-12, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills*

⁴² CSA N288.7-17, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*

⁴³ CSA N288.8-17, *Establishing and implementing environmental action levels to control emissions from nuclear facilities*, 2017

72.	CFM reported that it maintains an environmental risk assessment (ERA) for the CFM facility in accordance with the requirements of CSA Standard N288.6. CFM noted that it submitted a review of the 2016 ERA to CNSC staff in 2021. CNSC staff assessed the submission and determined that, based on recently collected environmental monitoring data, the conclusions of the 2016 ERA remained valid. CFM added that it completed a review of its ERA demonstrating that the proposed increase to the production limit did not pose a risk to people or the environment. ⁴⁴
73.	CFM submitted information regarding uranium released from the CFM facility as atmospheric emissions and liquid effluent. CNSC staff had reviewed CFM's data and reported that, throughout the current licence term, annual releases of uranium in liquid effluent from the CFM facility remained below the licence limit of 145 kilograms uranium per year (kg/yr). The maximum annual release of uranium in liquid effluent over the current licence term was 1.58 kg/yr in 2014. CNSC staff also reported that air emissions from the CFM facility remained below the licence limit of 14 kg/yr. The maximum annual atmospheric release of uranium over the current licence term was 1.26 kg/yr in 2018.
74.	Regarding soil monitoring, CFM submitted that it collects soil samples around the CFM site a minimum of every 3 years, with the most recent samples taken in 2019. CNSC staff reviewed CFM's soil monitoring data and reported that the results for all samples taken over the current licence term were below the CCME- Canadian Soil Quality Guidelines of the Protection of the Environment and Human Health value of 23 microgram of uranium per gram soil (µgU/g). The 2019 average uranium concentration in soil near the CFM facility was 2.4 µgU/g, below the Ontario natural background level of up to 2.5 µgU/g. The maximum uranium soil concentration detected over the current licence term was 17.4 µgU/g in 2013 and was attributed to historical contamination in Port Hope. CNSC staff submitted that no adverse consequences to human health or the environment are expected based on the soil monitoring results.
75.	CFM also submitted information regarding its groundwater and surface water monitoring programs at the CFM facility. ⁴⁵ CNSC staff reported that CFM collected surface water samples at 9 locations in April, June and October 2020, showing that the uranium concentrations usually met the interim Provincial Water Quality Objective and the CCME short-term and long-term uranium guidelines at all surface water sampling locations. CNSC staff noted that although uranium concentrations in surface water samples occasionally exceeded surface water quality guidelines during the current licence term, the risk to the environment from the observed exceedances was negligible. CNSC staff explained that the uranium concentration guidelines are based on conservative assumptions and incorporate safety factors.
76.	CFM reported its estimated radiation doses to the public showing that the doses were well below the regulatory annual public dose limit during the licence period. CFM

⁴⁴ page 39 of CMD 22-H12.1

⁴⁵ Surface water refers to above-ground water bodies. Ground water refers to water found beneath the earth's surface.

	<p>reported an increase from 0.020 mSv in 2020 to 0.306 mSv in 2021, which reflected a change to the methodology used by CFM for estimating public dose.⁴⁶ CFM noted that the increased estimate did not reflect an increase to the dose received by any member of the public.</p>
77.	<p>The Commission noted the increased estimated dose to the public and asked for more information concerning the change in methodology. A CFM representative explained that changing the methodology for the calculation was part of CFM's continuous improvement, looking at changes in science and changes in public use around the facility. The CFM representative stated that CFM will implement additional measures to reduce public dose, such as installing increased shielding beginning in 2023. The CFM representative explained that CFM conducted a comprehensive gamma analysis of the site to identify areas where increased shielding is necessary</p>
78.	<p>The Commission enquired about CFM's protection measures for the public around its facility. A CFM representative explained that CFM has defence in depth programs in place to ensure that all hazards are controlled for workers and the public. The CFM representative added that CFM monitors stack emissions, sanitary sewer discharge and gamma monitoring at 12 locations around the facility fence line on a continuous basis.</p>
79.	<p>CNSC staff informed the Commission that it conducted 3 focused environmental protection inspections in 2013, 2016, and 2021. CNSC staff reported that findings from these inspections were considered to have low safety significance and that all enforcement actions associated with these inspections had been closed to CNSC staff's satisfaction.</p>
80.	<p>CNSC staff submitted that, through its Independent Environmental Monitoring Program (IEMP), CNSC staff took samples from publicly accessible areas around the CFM site to verify that the public and the environment surrounding the facility are safe. CNSC staff completed IEMP campaigns around the CFM site in 2014, 2015, 2017 and 2020. The results from the most recent campaign (2020) indicated that concentrations of uranium in air, water, and soil around the CFM facility were well below guideline levels. Further, CNSC staff reported that the results from each of the IEMP campaigns indicate that the public and the environment surrounding the CFM facility are protected, and no human health impacts are expected.⁴⁷</p>
81.	<p>Asked about independent environmental monitoring done in Port Hope by other federal agencies, CNSC staff told the Commission that Health Canada has a fixed-point gamma dose monitoring station in Port Hope, and a monitoring station in Port Hope that samples drinking water, precipitation, atmospheric water vapour, air particulates, and external gamma doses. CNSC staff added that the monitoring results were available on Health Canada's website.⁴⁸</p>

⁴⁶ Page 34 of CMD 21-H12.1

⁴⁷ [IEMP results](#) for the CFM facility are available on the CNSC's website.

⁴⁸ See also the [Open Canada website](#)

82.	The Commission asked about the participation of Indigenous Nations and communities in the CNSC’s IEMP over the proposed licence period. CNSC staff noted that the IEMP sampling schedule is independent of the licence term. CNSC staff explained its mechanisms in place to incorporate Indigenous Knowledge in the IEMP program, such as seeking input on sampling locations and sampling media. CNSC staff noted its ongoing engagement with Indigenous Nations and communities would provide opportunities to discuss the IEMP and monitoring results.
83.	CNSC staff submitted that CFM’s implementation of the environmental protection program meets CNSC’s regulatory requirements and expectations and that the design and implementation of the environmental protection program at the CFM facility is in accordance with REGDOC 2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures .
	<u>Health Studies</u>
84.	CNSC staff reported that it conducted an Environmental Protection Review (EPR) to assess CFM’s environmental protection and environmental compliance activities conducted under the NSCA. In the EPR for CFM, CNSC staff included the results of regional health studies, reports and publications to provide further independent verification on whether the health of people living near the CFM facility in Port Hope, Ontario, is protected. CNSC staff reported that it conducted health studies on select populations through their research on the effects of low dose exposures. The findings of environmental and epidemiological studies conducted in Port Hope over several decades demonstrate that the low levels of radiological and non-radiological environmental exposures within the Port Hope region resulting from the radium and uranium industry have not caused adverse effects on human health. In Section 5 of the EPR, CNSC staff reported that multiple studies have been conducted to assess the potential effects of contamination in the Port Hope community over the last 70 years. In 2009, the CNSC, working with Health Canada, published a peer-reviewed synthesis report ⁴⁹ which summarized the scientific information used by government organizations to assess the health effects of past and current uranium refining and processing activities in Port Hope.
85.	The intervention by the Port Hope Community Health Concerns Committee (CMD 22-H12.41) strongly disagreed with CNSC staff’s conclusions with respect to effects on human health in the Port Hope community. This intervenor shared personal examples of community members who had experienced poor health. The intervenor cited health studies with data showing elevated rates of a variety of cancers in the Port Hope community. CNSC staff submitted that the synthesis report found cancer incidence in Port Hope residents - for all cancers combined - to be comparable with the general population of Ontario and Canada. CNSC staff also reported that mortality rates from

