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December 14, 2021

CFM-10859-LTR
VIA EMAIL

Mr. Graham Smith
Nuclear Processing Facilities Division
Canadian Nuclear Safety Commission
280 Slater Street
Ottawa, ON K1P 5S9

Dear Mr. Smith:

Justification for Licence Term and Production Increase for Cameco Fuel Manufacturing Revision 1

On October 4, 2021, Cameco Fuel Manufacturing (CFM) submitted an application a letter of intent to the Canadian Nuclear Safety Commission (CNSC) to renew its fuel facility licence for a period of 20-years [Ref.1]. In addition to the longer licence term, CFM has requested a change from the activities authorized under the current operating licence. Specifically, an annual production limit of 1,650 tonnes of uranium (tU) as uranium dioxide (UO_2) pellets that reflects the production capacity of the licensed facility.

In accordance with the licensing basis set out in CFM's Facility Licensing Manual (FLM) and the CNSC Licence Conditions Handbook (LCH), all proposed changes outside the current licensing basis require written notification for CNSC staff which summarizes the change, the rationale for the change and an explanation of how this change remains in accordance with the facility licensing basis or safety case for the facility. The proposed changes to CFM's licence term and production limits are changes to the licensing basis which will be considered by the Commission in a future public hearing. In order to support CFM's application for licence renewal with these changes, an assessment against the documents which support the current licensing basis and safety case was undertaken and submitted [Ref. 2].

CNSC staff provided comments on these submissions in November 2021 [Ref. 3]. The attached assessment has been revised to address the CNSC staff comments and provides an overview of the proposed changes, CFM's rationale for these changes and review of the impact of the production increase on each safety and control area, with specific focus on the Safety Analysis Report, Derived Release Limit and Environmental Risk Assessment which summarize the current safety case for the facility. The proposed changes are within the objectives of the current licensing basis and within the current safety case for CFM. This document supports CFM's requests for the Commission to consider in the licence application submitted October 4, 2021.

If you have any questions, please do not hesitate to contact me at your earliest convenience.

Yours truly,

Rebecca Peters
Superintendent, Special Projects

References:

1. CFM Letter. D. Clark to M. Leblanc. Cameco Fuel Manufacturing Renewal of Licence FFL-3641.0/2023 for a 20-year term. October 4, 2021
2. CFM Letter. R. Peters to G. Smith. Justification for Licence Term and Production Increase for Cameco Fuel Manufacturing. October 4, 2021
3. CNSC Letter. G. Smith to D. Clark. CNSC Staff Sufficiency Check of Cameco Corporation – Cameco Fuel Manufacturing Inc. Licence Renewal Application and Requests for Additional Information. November 23, 2021.

Attachments:

1. Justification for Licence Term and Production Increase for Cameco Fuel Manufacturing Revision 1

c. A. McAllister, M. Jones (CNSC)
T. Smith, D. Jensen, M. Longinov, M. Garrard (Cameco)

CAMECO CORPORATION
FUEL SERVICES DIVISION

Justification for Licence Term and Production Increase

For Cameco Fuel Manufacturing Inc.

Proposed Licence FFL 3641.00/2023

Revision 1

December 14, 2021

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1.0 INTRODUCTION

1.1 Cameco Corporation and the Fuel Services Division

Cameco Fuel Manufacturing Inc. (CFM), a wholly owned subsidiary of Cameco Corporation (Cameco), operates a Class IB nuclear fuel manufacturing facility in Port Hope, Ontario under Canadian Nuclear Safety Commission (CNSC) operating licence FFOL-3641.0/2022 (the Licence). The current Licence is valid until February 28, 2022; an application for renewal of the Licence for a period of one year is to be considered by the Commission in December 2021. This document and associated application for a twenty-year licence submitted on October, 4, 2021 assumes that CFM receives a one-year licence (FFL-3641.00/2023) that will require renewal by February 2023.

Cameco's Fuel Services Division (FSD) supplies the world's reactor fleet with fuel to generate one of the cleanest sources of electricity available today. CFM operates a fuel fabrication facility located in Port Hope, Ontario which handles nuclear material and is the subject of this licence application. CFM also operates a specialty metals fabrication facility in Cobourg, Ontario to facilitate complete CANDU fuel supply; this facility does not process nuclear material and is not subject to licensing by the CNSC.

1.2 Requests in the Licence Renewal

CFM is requesting that the Canadian Nuclear Safety Commission (CNSC) renew its operating licence for a period of 20 years. In addition to the longer term, CFM is requesting to change the annual production limit to reflect the production capacity of the licensed facility of 1,650 tonnes of uranium (tU) as uranium dioxide (UO_2) pellets. This document sets out how these requests are within the current safety case for the facility.

Within the CNSC's safety and control area (SCA) framework, the safety analysis SCA covers maintenance of the safety analysis that supports the overall safety case for the facility. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility; it considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.

1.3 Licensing Basis

The licensing basis establishes the boundary conditions for acceptable performance at the facility. It includes information provided in the licence application, its attachments and the documents referenced within, as well as Commission Member Documents and transcripts from the relicensing hearings. The conditions and safety control measures of CFM's Facility Licensing Manual (FLM)

and the CNSC Licence Conditions Handbook (LCH), and the documents referenced within provide an overview of the licensing basis, and also provide a framework under which facility changes may be made, documents supporting the licensing basis may be updated, and other requirements such as standards and REGDOCs may be implemented, within the licence term.

The application for licence renewal and the referenced supporting documents describe how CFM meets licensing requirements and provides the basis for renewal of the operating licence (licensing basis). The application, the FLM and summaries of significant reports supporting the licensing basis as described in the application are made available to the public through the FSD community website (www.camecofuel.com).

A facility's SAR forms an important part of the licensing basis for the facility. It is used to:

- establish limits for the safe operation of the facility
- assess proposed changes to the facility
- develop and maintain the applicant or licensee's policies, processes and procedures for the safe conduct of the licensed activities

2.0 DESCRIPTION OF OPERATIONS AND PROPOSED CHANGES

2.1 Process Overview

The manufacturing of finished nuclear fuel bundles at CFM is divided into 2 operations: pellet manufacturing, and fuel bundle assembly.