⁴⁹ *Understanding Health Studies and Risk Assessments Conducted in the Port Hope Community from the 1950s to the Present*, Canadian Nuclear Safety Commission, 2009

	<p>all types of cancer in Port Hope were comparable to those for the general Ontario population. CNSC staff explained that community health studies require large data samples and long timeframes to be reliable. CNSC staff noted that such limitations are a reason that CNSC staff looks at epidemiological data trends over time, rather than focusing on any one study.</p>
86.	<p>The Commission enquired whether the health studies the size of airborne uranium particles was an important consideration when calculating the dose from inhalation, as smaller particles tend to deposit more deeply in the lungs, there is no calculation of doses within the epidemiological health studies. CNSC staff explained that the health studies compared the health status and outcomes for populations in different areas.</p>
87.	<p>The Commission acknowledges the concerns raised by the intervenor and notes the difference between the conclusions of health studies, such as those described in the synthesis report, and the lived health issues of individuals. The Commission is of the considered view from its review of the evidence that, when considering the health of a broad population over many years, the conclusions are more meaningful when determined by synthesizing the results of many health studies, rather than focusing on the results of individual analyses. The Commission concludes that the findings of the multiple peer-reviewed studies made in this area, as detailed in the synthesis report, provide a reliable demonstration that Port Hope residents are as healthy as the general population. For the purpose of this licence renewal, the Commission is satisfied that the health of persons in Port Hope is protected.</p>
	<p><u>Conclusion on Environmental Protection</u></p>
88.	<p>The Commission concludes that, based on the results and information provided, and given the mitigation measures and programs that are in place to control hazards, CFM has and will continue to provide adequate protection to the health and safety of persons and the environment. The Commission is satisfied that the measures implemented at the CFM facility are adequate for the purposes of environmental protection under the NSCA. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission is satisfied that CFM has maintained an environmental management system in compliance with REGDOC-2.9.1 and the CSA N288 suite of standards • The Commission is satisfied that releases to the environment from the CFM facility during the current and previous licence periods were well below licence limits • The Commission agrees with CNSC staff's assessment that CFM's environmental monitoring program meets regulatory requirements

	<ul style="list-style-type: none"> • The Commission is satisfied that environmental monitoring data have shown that public dose remained well below the regulatory limit throughout the current licence period • The Commission is satisfied with CFM’s plans to reduce the estimated dose to the public following the implementation of the new methodology used to calculate it • The Commission is satisfied that CFM has completed a revised Environmental Risk Assessment in 2021 that meets regulatory requirements • The Commission is satisfied that CFM has addressed all enforcement actions associated with CNSC staff’s environmental protection SCA inspections to CNSC staff’s satisfaction
	<i>4.2.10 Emergency Management and Fire Protection</i>
89.	The emergency management and fire protection programs cover the measures for preparedness and response capabilities implemented by CFM in the event of emergencies and non-routine conditions at its facility. These measures include nuclear emergency management, conventional emergency response, and fire protection and response.
90.	In section 3.10 of its CMD, CFM submitted that it maintains and practices a comprehensive Emergency Response Plan at the CFM facility, in compliance with REGDOC-2.10.1, Nuclear Emergency Preparedness and Response . CFM also submitted that its Emergency Response Plan outlines the actions to be taken to minimize the worker and public health hazards and environmental hazards, which may result from fires, explosions, or the release of hazardous materials. In addition, CFM submitted that its Fire Protection Program meets the requirements of CSA N393-13, <i>Fire protection for facilities that process, handle, or store nuclear substances</i> .
91.	CFM reported that the CFM facility has multiple layers of support to ensure that any emergencies are dealt with appropriately. CFM explained that its emergency response organization includes the immediate responders at CFM, the local emergency response team, which deals with the event at the site level, and the divisional Local Crisis Management Team, which is supported – as necessary – by the Cameco Corporate Crisis Management Team. CFM noted has a memorandum of understanding with the Port Hope Fire and Emergency Services and the Municipality of Port Hope, which provides the framework for emergency response to the facility and ensures continuous emergency response capacity. Fire and Emergency Services, Municipality of Port Hope (CMD 22-H12.35), in its intervention, confirmed that it is trained and prepared to work with Cameco’s Emergency Response team.
92.	In section 3.10 of its CMD, CNSC staff reported that CFM meets the CNSC regulatory requirements in this SCA, including compliance with REGDOC-2.10.1, the National

	<p><u>Fire Code of Canada, 2005</u>⁵⁰, the <u>National Building Code of Canada, 2005</u>⁵¹ and CSA N393-13. CNSC staff submitted that, over the licence period, it conducted three inspections focused on Emergency Preparedness and Fire Response, and that most of the findings from these inspections were of low safety significance with 3 findings classified as medium safety significance. CNSC staff noted that all non-compliances were adequately addressed by CFM and have been closed.</p>
93.	<p>The Commission asked CFM for additional details on its fire protection program. A CFM representative explained CFM's fire safety program and response in case of an event, noting that the CFM facility has been built with fire separation, sprinklers and the appropriate controls to ensure that a fire would not spread. CNSC staff confirmed that CFM has a robust fire protection program and noted that CFM also conducts fire hazard analyses in accordance with regulatory requirements.</p>
94.	<p>The Commission concludes that CFM's nuclear and conventional emergency management program and the fire protection measures in place at the CFM facility are adequate to protect the health and safety of persons and the environment. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff's assessment that CFM's emergency preparedness program meets regulatory requirements, including REGDOC-2.10.1, the <u>National Fire Code of Canada, 2005</u>, the <u>National Building Code of Canada, 2005</u> and CSA N393-13 • The Commission agrees with CNSC staff's assessment that CFM's fire protection program meets regulatory requirements • The Commission is satisfied that CFM has an acceptable fire hazards analysis which indicates that it has implemented adequate fire mitigation measures • The Commission is satisfied that CFM has qualified emergency response personnel onsite, and arrangements with Port Hope Fire and Emergency Services and the Municipality of Port Hope
	<p><i>4.2.11 Waste Management</i></p>
95.	<p>Waste management covers waste-related programs that form part of a 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, and includes waste minimization, segregation, characterization, and storage programs.</p>
96.	<p>In section 3.11 of its CMD, CFM describes its waste management program and reported that its waste management program complies with the CSA N292 series of standards on radioactive waste and has been founded on principles of good radioactive</p>

⁵⁰ *National Fire Code of Canada 2015*, National Research Council Canada, 2015.

⁵¹ *National Building Code of Canada 2015*, National Research Council Canada, 2015.

	waste management, such as waste minimization, accurate characterization, classification and segregation, safe storage strategies, and risk-informed disposal and clearance processes. CFM noted that it reprocesses, recycles and re-uses solid wastes contaminated by uranium, and that waste materials that cannot be reprocessed, recycled or re-used are stored onsite until appropriate disposal options are available. CFM added that it ships contaminated combustible waste to Cameco's Blind River Refinery facility for incineration.
97.	CFM reported that, between 2019 and 2021, approximately 500 cubic metres (m ³) of legacy waste was safely disposed of and transported to a licensed facility in the United States. CFM reported that it is currently sorting and characterizing the remaining inventory of legacy packaged waste in order to determine appropriate disposal plans.
98.	In its intervention, Northwatch (CMD 22-H12.42) commented that CFM provides no information about the volume of combustible wastes. In its presentation (CMD 22-H12.1B) CFM described its waste management stream and stated that approximately one truckload per year – 30 to 40 m ³ – of contaminated combustibles are sent to Blind River, and that approximately one truckload of contaminated non-combustibles is sent to the United States for processing.
99.	In section 3.11 of its CMD, CNSC staff reported that CFM maintains a waste management program in compliance with applicable CSA Group standards N292.0-14, <i>General principles for the management of radioactive waste and irradiated fuel</i> ⁵² and N292.3-14, <i>Management of low- and intermediate-level radioactive waste</i> ⁵³ . CNSC staff added that its assessment of CFM's waste management program and associated supporting documentation confirmed that CFM's waste management program meets regulatory requirements.
100.	CNSC staff reported that it conducted focused inspections of the Waste Management SCA at CFM in 2014 and 2018, and that it also verified elements of CFM's waste management programs during general inspections. CNSC staff stated that all findings from these inspections had low safety significance and that all enforcement actions issued as a result of these inspections had been addressed to the CNSC staff satisfaction through the implementation of corrective actions.
101.	CNSC staff noted that the CNSC REGDOCs on waste management, REGDOC-2.11.1, Waste Management Volume I: Management of Radioactive Waste and REGDOC-2.11.2, Decommissioning , which were published in January 2021, would apply to CFM operations. CFM reported that it is currently developing the gap analysis for REGDOC 2.11.1 and REGDOC 2.11.2, and that it will revise the applicable documents on a proposed schedule that will have to be accepted by CNSC staff. CFM added that it will

⁵² CSA N292.0-14, *General principles for the management of radioactive waste and irradiated fuel*, CSA group, 2014.

⁵³ CSA N292.3-14, *Management of low- and intermediate-level radioactive waste*, CSA group, 2014.

	continue to characterize the remaining packaged legacy waste and determine the appropriate disposition for this material.
102.	On the topic of legacy waste at CFM, a CFM representative explained that a significant number of past projects significantly reduced the volume of legacy waste on site. The CFM representative also discussed CFM’s plans to process, decontaminate, and dispose of approximately 200 drums of waste material and 16 trailers of equipment that has been taken out of service. The CFM representative stated that CFM expects that work to be done in the next three to five years.
103.	<p>Taking into consideration all the evidence submitted by the CFM and the CNSC staff, the Commission is satisfied that CFM has implemented and continues to maintain a waste management program to safely manage waste at the CFM facility. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM has implemented a waste management program that meets regulatory requirements • The Commission is satisfied that CFM has a waste management program in place founded on principles of good radioactive waste management
	<i>4.2.12 Security</i>
104.	CFM’s security program at its facility must comply with the applicable provisions of the General Nuclear Safety and Control Regulations (GNSCR) and the Nuclear Security Regulations, Part 2 ⁵⁴ (NSR).
105.	In section 3.12 of its CMD, CFM submitted that it implements and maintains a facility security program, which identifies the systems and processes in place to meet security program objectives, which ensure safe and secure operation of the facility, by maintaining protection through use of equipment, personnel, and procedures. CFM noted that it updated its facility security program document during the previous licence period.
106.	In section 3.12 of its CMD, CNSC staff confirmed that CFM has implemented and maintained a security program that meets regulatory requirements under the GNSCR, Part 2 of the NSR, and REGDOC-2.12.3, Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material, Version 2.1 to prevent the loss, unauthorized removal and sabotage of nuclear substances, nuclear materials and prescribed equipment or information. CNSC staff also noted that, during the current licensing period, it conducted three security-focused inspections, in 2013, 2017, and 2020, and all findings from these inspections had a low safety significance. CNSC staff reported that CFM had adequately addressed all enforcement actions associated with these inspections, with exception of one issued during a 2020 security inspection. For

⁵⁴ SOR/2000-209.

	<p>the outstanding event, CFM has submitted its corrective action plan which as been reviewed and accepted by CNSC staff. Implementation of the plan will be monitored by CNSC staff.</p>
107.	<p>The Commission concludes that CFM has adequate programs and measures in place to provide for the physical security of its facility. The evidence shows that CFM’s performance with respect to maintaining security at the CFM facility has been acceptable over the current licence period and that CFM meets CNSC regulatory requirements. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM’s facility security program document meets regulatory requirements, including the GNSCR, NSR, and REGDOC-2.12.3, <i>Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material</i>, Version 2.1 • The Commission is satisfied that CFM has adequately addressed all findings associated with CNSC staff’s security SCA inspections to CNSC staff’s satisfaction and the Commission expects that CFM will address to CNSC’s staff satisfaction the enforcement action for which corrective actions are to be completed in December 2022 or that CNSC staff will follow-up with appropriate regulatory action.
	<i>4.2.13 Safeguards and Non-Proliferation</i>
	<p>The CNSC’s regulatory mandate includes ensuring conformity with measures required to implement Canada’s international obligations under the Treaty on the Non-Proliferation of Nuclear Weapons⁵⁵ (NPT). Pursuant to the NPT, Canada has entered into a Comprehensive Safeguards Agreement⁵⁶ and an Additional Protocol⁵⁷ (safeguards agreements) with the IAEA. The objective of these safeguards agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activity in this country.</p>
108.	<p>In section 3.13 of its CMD, CFM described its Safeguards and Non-Proliferation program, which includes verification such as Physical Inventory Taking, Physical Inventory Verification with the IAEA or a Physical Inventory Taking Evaluation with the CNSC and Design Information Verification. CFM reported that it maintains a natural uranium inventory system in which receipts and shipments are recorded in accordance with REGDOC 2.13.1, Safeguards and Nuclear Material Accounting. CFM also reported that it provides monthly inventory reports to the CNSC that include safeguarded natural uranium, as well as the inventory of non-safeguarded material.</p>