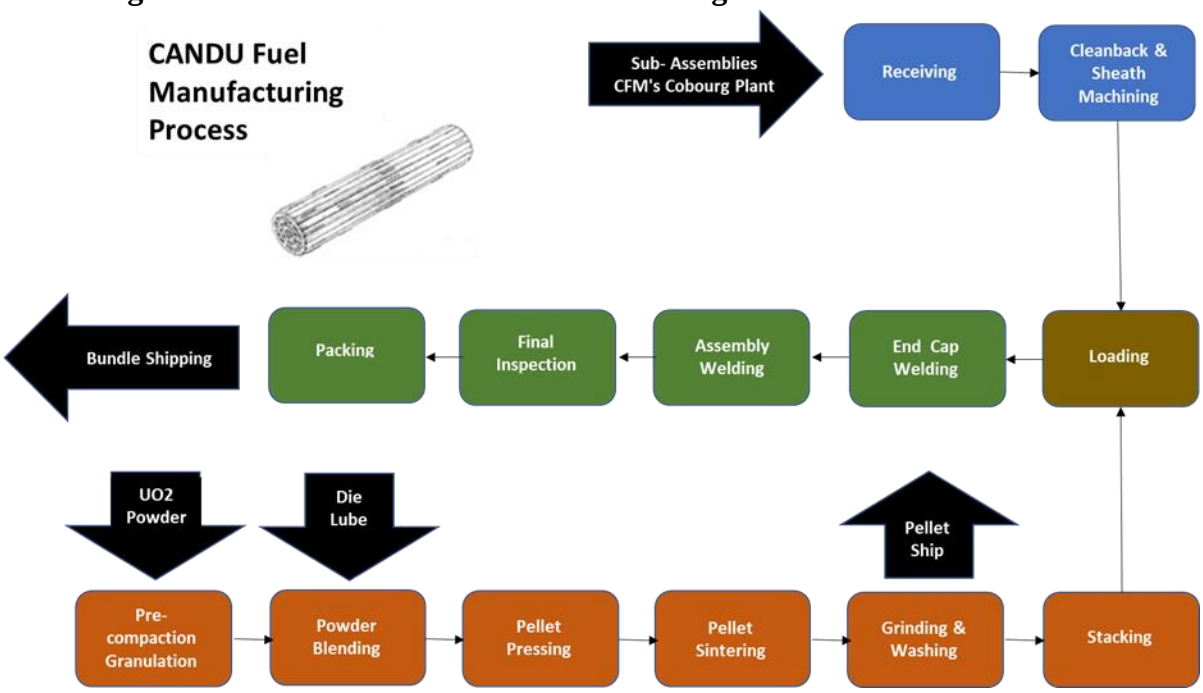
The uranium dioxide pellet manufacturing operations at CFM involves unloading drums of uranium dioxide powder from transport trailers, mixing the uranium dioxide powder with a lubricating agent (zinc stearate), compacting the powder into pellets, sintering the pellets at a high temperature in a hydrogen atmosphere, grinding the pellets to the required dimensions, inspecting the pellets and transferring them to the bundle assembly operations.

The fuel bundle assembly operations involves inserting pellets into zircaloy tubes, welding end caps to each tube to form a fuel element, assembling the fuel elements into fuel bundles, welding end plates to each bundle, inspecting the completed bundles for quality characteristics and packaging them for shipment.

A simplified block diagram of the fuel fabrication process is provided in Figure 1. A detailed description of each step is provided in the licence application*.

*CFM letter – Cameco Fuel Manufacturing Renewal of Operating Licence for a 20-year term, October 4, 2021

Figure 1 CANDU Fuel Bundle Manufacturing Process



Note: Intermediate products at various stages of the manufacturing process are, at times and dependent upon market conditions, packaged and sold to other nuclear fuel producers.

2.2 Proposed Changes to Production Limit

CFM is requesting the following changes in the production limits for the facility:

- Monthly limit to an annual limit
- Unit of measure from megagrams of UO_2 to tonnes of uranium as UO_2 pellets
- Increase in total throughput

To operate at the proposed production limit, there are no physical changes required to the CFM facility. CFM currently operates on a three-shift, 5-days per week rotation, allowing for up to 120 regular production hours each week, which may be periodically augmented by weekend overtime to meet production requirements.

Operating at the proposed production limit would be achieved by hiring additional operators and supervisory personnel so that continuous operations could be maintained allowing for up to 168 regular production hours each week. The actual shift rotation would be subject to the collective agreement and therefore cannot be specifically defined at this time.

3.0 RATIONALE FOR CHANGE IN THE LICENCE TERM AND PRODUCTION INCREASE

3.1 Change in Licence Term

In preparing the licence renewal application, CFM reviewed several factors when determining the length of licence to request.

From a Canadian nuclear industry perspective, the CANDU reactors in Ontario and New Brunswick account for approximately 15% of Canada's electricity generation. Life extension projects at the Point Lepreau, Bruce and Darlington sites support the expected ongoing operations of Canadian CANDU nuclear power plants well into the future. A longer licence term enables CFM to provide a secure supply of fuel in support of reactor operations during this period and reduces customer and industry uncertainty associated with licence renewal. Longer operating licences with lengths of 20-40 years are typical in other jurisdictions around the world.

Due to the nature of its operations, CFM is a low-risk facility. Emissions to air and sanitary sewer are maintained at a small fraction of the protective release limits and the dose to the public from gamma emissions is a small fraction of the public dose limit. Strong programs are in place for each SCA and CFM has demonstrated a commitment to continually improve these programs. Periodic assessments of safety analysis, environmental protection, radiation protection, and other key SCAs ensure that CFM will operate safely for the foreseeable future. Licence renewals require significant effort by both the licensee and CNSC staff for two to three years, frequently with little to no change in the licence conditions or regulatory requirements. This level of effort for a low-risk facility within the current regulatory framework is not warranted.

The annual Regulatory Oversight Report (ROR), which provides information on the safety performance of CFM and other nuclear facilities at a public proceeding of the Commission ensures that CFM's performance is reviewed by the Commission every year. Indigenous groups, members of the public and other stakeholders are provided with opportunities to participate at the public proceeding through the CNSC's intervention process and Participant Funding Program.

Previously, the CNSC and its predecessor Atomic Energy Control Board (AECB) issued short term licences, typically one to three years in length. Over time nuclear facilities have been able to use operating experience to identify and implement continual improvements to safety and control measures as well as demonstrate their ability to operate the facility in a safe manner protective of human health and the environment. This resulted in a gradual increase in the typical term of a Class I nuclear facility operating licence to the 10-year licence currently held by CFM.

In the last decade, the CNSC has developed a strong regulatory framework through legislation, regulations, licences and Licence Condition Handbooks (LCH) and CNSC regulatory documents

(REGDOCs) and Canadian Standards Association (CSA) nuclear standards. This framework, which has been in place for the current licence period, provides systematic and clear regulatory expectations. As new REGDOCs and standards have been developed and/or updated, they have been systematically integrated into CFM's LCH, which ensures that current scientific information and/or regulatory requirements can be implemented during the licence term.

CFM maintains program documents, procedure level documents and supporting studies to demonstrate how the regulatory requirements are met. All CFM documents are regularly reviewed, with supporting studies revalidated or updated at least every 5 years. This includes documents related to the safety case for the facility such as the Safety Analysis Report (SAR), Environmental Risk Assessment (ERA), Derived Release Level (DRL), exposure-based release limits (EBRL) and action levels (AL). This periodic review cycle ensures that the safety case for the facility is evaluated on an ongoing basis throughout the licence period. The relevant CFM documents are described in the LCH and CFM's Facility Licensing Manual. The FLM and summaries of significant reports supporting the licensing basis are available for the public on CFM's community website (www.camecofuel.com).

The regulatory framework requires a licensee to ensure that information related to the health, safety and security of persons and the environment and other issues which are of interest to the public are communicated. As part of CFM's licensing obligations, quarterly and annual reports are provided to the CNSC and made available to the public on our community website (www.camecofuel.com). FSD's Public Information Program (PIP) describes the public disclosure protocol for Ontario operations. The PIP and its disclosure protocol form part of the licensing basis and are submitted to CNSC staff whenever they are changed. The disclosure protocol identifies the various measures in place to keep target audiences in communities with an interest in FSD operations informed.

Under the CFM and corporate management systems, the implementation of site programs and procedures are regularly monitored, audited and reported on to assure the site management that these programs are implemented, adequate and effective. CNSC staff and other regulatory agencies inspect our operations and site programs multiple times per year to ensure compliance with regulatory requirements.

The CFM operation is regulated by the CNSC under the regulatory framework and has consistently received satisfactory rankings from the CNSC while meeting all CNSC and other regulatory obligations. The licence application includes a performance review of the current licence term, which demonstrates CFM's consistent performance and demonstrates ongoing commitment to safety and the protection of people and the environment.

CFM's documents that detail the licensing basis for the facility under the CNSC regulatory and the associated review mechanisms for the facility safety case and performance at the facility.

Review of these by CNSC staff at the time of update and by the Commission through the ROR demonstrate that there are processes in place to ensure that the facility operations remain safe and that there are opportunities for regulatory and public review of CFM operations during a longer licence term.

3.2 Change in Production Limit

In the application for renewal of the operating licence* submitted on October 4, 2021, CFM has asked for a change in the production limit for the facility from 125 megagrams UO_2 as pellets during any calendar month to an annual amount of 1,650 tonnes of uranium as UO_2.

During the current licence period, Cameco has undertaken numerous initiatives to improve transparency in public information, especially as it pertains to presentation of data and compliance reporting. One aspect of this is to provide information from all Ontario operations in a consistent and, where applicable, comparable format. CFM's monthly production limit as megagrams of UO_2 is an artifact of licences held by former owners of the facility. Cameco's other Ontario facilities, the Blind River Refinery located in Blind River, Ontario, and Port Hope Conversion Facility located in Port Hope, Ontario have annual production limits as tonnes uranium as UO_3 (BRR), UO_2 (PHCF) and UF_6 (PHCF). With two licensed facilities operating in Port Hope, standardization of units of measure for production limits is desired to improve the public's understanding of operations. It is on this basis that CFM has requested the change from a monthly limit to an annual limit and from megagrams of UO_2 to tonnes of uranium as UO_2 pellets.

CFM's request to change the licence limit also includes a request to increase the authorized limit to reflect the actual production capacity of the equipment installed at CFM. This change, along with the change from the monthly limit to an annual limit, ensures that CFM operations:

- may be flexible as needed to meet business demands and a greater security of supply of nuclear fuel
- can increase short-term production should there be a disruption in operations for any reason at any time
- are able to take on new business opportunities when they arise

Accounting for the change in unit of measurement, the requested production limit represents an increase of approximately 24%. The increased annual production can be achieved at CFM in its current equipment configuration by increasing the number of operating hours per year. This would be achieved through a change in shift structure to a 24/7 operation, which would require an increase in the number of operators and supervisory staff. CFM's review of the safety case for the facility in the context of the requested production limit change is provided in section 4.

*CFM letter – Cameco Fuel Manufacturing Renewal of Licence FFL-3641.0/2023 for a 20-year term. October 4, 2021

4.0 REVIEW OF SAFETY CASE FOR CFM WITH PRODUCTION INCREASE

To ensure a comprehensive review of the proposed change, this section is structured to align with the SCAs of the CNSC regulatory framework as described in the LCH for CFM. Each SCA has compliance verification criteria (CVC) and guidance as set out in the LCH. CFM documents that define how CVC are met were reviewed for impact of the proposed change.

4.1 Management System

The management system program at CFM is the framework that currently guides the processes and programs required to ensure safety objectives are achieved, performance is monitored, and a healthy safety culture is maintained. The Management System Program Manual (CFM-MS) meets the requirements of CSA N286-12 (R2017): *Management System Requirements for Nuclear Facilities* and REGDOC 2.1.1: *Management System*. Other requirements of this SCA are described in the Facility Licensing Manual (CFM-FLM), Change Control procedure (MSP 13-02) and Public Information Program (FSD-PGR-PIP-001).

The management system principles and processes set out in CFM-MS and MSP 13-02, such as planning, change management, management oversight, and audit would apply to CFM with no changes required for the proposed production increase. The proposed production increase would not impact the content of CFM-MS or MSP 13-02.

Reporting requirements as set out in CFM-FLM and FSD-PGR-PIP-001 would not be impacted by a change in the production limit.

The proposed production increase would not impact the current licensing basis for this SCA and the management system would ensure the change is made in a systematic and safe manner.

4.2 Human Performance Management

CFM maintains a Systematic Approach to Training program (CFM-HR-01) that meets the requirements of REGDOC-2.2.2: *Personnel Training* and the Corporate Training Program.

CFM's Systematic Approach to Training (SAT) described in CFM-HR-01 would not be impacted by a change in the production limit and SAT would continue to apply to CFM training. CFM would need additional personnel (more operators and supervisory staff) and to change the shift structure from a 5-day to a 7-day shift cycle in order to operate CFM on continuous basis. The operators would be qualified under the current SAT program.

The proposed production increase would not impact the current licensing basis for this SCA. CFM's training program would ensure that personnel required to implement the proposed increased production are qualified to carry out the licenced activities.

4.3 Operating Performance

An operating program includes an up-to-date set of operating limits for the facility and activities authorized under the licence, including production limits and an inventory of nuclear substances possessed under the licensees' operating licence.

The FLM provides an overview of all the programs in place at CFM to ensure that it operates in a safe manner in compliance with its licence conditions. The performance of these programs is regularly assessed to assure the site management that these programs are implemented, adequate and effective. Corporate personnel perform audits of the site management programs on a regular basis to verify that site performance meets both corporate requirements and complies with all applicable regulatory requirements.

The FLM will require updating to reflect the Record of Decision once the Commission renders a decision on the application for renewal of the CFM operating licence for a period of 20-years.

4.3.1 Operating Limits

Operating limits are defined in the licensing basis upon which the Commission rendered their decision to renew CFM's operating licence in 2012. The current licensed production limit is 125 Megagrams (Mg) of UO_2 as pellets during any calendar month.

CFM is requesting a change in the licensed limit to 1650 tonnes of uranium as uranium dioxide pellets annually. This change aligns the nomenclature used in setting operating limits across the fuel services division facilities (i.e., tonnes uranium per year). The proposed limit reflects the production capacity of the equipment installed at CFM under a seven-day operating week. The proposed change is discussed in section 3.2.

In order to directly compare the requested increase to the current licensed production limit, the following is used to present the requested production limit in terms of the current production limit:

- 1650 tonnes uranium/year is 137.5 tonnes uranium/month
- 1 tonne uranium as UO_2 is equivalent to 1.13 tonnes of UO_2
- 1 megagram of UO_2 is equivalent to 1 tonne of UO_2

The requested 1650 tU/yr divided equally by month would be equivalent to 155 Mg UO_2/month, a 24% increase in the production limit.

4.4 Safety Analysis

CFM is required to maintain a safety analysis report (SAR), which adequately considers the hazards associated with the facility. The implementation and maintenance of a safety analysis includes a process to identify and assess hazards and risks on an ongoing basis. IAEA SSR-4 Safety of Nuclear Fuel Cycle Facilities provides guidance for the safety analysis. CFM's SAR was

updated to support the one-year licence renewal application in May 2021. This document describes the conditions, safe boundaries and hazard controls that ensure operational safety, including site procedures, which define operational limits and conditions for the facility structures, systems and components and includes an analysis of the probable worst-case release event.