⁵⁵ INFCIRC/140

⁵⁶ INFCIRC/164

⁵⁷ INFCIRC/164/Add.1

109.	<p>In section 3.13 of its CMD, CNSC staff submitted that its assessment of CFM’s documentation under the safeguards and non-proliferation SCA found CFM to be in compliance with regulatory requirements. CNSC staff further reported that the IAEA performed inspections and verifications during the current and previous licence period, including 8 Physical Inventory Verifications, 10 Design Information Verifications and 16 short-notice random inspections. CNSC staff added that it performed 2 physical inventory-taking evaluations. CNSC staff reported that in all cases, CFM provided the IAEA with the necessary access and assistance to perform the activities and complied with all regulatory requirements.</p>
110.	<p>The Commission concludes that CFM has implemented and maintains a satisfactory safeguards program that provided for, and will continue to provide for, the implementation of measures that are necessary for maintaining national security, and for implementing international agreements to which Canada has agreed. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM’s Safeguards and Non-Proliferation program meets regulatory requirements, including CNSC REGDOC-2.13.1, <i>Safeguards and Nuclear Material Accountancy</i> • The Commission is satisfied that CFM has provided the IAEA with the necessary access and assistance to perform the activities and complied with all regulatory requirements
	<p><i>4.2.14 Packaging and Transport</i></p>
111.	<p>Packaging and transport cover the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility. CFM must adhere to the Packaging and Transport of Nuclear Substances Regulations, 2015⁵⁸ (PTNSR, 2015) and Transport Canada’s Transportation of Dangerous Goods Regulations⁵⁹ (TDGR) for all shipments.</p>
112.	<p>In section 3.14 of its CMD, CFM provided information on its packaging and transport program. CFM specified that UO₂ powder is transported by road from Cameco’s Port Hope Conversion Facility (PHCF) to the CFM facility, and that finished fuel bundles are transported to customer locations in shipping containers that meet the package requirements as specified in the PTNSR, 2015.</p>
113.	<p>CFM noted that, during the current licence period, it reported two minor transportation events related to material shipped from the PHCF to the CFM facility. One event was related to the lids of 5 drums not being properly tightened while the other event was where empty packages that were transported between facilities in Port Hope had not been properly classified. No environmental impacts occurred as a result of these events.</p>

⁵⁸ SOR/2015-145.

⁵⁹ SOR/2001-286.

	CFM added that it put corrective actions in place to address the events. CNSC staff confirmed that the corrective actions taken by CFM were adequate.
114.	In section 3.14 of its CMD, CNSC staff reported that CFM’s packaging and transport program complies with the PTNSR, 2015 and the TDGR for all shipments, and covers elements of package design and maintenance, and the registration for use of certified packages. CNSC staff added that it assessed CFM’s performance through a packaging and transportation inspection in 2015, and that all findings from this inspection had a low safety significance. CNSC staff added that it is satisfied with all corrective actions taken by CFM.
115.	<p>The Commission concludes that CFM has adequate programs and measures in place to meet regulatory requirements regarding packaging and transport. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment that CFM’s packaging and transport program meets regulatory requirements, including the PTNSR, 2015 and the TDGR • The Commission is satisfied that the packaging and transportation events reported by CFM during the licensing period had no impact on the health and safety of the public, workers, or the environment, and that CFM implemented appropriate corrective actions
	<i>4.2.15 Conclusions on Safety and Control Areas</i>
116.	Based on the above information, the Commission concludes that CFM is qualified to carry on the licensed activities under the proposed renewed licence, and has adequate programs and measures in place with respect to the 14 SCAs to ensure that the health and safety of workers, the public and the environment will be protected. The Commission further concludes that CFM has measures in place to provide for the maintenance of national security and to implement international obligations to which Canada has agreed.
	4.3 Indigenous Engagement and Consultation
117.	The Commission considered the information provided by CNSC staff and CFM regarding Indigenous consultation and engagement activities in respect of this application. Indigenous consultation refers to the common law duty to consult with Indigenous Nations and communities pursuant to section 35 of the <i>Constitution Act, 1982</i> . ⁶⁰

⁶⁰ Schedule B to the Canada Act 1982 (UK), 1982, c 11.

118.	The common law duty to consult with Indigenous Nations and communities is engaged when the Crown contemplates action that may adversely affect established or potential Aboriginal and/or treaty rights. The CNSC, as an agent of the Crown and as Canada's nuclear regulator, recognizes and understands the importance of building relationships and engaging with Canada's Indigenous Nations and communities. The CNSC ensures that its licensing decisions under the NSCA uphold the honour of the Crown and consider potential impacts to claimed or established Aboriginal and/or treaty rights pursuant to section 35 of the <i>Constitution Act, 1982</i> .
119.	The duty to consult is engaged wherever the Crown has "knowledge, real or constructive, of the potential existence of an Aboriginal right or title and contemplates conduct that might adversely affect it". ⁶¹ Licensing decisions of the Commission, where Indigenous interests may be adversely impacted, can engage the duty to consult, and the Commission must be satisfied that it has met the duty prior to making the relevant licensing decision.
	<u>Indigenous Engagement by CNSC Staff</u>
120.	In section 4.1 of its CMD CNSC staff provided the Commission with information about its engagement activities with the Indigenous Nations and communities that were identified as having a potential interest in the CFM licence renewal. CNSC staff identified these communities due to the proximity of their communities, treaty areas, and/or traditional territories and homelands to the CFM facility, or due to previously expressed interest in being kept informed, and included: <ul style="list-style-type: none">• 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• Mohawks of the Bay of Quinte• Métis Nation of Ontario - Region 6
121.	CNSC staff noted that participant funding was available to facilitate participation in the licence application review process. CNSC staff also noted that it encouraged all of the identified Indigenous Nations and communities to participate in the regulatory review process and in the public hearing to advise the Commission directly of any concerns they may have in relation to this licence renewal application.

⁶¹ *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73 at para 35.