There are administrative changes that would be required in Chapter 11 (operating days) and Chapter 12 (production limits) of the SAR. A review of the impact of the proposed production increase on the radiation protection and environmental protection SCAs are provided in sections 4.7 and 4.9. In summary, the additional operating hours will be achieved with additional workers under the existing RP program and there are no expected changes to worker dose during normal operations. With no change in the operating equipment, there is no expected change to the daily air emissions or discharges to sanitary sewer. An increase in the operating hours will result in slightly increased annual uranium loadings to the environment due to more days of operation, but the projected increase in loadings of 25% will remain within the current action levels and limits set out in the licence and LCH.

There are no physical modifications to the facility required for the proposed production increase and thus there are no changes to the site evaluation, general design aspects or description of facility systems and components, including safety systems. CFM operates with UO_2 powder being delivered on a just-in-time basis, which would continue with the increased production rate. The rate at which deliveries of UO_2 powder are made to the facility would increase to support the increased throughput, but the amount of UO_2 powder held on site would not change from current operations. Similarly with finished goods, the rate at which shipments to customers made from the facility would increase to support increased throughput. The amount of finished material stored at the CFM site is dependent upon customer contractual arrangements. In the event that customer arrangements would require an increase in the amount of finished material stored, the resulting change would be managed through the facility change control program which would determine whether an update to the SAR was required.

The proposed production increase does not impact the methodology used for the SAR. The proposed production increase does not change the probable worst-case release scenario described in the SAR, which involves the release of uranium powder through a baghouse during a fire in the baghouse. As there is no proposed change to the amount of UO_2 powder on site at any given time, and the operational parameters of the process equipment remain the same, there is no impact of the proposed production increase on the worst-case scenario.

The SAR demonstrates that the current safety system, procedural controls and abatement equipment in place mitigate risk to the public and the environment arising from accidents associated with the uranium and hazardous materials stored, processed and transported to and from CFM.

As there are no changes to the inputs to the SAR, there are no impacts on the conclusions of the SAR. The SAR would be updated to reflect the administrative changes once the Commission renders a decision on request for the production limit increase.

4.5 Physical Design

CFM is required to have a program for physical design of the facility to assess the ability of structures, systems and components to meet and maintain their design basis given new information arising over time and manage changes to ensure that safety is maintained. The National Building Code of Canada 2015, National Fire Code of Canada 2015 and CSA N393-13 (R2018) *Fire Protection for facilities that process, handle, or store nuclear substances* provide the base requirements for design of the facility. Any physical modifications to the facility are made in accordance with the site Change Control procedure (MSP 13-02). There are no physical modifications to the facility required for the proposed production increase. CFM would need additional personnel (more operators and supervisory staff) and to change the shift structure from a 5-day to a 7-day shift cycle in order to operate CFM on continuous basis to achieve the proposed production increase. The production increase would not impact the content of MSP 13-02.

The proposed production increase would not impact the current licensing basis for this SCA.

4.6 Fitness for Service

CFM is required to have a program for maintenance of the facility and a program for periodic inspection and testing for the facility. The Preventative Maintenance Execution Management procedure (AP 018) describes the mechanisms in place that ensure all equipment is available to perform its intended design function when called upon to do so. The increased operating time associated with the proposed production increase may trigger changes to the frequency of preventative maintenance activities in accordance with AP 018. The proposed production increase would not impact the content of AP 018.

Any changes to preventative maintenance planning would be made in accordance with AP 018 and the proposed production increase would not impact the current licensing basis for this SCA.

4.7 Radiation Protection

Radiation protection measures are in place to minimize and control the potential for radiation exposure to both employees and members of the public arising from the operation of CFM. CFM must also ascertain and record doses for persons who perform work or are present at the site in accordance with the *Radiation Protection Regulations*. The Radiation Protection Program Manual (CFM-RP) describes the program to ensure that doses to workers do not exceed prescribed dose limits set out in the regulations and that doses are kept as low as reasonably achievable (ALARA).

Action levels have been established for internal and external dose in accordance with the FSD Dosimetry Service Licence and CFM-RP. Action levels are assigned to groups of workers according to Nuclear Energy Worker (NEW) designation and work group (production and administrative).

The proposed production increase would not require additional work groups to be established under the program, or new equipment to be installed. CFM would need additional personnel (more operators and supervisory staff) in the production work group and change the shift structure from a 5-day to a 7-day shift cycle in order to operate CFM on continuous basis. The existing programs set out in CFM-RP for dosimetry, monitoring and contamination control would continue to apply. The proposed production increase would not impact the content of CFM-RP. The only change would be the number of workers monitored under the existing program would increase to support the change in shift structure to a continuous operation. Dose to workers at CFM have remained very low in the current licence period and are not expected to increase as the current radiation protection program will be applied all workers under the new shift structure.

The proposed production increase would not impact the current licensing basis for this SCA. CFM has an effective radiation protection program which ensures doses to workers are maintained as low as reasonably achievable (ALARA).

4.8 Conventional Health and Safety

This safety and control area covers the implementation of a program to manage non-radiological workplace safety hazards and to protect personnel and equipment. The requirements and guidance for this SCA are set out in the Canada Labour Code, Part II and its regulations, CSA Z94.4-18 *Selection, Use and Care of Respirators* and REGDOC-2.8.1 *Conventional Health and Safety*. CFM's Safety and Health Program (CFM-SH) sets out the site program to ensure the health and safety of workers. The existing program would continue to apply to the proposed production increase. The proposed production increase would not impact the content of CFM-SH.

The proposed production increase would not impact the current licensing basis for this SCA.

4.9 Environmental Protection

CFM is required to have in place a program that identifies, controls and monitors all releases of radioactive and hazardous substances from the facility. The requirements for this SCA are set out in REGDOC-2.9.1: *Environmental Protection: Environmental Principles, Assessments and Protection Measures (Version 1.1);* CSA N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities;* CSA N288.4, *Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills;* CSA N288.5, *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills;* CSA N288.6, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills;* CSA N288.7, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills;* and CSA N288.8, *Establishing and implementing action levels for releases to the environment from nuclear facilities*.

The FSD Environmental Management System, FSD-PGR-EMS-001 (EMS) describes the higher tier program elements that meet the requirements of the ISO 14001 standard and applicable CSA

N288 series standards. The site Environmental Protection Program, CFM-EP describes site-specific aspects associated with the environmental sampling that is carried out in support of the EMS and the Environmental Risk Assessment (ERA). This monitoring data is then compared to applicable action levels and limits to ensure operations remain in compliance with applicable regulations and license limits.

4.9.1 Derived Release Limit

CNSC regulations require that no member of the public receive more than 1 mSv/year. CFM maintains a derived release limit (DRL) report in accordance with CSA N288.1-14: *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities* to demonstrate this requirement is met. The DRL is reviewed every five years to ensure that considering the most relevant scientific literature, the facility operations are maintained well below the public dose limit.

In simplified terms, the DRL is the amount of radioactivity released by a nuclear facility that results in a radiation dose of 1 mSv/year to a representative member of the public. To determine the representative member of the public, also called the critical receptor, various receptor types are developed based upon age, proximity of residence, proximity of work and proximity of recreation to the facility. As part of the periodic review of the DRL, the most exposed receptor locations for each receptor activity are determined to identify the critical receptor. A person located at this receptor, given their proximity to the facility and the theoretical length of time that could be spent at this location, would be expected to receive the highest possible radiation dose that any member of the public could receive.

CFM's DRL report was revised in 2021 and dose to the public is based on three components: dose to the public arising from discharges of radioactivity in water, dose to the public arising from discharges of radioactivity from the manufacturing processes in air, and dose to the public arising from gamma radiation emitted from the facility. Each of the components has a different critical receptor, or most exposed member of the public. Table 1 summarizes the most restrictive DRL values for each component; corresponding to a 1 mSv/y dose.

Table 1: DRL Values Corresponding to a 1 mSv/y Dose

	Air Emissions (kg/year U)	**Water Discharges (kg/year U)**	**Gamma Radiation (µSv/h)**
DRL	Process Stacks: 299 Building Ventilation: 41.5	Sanitary: 331	Dosimeter 12:1.35

The total dose to a member of the public is controlled using the following sum rule:

$$1 \geq \frac{r_{air}}{DRL_{air}} + \frac{r_{water}}{DRL_{water}} + \frac{\gamma_{water}}{DRL_{gamma\ TLD\ 12}}$$

where, r_{air} = the release rate of uranium from the facility air sources (kg U/year)
r_{water} = the release rate of uranium from the water sources (kg U/year)
γ_{gamma} = the gamma exposure rate for the receptor component (μSv/h)

The DRL values in the equation will vary based on which receptor type is being used to calculate the public dose. CFM uses the most conservative receptor type for each component of the dose calculation. This conservatively calculates a dose to the public that is higher than the actual public exposure during normal facility operations.

For CFM, dose to the public from air and water emissions is a very small fraction of the public dose limit and the gamma component represents virtually all the estimated public dose. The impact of a change in production limit on air and water emissions are further discussed in section 4.9.5. With respect to gamma emissions, the critical receptor is an infant who resides in a nearby end-of-life care facility and is represented by the environmental dosimeter 12, located on the north fenceline. The dose at this receptor location is used in the calculation of dose to the public. The selection of the critical receptor for gamma radiation was based upon current source information and fenceline gamma measurements for the current configuration of CFM using the latest version of the modelling software MicroShield. Gamma measurements at the fenceline are due to the storage configuration and shielding of nuclear material at the site. The proposed production increase is not expected to impact the DRL for CFM.

4.9.2 Exposure Based Release Limits

Release limits for radionuclides were previously established based upon the DRL for the facility. In 2021, CFM proposed new limits using Exposure-Based Released Limit (EBRL) methodology. EBRLs are concentration-based release limits that are based on meeting endpoint parameters that consider radiotoxicity, chemical toxicity, and protection of aquatic life. Following this process EBRLs were developed for uranium in airborne emissions and uranium in liquid emissions.

The EBRL for air was derived from the provincial air quality standards under Ontario Regulation 419/05 Air Pollution – Local Air Quality (*O.Reg. 419/05*). Under the provincial regulatory framework, the Emissions Summary Dispersion Model (ESDM) is updated as needed and documents the air emissions sources at CFM. It maintains the most current listing of all stacks/sources, their specifications and parameters emitted as required by the ECA/EASR for air emissions. Air dispersion modelling is conducted using an approved dispersion model using emissions data and source data as required by O.Reg. 419/05.

As there are no physical modifications required, the proposed production increase will not change the source data related to stacks and other discharge points in the ESDM. The current ESDM uses a compounded worst case, using the daily maximum discharge rate at each emissions source in the period between 2012 and 2018. As the proposed production increase does not change the daily operations, just the number of operating days, the use of the compounded daily maximum discharge remains appropriate. The proposed release limits for Air Discharges are shown in Table **2**.

Table 2 Release Limit - Air Discharge

Source	Parameter	Averaging Period	Limit	Applicable Licence
Site-wide Uranium Discharge	Uranium	Annual	10.5 kg U/yr	FFL – 3641.0/2023
Process stacks and building ventilation emission points	Uranium	Annual	1.2 g U/hr	Current Application

*Note that 10.5 kgU/yr is equivalent to 1.2 g U/hr. Upgrades to monitoring equipment and calculations in 2021 and 2022 will enable reporting in units of gU/hr in 2023.

The EBRL for water was derived from toxicity data using aquatic biota as the receptor. Considering short-term and chronic exposure conditions as well as dilution from the sewage treatment plant and from Lake Ontario, the most restrictive EBRL was selected. The proposed release limit for Liquid Discharges is shown in Table 3. This limit was derived independent of CFM operational data and remains appropriate for use with the proposed production increase.

Table 3: Release Limit – Liquid Discharges

Parameter	Frequency	EBRL
Uranium	Twice Weekly Composite Discharge	1.7 mg U/L

4.9.3 Environmental Action Levels

CFM reviews its environmental action levels in accordance with the requirements of CSA N288.8-17 *Establishing and implementing action levels for releases to the environment from nuclear facilities.* The most recent review was completed in April 2021 using data from January 2016 to December 2020 and is considered to represent current operating conditions for CFM. The current environmental action levels for CFM are shown in Table 4.

Table 4 Environmental Action Levels

Emission Point	Parameter	Criteria	Averaging Period
Air - Process Stacks	Uranium (U)	2 µg/m^3	Daily
Air - Building Ventilation	Uranium (U) PP2	0.4 g/hr	Daily
	Uranium (U) All other process areas	1.0 g/hr	Daily
Water – Sanitary Sewer	Uranium (U)	0.1 mg/L	Twice weekly composite
Fenceline Gamma	Gamma	Location-specific 0.2 µSv/hr for location 1 0.2 µSv/hr for location 2 1.0 µSv/hr for locations 3-12	Quarterly

4.9.4 Environmental Risk Assessment

CFM maintains an ERA in accordance with the requirements of CSA N286.6: *Environment Risk Assessments at Class 1 Nuclear Facilities and Uranium Mines and Mills*. The 2016 ERA found there were no undue risks to the environment or to human health as a result of CFM operations. In accordance with Clause 11 of N288.6-12, a review of the ERA was completed in May 2021 to

identify and assess any risks that might have emerged since the last ERA review and to address areas for follow-up identified in the previous review. This included review of the following areas:

(a) changes that have occurred in site ecology or surrounding land use;
(b) changes to the physical facility or facility processes that have the potential to change the nature of facility effluent(s) and the resulting risks to receptors;
(c) new environmental monitoring data collected since the last ERA update;
(d) new or previously unrecognized environmental issues that have been revealed by the EMP;
(e) scientific advances that require a change to ERA approaches or parameters; and
(f) changes in regulatory requirements pertinent to the ERA.
(g) CNSC staff comments on the 2016 ERA
(h) recommendations made in the 2016 ERA

The 2021 review concluded there were no new environmental risks and that there were no changes identified which required a full update of the ERA.

There are no physical modifications to the facility required for the proposed production increase and due to the recency of the ERA review, there is only limited new monitoring data available and no new information under the other areas listed above which would trigger a required review of the ERA. However, the proposed production increase would result in additional operating days over the course of a year. While this would not impact daily emission rate to either air or water, an increase in the number of operating days will increase the annual loadings from CFM. The projected increase in uranium loadings to the environment was reviewed to ensure it remains within the licensing basis for CFM.

4.9.5 Review of Increased Uranium Loadings

The proposed 24% production increase will be achieved through an increase in operating days. CFM typically operates three shifts, five days a week, with periodic weekend shifts to match customer needs. Increasing operations to seven days per week (excluding shutdown periods) is an increase in operating days of approximately 25% annually.