122.	<p>CNSC staff reported that, in response to an expressed interest in the CFM renewal, it discussed the CFM licence renewal with:</p> <ul style="list-style-type: none"> • Curve Lake First Nation • Mississaugas of Scugog Island First Nation • Métis Nation of Ontario - Region 6 Consultation Committee <p>CNSC staff noted that it heard specific concerns raised during engagement sessions, related to the following:</p> <ul style="list-style-type: none"> • the proposed licence duration, • ensuring opportunities for meaningful engagement during longer licence terms • the potential for reduced opportunities to voice concerns directly to the Commission over the proposed licence term, and • waste management.
123.	<p>CNSC staff submitted that the licence renewal application is not expected to cause any new adverse impacts to potential or established Indigenous and/or Treaty rights. CNSC staff noted that it had not been made aware of any concerns regarding potential new impacts on rights specific to the licence renewal application expressed by Indigenous Nations and communities through CFM's engagement activities.</p>
124.	<p>CNSC staff added that it has signed Terms of Reference for long-term engagement with Curve Lake First Nation, the Mississaugas of Scugog Island First Nation, and the Métis Nation of Ontario. CNSC staff expressed its commitment to remain open to meeting with all Indigenous Nations and communities interested in CFM on a routine basis to build meaningful long-term working relationships.</p>
	<p style="text-align: center;"><u>Indigenous Engagement by CFM</u></p>
125.	<p>In section 4.2 of its CMD, CFM provided information regarding its ongoing engagement with Indigenous Nations and communities near the CFM facility. CFM reported that, in consideration of the guidance provided in the REGDOC 3.2.2, CFM submitted an Indigenous Engagement Report in support of the changes requested in its 20-year licence application. CFM expressed its commitment to continue to engage with First Nation and Métis communities regarding CFM's ongoing operations.</p>
126.	<p>CFM identified the following Indigenous Nations and communities as its primary audience for the CFM facility:</p> <ul style="list-style-type: none"> • Mississaugas of Scugog Island First Nation, • Hiawatha First Nation, • Alderville First Nation, and • Curve Lake First Nation

	<p>CFM reported that its efforts to engage included issuing an annual letter/email to Indigenous communities to determine interest in further engagement and preferences for engagement such as meetings and/or facility tours. CNSC staff confirmed that CFM has regular scheduled meetings with Curve Lake First Nation and Mississaugas of Scugog Island First Nation. Interest and concerns brought up to date at those meetings, as stated in CFM’s Indigenous Engagement Report from August 9, 2022 in Appendix A of CMD 22-H12.1, include the proposed licence term, preliminary decommissioning plans, environmental risk assessments, environmental monitoring and long-term waste storage and economic opportunities.</p>
	<p><u>Submissions by Indigenous Nations and Communities</u></p>
127.	<p>The Commission received written interventions from two PFP recipients, the Curve Lake First Nation (CMD 22-H12.40) and the Mississaugas of Scugog Island First Nation (MSIFN) (CMD 22-H12.43).</p>
128.	<p>In its written submission, the Curve Lake First Nation expressed concerns with the proposed 20-year licence length and the proposed production increase. The Curve Lake First Nation made several recommendations, including for the recommendation for a five- or ten-year licence, and asking the CNSC to provide further clarification on its assessment regarding the potential impacts on Indigenous Inherent and Treaty Rights. The Curve Lake First Nation’s written submission also comments on the land acknowledgments in CNSC staff’s and CFM’s submissions.</p>
129.	<p>In its written submission, MSIFN emphasized that CFM should consider the health and safety of MSIFN community members and the impacts of the site on the ecology of the immediate and connected areas. MSIFN also suggested that Cameco proceed with the creation of a collaborative planning process for lands within Cameco’s site control, and the creation of a restoration fund for other lands.</p>
130.	<p>The Commission asked CFM to comment on the recommendations presented in these interventions. A CFM representative stated that CFM had begun conversations with the Curve Lake First Nation and MSIFN in 2021, and that CFM was in the process of formalizing these relationships. The CFM representative expressed CFM’s commitment to continue to engage with Indigenous Nations and communities, regardless of the licence term.</p>
131.	<p>The Commission also asked CNSC staff to comment on how it would address the recommendations presented in the interventions by the Curve Lake First Nation and MSIFN. CNSC staff stated that it would be discussing the key issues, concerns, and recommendations raised in the interventions at its next regular meeting with each First Nation.</p>

	<i>4.3.1 Conclusion on Indigenous Consultation and Engagement</i>
132.	The Commission concludes that its responsibility to uphold the honour of the Crown and its constitutional obligations with regard to engagement and the duty to consult respecting Indigenous interests has been satisfied. The renewal of CFM’s Class IB licence for the CFM facility does not include any new activities that could cause new impacts on the environment or changes in the ongoing licensed activities at the CFM facility site, and therefore, will not cause any new adverse impacts to any potential or established Indigenous and/or treaty rights. ⁶²
133.	The Commission acknowledges the current efforts and commitments made by CFM in relation to Indigenous engagement and CNSC staff’s efforts in this regard on behalf of the Commission. The Commission is satisfied with CNSC staff’s efforts to engage with Indigenous Nations and communities who may have interest in the CFM facility, as described. The efforts made by CNSC staff in this regard are key to the important work of the Commission toward reconciliation and relationship-building with Canada’s Indigenous Nations and communities. The Commission expects CNSC staff to continue to build meaningful long-term relationships with Indigenous Nations and communities as part of the CNSC’s reconciliation efforts.
134.	The Commission also heard CFM’s clear intention regarding ongoing engagement efforts with Indigenous Nations and communities. The Commission expects that CFM will make best efforts to establish relationship agreements with interested Indigenous Nations and communities for the discussion of issues and concerns regarding the CFM facility.
	4.4 Other Matters of Regulatory Importance
	<i>4.4.1 Public Engagement</i>
135.	A public information and disclosure program (PIDP) is a regulatory requirement for licence applicants and licensed operators of Class I nuclear facilities. CFM explained that its PIDP was designed to build and sustain the trust of local communities by operating safely and providing accurate and transparent reporting of environmental practices and performance to the public. In section 4.7 of its CMD, CFM submitted that it implements and maintains a PIDP which is designed to meet the requirements of REGDOC-3.2.1, Public Information and Disclosure . ⁶³ CFM provided the Commission with information regarding its PIDP, which includes elements such as: <ul style="list-style-type: none"> • sharing information with the local community through advertisements, quarterly newsletters, emails, and its website

⁶² *Rio Tinto Alcan v. Carrier Sekani Tribal Council*, 2010 SCC 43[2010] 2 S.C.R. 650 at paras 45 and 49.