As discussed in Sections 4.9.2 - 4.9.4, there are no required physical modifications required to achieve the higher production level and thus there are no expected changes to the discharge locations or rate of discharge while the plant is operating. In order to extrapolate what annual loadings would be under the higher production limit, a factor of 25% was used. For completeness of the assessment, though not expected to change, a factor of 25% was also applied to the discharge rates for the purposes of assessing action levels.

Impact on Air Emissions

Over the current licensing period the discharges to air from stack emissions are shown in Table 5 Applying a factor of 25% to the annual average concentration over this period results in a slight increase to 0.04 µg/m^3. The maximum of the annual average concentrations over this period was 0.08 µg/m^3; applying a factor of 25% would increase the maximum extrapolated concentration to 0.1 µg/m^3.

In reviewing the annual uranium loadings to air from the process stacks over the current licensing period, the average loadings were 0.01 kg U/yr. Applying a factor of 25% results in annual loadings of 0.0125 kg U/yr, which is less than the maximum annual loadings that occurred in the licence period. The maximum of the annual loadings over this period was 0.03 kg U/yr, applying a factor of 25% would increase the maximum extrapolated concentration to 0.0375 kg U/yr.

Table 5 Discharge to Air – Process Stacks

Year	Average Concentration (µg/m^3)	Annual Loadings (kg/yr)
2012	0.08	0.02
2013	0.06	0.03
2014	0.03	0.01
2015	0.04	0.01
2016	0.07	0.03
2017	0.03	0.01
2018	0.02	0.01
2019	0.02	0.004
2020	0.04	0.01
Average	0.04	0.01
Maximum	0.08	0.03

Over the current licensing period, discharges to air from building ventilation are shown in Table 6. Applying a factor of 25% to the annual average concentration over this period for the PP2 area does not impact the extrapolated concentration, which would remain at 0.1 g U/hr (due to rounding). The maximum of the annual average concentrations over this period was 0.1 g U/hr, applying a factor of 25% would increase the maximum extrapolated concentration to 0.125 g U/hr.

Applying a factor of 25% to the annual average concentration over this period for all other building ventilation increases the extrapolated concentration to 0.25 g U/hr from 0.2 g U/hr. The maximum of the annual average concentrations over this period was 0.3 g U/hr, applying a factor of 25% would increase the maximum extrapolated concentration to 0.375 g U/hr.

Table 6 Discharge to Air – Building Ventilation

	PP2	All other Areas	Combined
Year	Average Concentration (gU/hr)	Average Concentration (gU/hr)	Loadings (kg U/yr)
2012	-	0.3	0.59
2013	-	0.3	0.51
2014	-	0.2	0.41
2015	0.1	0.2	0.46
2016	0.1	0.2	0.73
2017	0.1	0.2	0.67
2018	0.1	0.2	1.26
2019	0.1	0.2	1.09
2020	0.1	0.1	0.93
Average	0.1	0.2	0.74
Maximum	0.1	0.3	1.26

In reviewing the annual uranium loadings to the air from building ventilation over the current licensing period, the average loadings were 0.74 kg U/yr. Applying a factor of 25% results in annual loadings of 0.925 kg U/yr, which is less than the maximum annual loadings that occurred in the licence period. The maximum of the annual loadings over this period was 1.26 kg U/yr, and applying a factor of 25% would increase the maximum extrapolated concentration to 1.575 kg U/yr.

From Section 4.9.1, the current DRL for emissions to process stacks is 299 kg U/yr and for emissions to building ventilation is 41.5 kg U/yr. However, it is important to note that this changed in 2021 and the applicable DRL for combined air emissions during the current licence period was 380 kg U/yr. From Section 4.9.2 the EBRL for combined emissions to air is 10.5 kg U/yr, which equates to 1.2 g U/h. From Section 4.9.3, the action level for emissions to process stacks is 2 µg/m^3, the action level for emissions to the PP2 area building ventilation is 0.4 g U/hr and the action level for emissions to all other building ventilation is 1.0 g U/hr. Comparing the extrapolated values with the current action levels and release limits shows that:

- the extrapolated uranium loadings for all sources (0.9375 kg U/yr – 1.6125 kg U/yr) remain well below the licence period DRL of 380 kg U/L and EBRL of 10.5 kg U/L
- the extrapolated uranium loadings for the process stacks (0.0125 kg U/yr – 0.0375 kg U/yr) remain well below the current DRL of 299 kg U/yr
- the extrapolated uranium loadings for the building ventilation (0.925 kg U/yr – 0.1.575 kg U/yr) remain well below the current DRL of 41.5 kg U/yr
- the extrapolated uranium stack concentrations (0.04 µg U/m^3 – 0.1 µg U/m^3) remain well below the current action level of 2 µg U/m^3

- the extrapolated building ventilation emissions from the PP2 area (0.1 g U/hr – 0.125 g U/hr) remain well below the current action level of 0.4 g U/hr
- the extrapolated building ventilation emissions from all other areas (0.1 g U/hr – 0.375 g U/hr) remain well below the current action level of 1 g U/hr

Air Dispersion and Uranium Deposition

A review of the air dispersion model for CFM was completed to assess air dispersion and uranium deposition changes related to a 25% increase in production. The assessment included review of stack testing data and HVAC loadings for 2021 to ensure that the maximum emission rates were used in the model. Ontario Regulation 419/05 sets out the provincial requirements for air dispersion modelling which assumes 24/7 operation at the maximum emission rate. As CFM typically operates 5 days a week, the model used in the ERA is already conservative. Although the 25% increase in production will be achieved through an increase in operating days from 5 per week to 7 per week, the conservative model assumptions already incorporate this operating condition. Therefore, to conservatively estimate the potential impact of a 25% increase in annual emissions, the assessment for the proposed production increase was completed by increasing the emission rate at each source by 25%. As the proposed production increase will be achieved by additional workers to allow for continuous operations, and no changes are expected to the source emission rates, this is an extremely conservative assumption and likely overestimates the actual air dispersion and uranium deposition.

Table 7 compares the uranium in air concentrations and the uranium deposition rates from the 2020 ERA review and the modelling of the proposed production increase. Figure 2 and Figure 3 show the uranium in air concentrations from the 2021 ERA review and the 25% increase in emission rates. While slight increases are observed at all receptor locations, the maximum predicted uranium concentration remains at the CFM fenceline and is 1.38E-03 $\mu g/m^3$, which is 4.6% of the O.Reg 419/05 Schedule 3 standard of 0.03 $\mu g/m^3$. The uranium deposition rate predicted by the model is slightly above the deposition rate in the 2016 ERA of 0.14 $mg/m^2/30$ days. As reported in the 2021 ERA review, incremental increases to uranium in soil concentration were conservatively estimated in the 2016 ERA and determined to be negligible. The current assessment demonstrates that emissions under the proposed production increase scenario remain low and that would be negligible increase in the uranium in soil concentrations at or around CFM.

Table 7 Modelled Uranium Concentrations and Deposition Rates

Receptor	Receptor description	Maximum annual concentration ($\mu g/m^3$)		Uranium deposition rate (mg/m^2/30 days)	
		2021 ERA Review	2021 Production Increase	2021 ERA Review	2021 Production Increase
R1	Commercial offsite worker	1.50E-04	2.10E-04	0.02	0.02
R2	Maintenance offsite worker	1.30E-04	1.64E-04	0.01	0.02
R3	Subsurface offsite worker	5.10E-04	6.98E-04	0.06	0.08
R4	Resident	3.70E-04	4.76E-04	0.04	0.05
Fenceline	Maximum fenceline receptor	9.70E-04	1.38E-03	0.11	0.16

Figure 2 Annual Uranium in Air Concentration from 2021 ERA Review

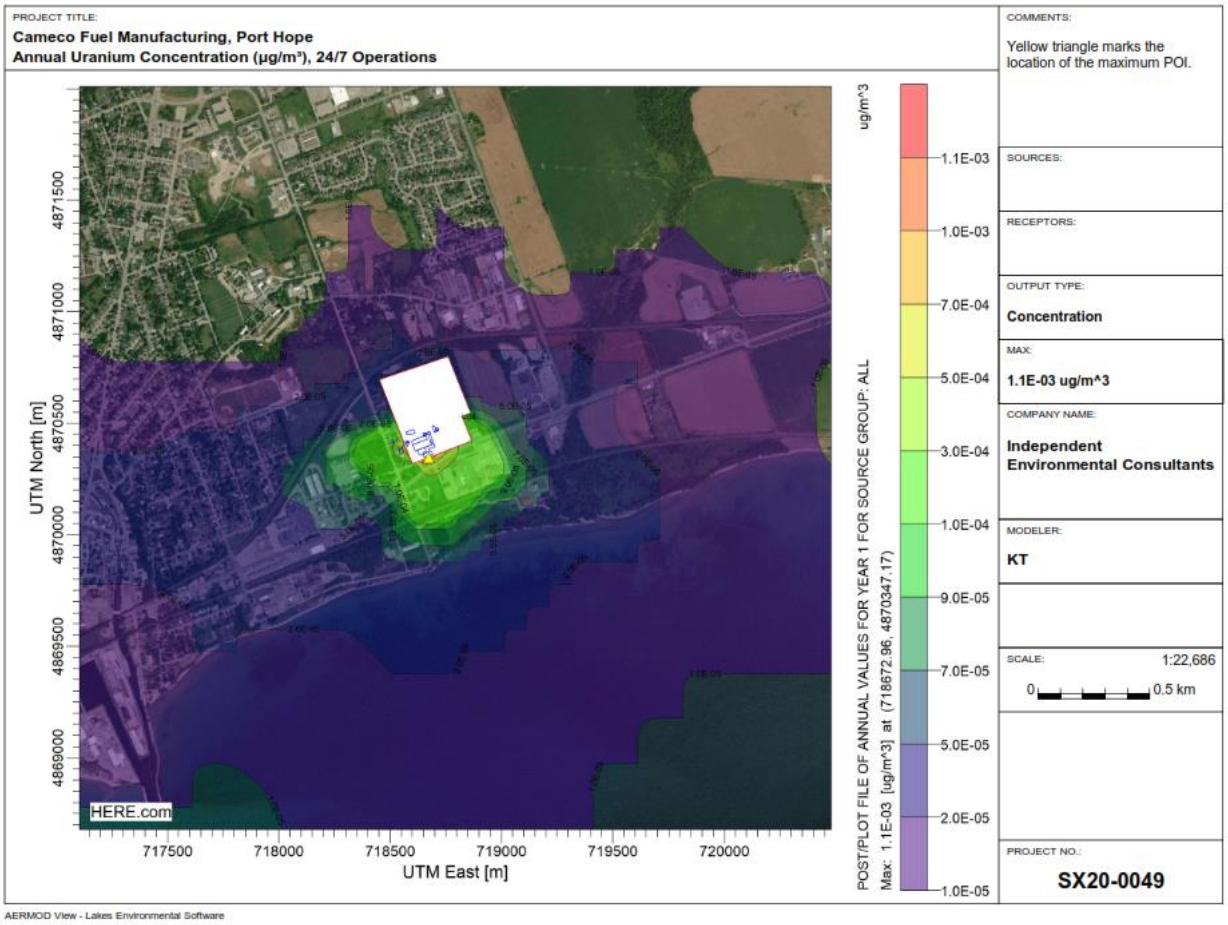
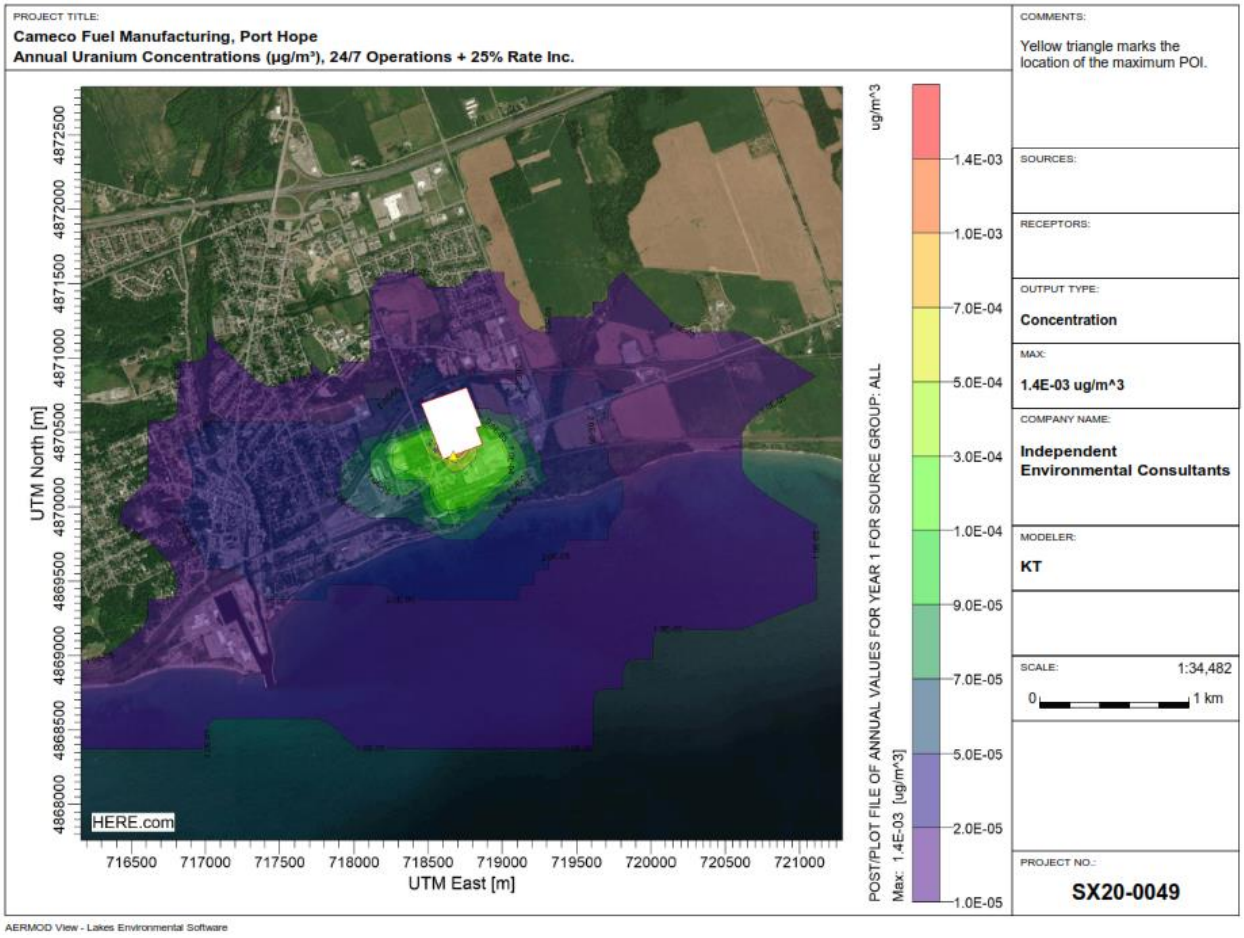


Figure 3 Annual Uranium in Air Concentration with 25% Increase in Emission Rate



Impact on Discharge to Sanitary Sewer

Over the current licensing period, the discharges to sanitary sewer are shown in Table 8. Applying a factor of 25% to the annual average concentration over this period does not have an impact on the overall average concentration (increases from 0.026 to 0.032 mg U/L, which round to 0.03 mg U/L). The maximum of the annual average concentrations over this period was 0.05 mg U/L, applying a factor of 25% would increase the maximum extrapolated concentration to 0.0625 mg U/L.