⁶³ REGDOC-3.2.1, *REGDOC-3.2.1, Public Information and Disclosure*, CNSC, May 2018

	<ul style="list-style-type: none"> • participating in webinars and events • providing site tours • meeting with Indigenous Nations and communities, as well as local government councils, and • seeking feedback from interested parties. <p>CFM noted that it shares the following documentation on its website:</p> <ul style="list-style-type: none"> • Technical reports or summaries, including environmental risk assessment, derived release limit assessment, safety analysis and preliminary decommissioning plan • CNSC Quarterly Monitoring and Operational Performance Reports and Annual Compliance Reports <p>CFM added that its most recent public opinion survey found that 91% of local residents support Cameco’s continued operations in Port Hope.</p>
136.	<p>In section 5.4 of its CMD, CNSC staff confirmed that CFM’s PIDP meets the specifications of REGDOC-3.2.1. CNSC staff reported that, during the current and previous licence period, it monitored the implementation of the PIDP at CFM to verify that Cameco meaningfully communicates with its target audiences.</p>
137.	<p>The Commission concludes that CFM will continue to communicate to the public information about the health, safety and security of persons and the environment and other issues related to its facility. The Commission comes to this conclusion on the following basis:</p> <ul style="list-style-type: none"> • The Commission is satisfied that CFM met its public disclosure and reporting obligations throughout the current licence term • The Commission agrees with CNSC staff’s assessment that CFM’s PIDP meets the requirements of REGDOC-3.2.1. <p>The Commission commends CFM on its PIDP, and its transparency and openness to share information about its facility and activities.</p>
	<p><i>4.4.2 Decommissioning Plans and Financial Guarantee</i></p>
138.	<p>The NSCA and associated Regulations require the licensees to make adequate provision for the safe decommissioning of their facilities and long-term management of waste produced during the lifespan of its facility. In order to ensure that adequate resources are available for safe and secure future decommissioning of the CFM facility, the Commission requires that an adequate financial guarantee for the realization of planned activities be put in place and maintained in a form acceptable to the Commission throughout the licence period.</p>

139.	In section 4.5 of its CMD, CFM reported that it continues to manage and maintain an acceptable preliminary decommissioning plan (PDP) and financial guarantee that align with CSA Standard N294-19, <i>Decommissioning of Facilities Containing Nuclear Substances</i> ⁶⁴ and Regulatory Guide G-206, Financial Guarantees for the Decommissioning of Licensed Activities . CFM noted that it updated its PDP in 2021, and that the Commission had accepted CFM’s revised financial guarantee valued at \$10.8 million. ⁶⁵ CFM reported that its PDP is reviewed and revised on a five-year basis and that it will be reviewed and updated at least four times in the proposed licence period.
140.	CNSC staff confirmed that CFM’s financial guarantee meets the requirements in Regulatory Guide G-206, which was in effect when the revised financial guarantee was submitted for review and approval. CNSC staff noted that for future revisions to the financial guarantee, CFM will be required to implement CNSC Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities , ⁶⁶ which came in effect in January 2021 and superseded G-206.
141.	The Commission is satisfied that the preliminary decommissioning plan and related financial guarantee for decommissioning CFM’s facility are in place and are acceptable for the purpose of this licence renewal.
	<i>4.4.3 Cost Recovery</i>
142.	The Commission examined CFM’s standing under the Canadian Nuclear Safety Commission Cost Recovery Fees Regulations ⁶⁷ (CRFR). Paragraph 24(2)(c) of the NSCA requires that a licence application be accompanied by the prescribed fee, as set out by the CRFR and based on the activities to be licensed.
143.	CFM submitted that it remained in good standing with respect to the payment of all CNSC cost recovery fees during the current licence term. CFM further submitted that it will continue to meet its obligations during the proposed licence term. CNSC staff confirmed that CFM is in good standing with the CRFR requirements.
144.	Based on the information submitted by CFM and CNSC staff, the Commission is satisfied that CFM has satisfied the requirements of the CRFR and the NSCA for the purpose of this licence renewal.

⁶⁴ CSA N294-09, *Decommissioning of Facilities Containing Nuclear Substances*, CSA group, 2009.

⁶⁵ Record of Decision, [DEC 21-H105](#), *Application to Renew the Class IB Nuclear Fuel Facility Operating Licence FFOL-3641.00/2022 for the Cameco Fuel Manufacturing Inc. Facility*, February 14, 2022.

⁶⁶ REGDOC 3.3.1, [Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities](#), January 2021

⁶⁷ SOR/2003-212.

	<i>4.4.4 Nuclear Liability Insurance</i>
145.	The CFM facility is identified as a nuclear installation in Schedule 2 of the Nuclear Liability Compensation Regulations ⁶⁸ and CFM is required to maintain valid insurance for the liability amount defined in those regulations, in accordance with the Nuclear Liability and Compensation Act (NLCA). While this statutory requirement is not administered by the CNSC but by Natural Resources Canada, the nuclear regulator maintains awareness of NLCA compliance, where its licensees are designated nuclear installations. CNSC staff confirmed that CFM has nuclear liability insurance in place for the CFM facility.
146.	Based on the information provided on the record for this hearing, the Commission is satisfied that CFM continues to satisfy the requirements for the maintenance of nuclear liability insurance under the NLCA.
	4.5 Licence Length and Conditions
147.	The Commission considered CFM’s application to renew its licence for a period of 20 years. CFM’s current licence, FFL-3641.00/2023, expires on February 28, 2023.
	<i>4.5.1 Licence Length</i>
148.	CFM applied for the renewal of its licence for a 20-year term. Based on its performance and continuous improvements CFM is of the view that it is qualified to carry on the requested licensed activities planned for the proposed 20-year licence term and would continue to make the necessary provisions for protecting the health and safety of workers and the public as well as the environment.
149.	CNSC staff recommended the renewal of the licence for a period of 20 years, until February 28, 2043, submitting that CFM is qualified and capable to carry on the activities authorized by the licence. CNSC staff reported that it reviewed CFM’s licence term request against the criteria from CMD 02-M12 <i>New Staff Approach to Recommending Licence Periods</i> ⁶⁹ and found that a 20-year licence period is reasonable based on those criteria. In Table 16 of CMD 22-H12, CNSC staff reported that CFM met the criteria because: <ul style="list-style-type: none"> • The recommended duration of the licence should be commensurate with the licensed activity

⁶⁸ SOR/2016-88

⁶⁹ CNSC, CMD 02-M12 New Staff Approach to Recommending Licence Periods, March 2002.

	<ul style="list-style-type: none"> • 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 • 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 • A longer licence period can be recommended when effective compliance programs are in place on the part of both the applicant/licensee and the CNSC • A longer licence period can be recommended when the licensee has shown a consistent and good history of operating experience and compliance in carrying out the licensed activity.
150.	<p>CNSC staff reported that it also reviewed other considerations before recommending a 20-year licence period such as:</p> <ul style="list-style-type: none"> • considerations of the international approach to fuel cycle facility licensing, where licences of 20 years or longer are common, • CNSC’s regulatory oversight framework, • ongoing communication and engagement during the licence term, and • ongoing Commission engagement opportunities.
151.	<p>CNSC staff also recommended that CFM provide a comprehensive performance update to the Commission at the midpoint of the licence period. CNSC staff explained that this update would also provide an opportunity for the public and Indigenous Nations and communities to provide their views on the CFM facility directly to the Commission.</p>
152.	<p>Several intervenors, including CFM workers and members of the surrounding Port Hope community provided submissions and rationale in support of CFM’s request for a 20-year licence. Some intervenors, including Curve Lake First Nation (CMD 22-H12.40) and the Port Hope Community Health Concerns Committee (CMD 22-H12.41) made submissions in favour of a shorter licence term such as five and two years, respectively.</p>
153.	<p>The Commission asked CFM to explain its rationale for requesting a 20-year licence request. A CFM representative provided that CFM sees advantages of a longer licence term for long-term planning. The CFM representative added that similar facilities to CFM around the world have long-term licences or no licence term at all. The CFM representative also submitted that CFM sees a longer licence term as a reflection of the maturity of its programs and performance.</p>
154.	<p>The Commission asked CNSC staff to explain whether and how a long licence term could affect regulatory oversight. CNSC staff explained that its regulatory compliance activities are not dependent on the licence period but follow a risk-informed approach based on the licensed activities. CNSC staff noted that the hazards at CFM, and the safety control measures to mitigate them, are well understood. CNSC staff added that it</p>

	<p>uses the Licence Conditions Handbook to reflect updated standards and regulatory documents.</p>
<p>155.</p>	<p>Asked about the issue of knowledge management over a long licence period, CNSC staff explained that the maintenance of the Licence Conditions Handbook and the licensing basis would ensure the continuity of knowledge. A CFM representative explained that Cameco has a regulatory database to track exchanges of information.</p>
<p>156.</p>	<p>Based on the information examined by the Commission, the Commission concludes that a 20-year licence term, with a comprehensive performance update to the Commission at the midpoint of the licence period, with public participation, is appropriate. The Commission’s decision is based on the following:</p> <ul style="list-style-type: none"> • The Commission agrees with CNSC staff’s assessment of CFM against the criteria set out in Table 16 of CMD 22-H12 • The Commission is satisfied that the hazards associated with the operation of the CFM facility are well characterized and their impacts well predicted • The Commission is satisfied that CFM has a mature and effective management system and programs in place • The Commission is satisfied with CFM’s performance and transparency with respect to sharing information with the public <p>The Commission notes that CNSC staff’s, as well as the Commission’s, oversight of licensed activities is independent of the length of a licence and is based on a robust regulatory framework. The licence and Licence Conditions Handbook structure is well-crafted to contemplate continuous improvement within the licensing basis over time, including changes managed under CFM’s management system, as well as updated CSA Group standards and regulatory documents. The Commission is satisfied that, under this structure, CFM’s programs and procedures will continue to be maintained and remain adequate over the 20-year licence period. The Commission also notes that, as per subsection 43(3) of the NSCA, it may at any time, on its own initiative, redetermine any decision or order made by it. As such, the Commission is satisfied that the longer licence term does not in any way affect or impair the robust regulatory oversight that the NSCA both enables and mandates.</p>
<p>157.</p>	<p>The Commission is of the opinion that providing opportunities to hear from communities, for intervenors to voice their views and for the Commission to hear them is very important to sustain a dialogue with members of the public and Indigenous Nations and communities. It is the Commission’s view that a public proceeding at the midpoint of the 20-year licence can provide such an opportunity. This public proceeding will allow the opportunity for participation, both orally and in writing, to members of the public and Indigenous Nations and communities.</p>

	<i>4.5.2 Licence Conditions</i>
158.	Part Two of CNSC staff’s CMD includes a proposed draft licence with a format that incorporates the CNSC’s standardized licence conditions applicable to the CFM facility. As described in section 1.2 of its CMD, CNSC staff specified that it modified the wording of authorized activity “i” to improve alignment with CFM’s operations. CNSC staff added that this change does not represent any new/different authorization for CFM.
159.	CNSC staff reported that packaging and transport have been removed as licensing activities from Part IV of the proposed licence for CFM. CNSC staff explained that CFM transport activities are not licensed activities as per the NSCA and the PTNSR 2015. Section 26 of the NSCA subjects CFM to the PTNSR, subsection 6(1) of which states that a person may transport a nuclear substance without a licence issued under subsection 24(2) of the NSCA for that purpose, except for six conditions (paragraphs 6 (1) (a) to (f) of the PTNSR 2015). CNSC staff have determined that the conditions that would require a licence under paragraphs 6 (1) (a) to (f) of the PTNSR 2015 do not apply to CFM activities.
160.	The Commission accepts the proposed licence, as submitted by CNSC staff in CMD 22-H12.
	<i>4.5.3 Delegation of Authority</i>
161.	<p>In order to provide adequate regulatory oversight of changes that are administrative in nature, and do not require a licence amendment nor Commission approval, CNSC staff recommended that the Commission delegate authority for certain approval or consent, as contemplated in licence conditions that contain the phrase “a person authorized by the Commission,” to the following CNSC staff:</p> <ul style="list-style-type: none"> • Director, Nuclear Processing Facilities Division • Director General, Directorate of Nuclear Cycle and Facilities Regulation • Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch <p>CNSC staff recommended that the Commission delegate authority for licence condition 3.2 Reporting Requirements.</p>
162.	The Commission delegates its authority for the purposes of licence condition 3.2 Reporting Requirements, as recommended. The Commission is satisfied that this approach is reasonable and consistent with the current licence.

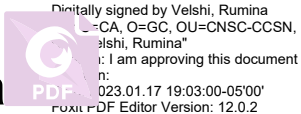
	<i>4.5.4 Production Limit Increase</i>
163.	CFM is requesting a change in its authorized production limit, to 1,650 tonnes of uranium (tU) as UO ₂ pellets annually, which represents an approximate increase of 24% relative to the current production limit. CFM explained that, as CFM’s production limit is currently in Megagrams of UO ₂ per month, this change would also align the nomenclature used in operating limits across Cameco’s Fuel Services Division facilities. CFM noted that there are no immediate plans to increase production, but that the production limit increase is being requested to provide CFM with the ability to respond to potential future business opportunities.
164.	In section 4.3.1 of CMD 22-H12.1, CFM provided information explaining that the requested production limit reflects the production capacity of the equipment installed at CFM under a seven-day operating week, and that the proposed change falls within the current safety case for the facility, including the Safety Analysis Report, Derived Release Limit Report and ERA. CFM explained that its ERA showed that the production limit change is not likely to result in new impacts to the environment. ⁷⁰
165.	In section 5.8 of CMD 22-H12, and in section 3.3 of its EPR, CNSC staff provided a detailed assessment of CFM’s proposal. CNSC staff noted that while the production limit increase would require Commission authorization, CNSC staff agree with CFM’s position that the production limit increase could be achieved through administrative changes to certain licensing basis documents, which can be implemented under the current change management framework, ensuring that licensed activities continue to be carried out in a manner that ensures the safety of workers, the public, and the environment.
166.	CNSC staff confirmed that the proposed production limit increase is bound by the existing safety case and ERA for the facility. CNSC staff have concluded that air emissions and effluent would remain well below the licence limits, and that there would be no significant changes in uranium soil concentrations near the CFM facility. CNSC staff also determined that no increased dose to workers or the public would be expected as a result of this increase.
167.	The Commission asked about CFM’s plans for its workforce in light of the proposed production increase. A CFM representative stated that CFM planned to hire around 20 additional employees and operate more shifts to increase production. The CFM representative noted that CFM did not expect to experience difficulty in recruiting and training new staff, and highlighted CFM’s onboarding and training programs.
168.	Northwatch, in its intervention, opposed the production limit increase as it would likely result in increased waste generation. The Commission noted that CFM has not been

⁷⁰ Page 16 of CMD 22-H12.1

	<p>able to find a commercially viable low-level radioactive waste management facility in Canada and asked for more information concerning how CFM’s production rate could affect waste generation. A CFM representative described CFM’s process for treating waste at its facility and acknowledged that the volume of waste would slightly increase if the production were to increase. The CFM representative noted that the slight increase would not significantly impact the annual volume of waste generated at the facility, nor would it significantly increase the amount that gets sent to Blind River for incineration. The CFM representative explained that the additional volume would mainly consist of lunchroom waste and personal protective equipment from the additional operating hours.</p>
169.	<p>The Commission concludes that CFM has appropriate safety measures in place to safely increase its annual production to the proposed limit of 1,650 tonnes of uranium (tU) as UO₂ pellets per year. The Commission is satisfied that CFM’s employees are and would be appropriately trained and qualified to perform the licensed activity in accordance with CNSC requirements. The Commission finds that the proposed increase is within the existing safety case for the facility, that no modifications to the facility are required to increase production, and that the production limit change is not likely to result in new impacts to persons or the environment.</p>
	<p><i>4.5.5 Conclusion on Licence Length and Conditions</i></p>
170.	<p>Based on the information examined by the Commission, the Commission is satisfied that a 20-year licence is appropriate for CFM. The Commission accepts the licence conditions as recommended by CNSC staff, and the standardized licence with licence conditions handbook. The Commission also accepts CNSC staff’s recommendation regarding the delegation of authority for the purpose of licence condition 3.2. The Commission notes that CNSC staff can bring any matter to the Commission as required.</p>
	<p>5.0 CONCLUSION</p>
171.	<p>The Commission has considered CFM’s licence renewal application for its Class IB nuclear fuel facility licence including the request to increase the annual capacity to 1,650 tonnes of uranium as uranium dioxide pellets. The Commission has considered the information and submissions of CFM, CNSC staff, and all participants, as set out in the material available for reference on the record, as well as the oral submissions made by the participants at the hearing.</p>
172.	<p>Based on its consideration of the evidence on the record of this hearing, the Commission, pursuant to section 24 of the <i>Nuclear Safety and Control Act</i>, renews the Class IB Nuclear Fuel Facility Licence issued to Cameco Fuel Manufacturing Inc. for</p>

	<p>its facility located in Port Hope, Ontario. The renewed licence, FFL-3641.00/2043, is valid from March 1, 2023 until February 28, 2043. The Commission directs that, at the midpoint of the 20-year licence period, CFM shall present to the Commission a comprehensive midterm update on the conduct of its licensed activities and compliance with requirements, as part of a public Commission proceeding.</p>

Velshi,
Rumina



January 17, 2023

Rumina Velshi
President,
Canadian Nuclear Safety Commission

Date

Appendix A – Intervenors

Intervenors – Oral Presentations	Document Number
Northumberland Manufacturers’ Association, represented by D. Price	CMD 22-H2.12
Canadian Nuclear Isotope Council, represented by M. Greaves	CMD 22-H12.4 CMD 22-H12.4A
Port Hope Community Health Concerns Committee, represented by G. Edwards and F. More	CMD 22 H12.41 CMD 22-H12.41A CMD 22-H12.41B
Northumberland Hills Hospital Foundation, represented by R. Cunningham	CMD 22-H12.5
Crystal Roddy	CMD 22-H12.31
United Steelworkers, Local 14193, represented by M. Hargreaves	CMD 22-H12.23
Canadian Nuclear Workers’ Council, represented by B. Walker	CMD 22-H12.39
Colleen Polley	CMD 22-H12.25
Canadian Nuclear Association, represented by S. Coupland	CMD 22-H12.29
Intervenors – Written submissions	
Rebound Child & Youth Services Northumberland	22-H12.3
Nuclear Innovation Institute	22-H12.6
Christa Ingalls	22-H12.7
Canadian Association of Nuclear Host Communities	22-H12.8
Municipality of Port Hope	22-H12.9
Energy and Nuclear Engineering Department, Ontario Tech University	22-H12.10
YMCA Northumberland	22-H12.11
Town of Cobourg	22-H12.12
United Way Northumberland	22-H12.13
Philip Lawrence, Member of Parliament, Northumberland-Peterborough South	22-H12.14
Habitat for Humanity Northumberland	22-H12.15
Green Wood Coalition	22-H12.16
NB Power	22-H12.17
Bruce Power	22-H12.18
Catherine Jarvis	22-H12.19
Brian Riess	22-H12.20
Vincent Larose	22-H12.21
David Piccini, Member of Provincial Parliament, Northumberland-Peterborough South	22-H12.22
Victor Allan Glover	22-H12.24
Donald Slade	22-H12.26
John Studzinski	22-H12.27
Port Hope Police Service	22-H12.28
Women in Nuclear (WiN) Canada	22-H12.30
Power Workers' Union	22-H12.32

North American Young Generation in Nuclear (NAYGN) Durham	22-H12.33
Andrew Chatwood	22-H12.34
Fire and Emergency Services, Municipality of Port Hope	22-H12.35
Canadian Nuclear Laboratories	22-H12.36
Robert Neville	22-H12.37
Port Hope and District Chamber of Commerce	22-H12.38
Curve Lake First Nation	22-H12.40
Northwatch	22-H12.42
Mississaugas of Scugog Island First Nation	22-H12.43