In reviewing the annual uranium loadings to the sanitary sewer over the current licensing period, the average loadings were 0.85 kg U/yr. Applying a factor of 25% results in annual loadings of 1.06 kg U/yr, which is less than the maximum annual loadings that occurred in the licence period. The maximum of the annual loadings over this period was 1.58 kg U/yr, applying a factor of 25% would increase the maximum extrapolated concentration to 1.975 kg U/yr.

It is important to note that CFM installed an automated pellet grinding system in 2017 and 2018 which resulted in a marked decrease in annual uranium loadings to the sanitary sewer beginning

in 2019. Using the extrapolated values for discharges to the sanitary sewer is therefore conservative.

Table 8 Discharge to Sanitary Sewer

Year	Average Concentration (mg U/L)	Annual Loadings (kg/yr)
2012	0.03	0.95
2013	0.03	0.83
2014	0.05	1.58
2015	0.04	1.24
2016	0.02	0.85
2017	0.02	0.64
2018	0.02	0.84
2019	0.01	0.39
2020	0.01	0.34
Average	0.03	0.85
Maximum	0.05	1.58

From Section 4.9.1, the DRL for emissions to water is 331 kg U/yr; from Section 4.9.2, the EBRL for emissions to water is 1.7 mg U/L which equates to 62 kg U/yr; and, from Section 4.9.3, the action level for emissions to water is 0.1 mg U/L. In comparing the extrapolated values with the current action levels and release limits shows that:

- the extrapolated uranium concentrations (0.03 mg U/L – 0.0625 mg U/L) remain below the current action level of 0.1 mg U/L
- the extrapolated uranium loadings (1.06 kg U/yr – 1.975 kg U/yr) remain below the current DRL of 331 kg U/L and EBRL of 62 kg U/L

If the proposed production increase did proceed, it would not necessitate changes to the environmental monitoring program or an update to the ESDM, DRL, ERA, or EBRLs. Extrapolating a 25% increase in uranium loadings to air and water demonstrates that CFM would remain within its current limits and action levels. The extrapolated increase in air and sanitary sewer emissions would not impact the conclusions of either the 2016 ERA or the 2021 ERA review.

The proposed production increase would not impact the current licensing basis for this SCA and CFM would operate under the limits set out in the licence application.

4.10 Emergency Management and Fire Protection

CFM is required to maintain an emergency preparedness plan and a fire protection program to ensure that licensed activities do not result in an unreasonable risk to the health and safety of persons and the environment. The requirements for this SCA are set out in REGDOC-2.10.1 *Nuclear Emergency Preparedness and Response* and CSA N393-13 (R2018) *Fire Protection for Facilities that Process, Handle or Store Nuclear Substances*. CFM's Emergency Preparedness Plan and Response Procedure (MSP 30-02), Fire Protection Program (MSP 30-07) and Fire Safety Plan (MSP 30-03) sets out the site programs for emergency response and fire protection. The existing programs would continue to apply to the proposed production increase. The proposed production increase would not impact the content of MSP 30-02, MSP 30-07 and MSP 30-03.

The proposed production increase would not impact the current licensing basis for this SCA. These programs will continue to support the safety case for the facility.

4.11 Waste Management

CFM is required to maintain a waste management program at the facility that covers the internal waste-related programs, which form part of the facility's operations up to the point where the waste is removed from the facility. The requirements for this SCA are set out in CSA N292.0-14 *General Principles for the Management of Radioactive Waste and Irradiated Fuel* and CSA N292.3-14 *Management of Low- and Intermediate-Level Radioactive Waste.* The Fuel Services Division Waste Management Program (FSD-PGR-WM-001) and CFM Waste Management Plan (CFM-EP-02) sets out the divisional and site programs to ensure the safe management of waste. The existing programs would continue to apply to the proposed production increase. The proposed production increase would not impact the content of FSD-PGR-WM-001 or CFM-EP-02.

CFM is also required to maintain a program for decommissioning in accordance with CSA N294-19 *Decommissioning of facilities containing nuclear substances*. The Preliminary Decommissioning Plan (PDP) was updated in 2021 to reflect current site assets and liabilities (waste). There are no physical modifications to the facility required for the proposed production increase. The proposed production increase would not impact the content of PDP and will therefore not impact the value of the financial guarantee.

The proposed production increase would not impact the current licensing basis for this SCA.

4.12 Security

CFM maintains a security program to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information. The site Security Plan (MSP 30-01) sets out how the requirements of the *General Nuclear Safety and Control*

Regulations, the *Nuclear Security Regulations*, REGDOC-2.12.3 *Security of Nuclear Substances: Sealed Sourc*es, and any additional requirements such as designated officer orders are met at CFM.

The existing programs set out in MSP 30-01 for security would continue to apply. The proposed production increase would not impact the content of MSP 30-01.

The proposed production increase would not impact the current licensing basis for this SCA.

4.13 Safeguards and Non-Proliferation

CFM is required to have a program in place that ensures all obligations arising from the Canada/International Atomic Energy Agency (IAEA) Safeguards agreement are met. The objective of the Canada-IAEA safeguards agreements is for the IAEA to provide assurance on an annual basis to Canada and to the international community that all declared nuclear materials are in peaceful, non-explosive uses and that there is no indication of undeclared nuclear materials or activities.

The FSD Safeguards Program (FSD-PGR-SG-01) sets out how the requirements of REGDOC-2.13.1 *Safeguards and Nuclear Accountancy* are met at CFM.

The existing program set out in FSD-PGR-SG-01 for safeguards would continue to apply. The production increase would not impact the content of FSD-PGR-SG-01.

The proposed production increase would not impact the current licensing basis for this SCA.

4.14 Handling, Storing, Packaging and Transport

CFM is required to have a packaging and transport program that meets the requirements set out in the *Packaging and Transport of Nuclear Substances Regulations, 2015* and the *Transportation of Dangerous Goods Regulations*. The FSD Packaging and Transportation program (FSD-PGR-TRN-001) sets out how the requirements of the above noted legislation and REGDOC-2.14.1 *Information Incorporated by Reference in Canada's Packaging and Transport of Nuclear Substances Regulations, 2015* are met at CFM.

The existing program set out in FSD-PGR-TRN-001 for packaging and transport would continue to apply. The proposed production increase would not impact the content of FSD-PGR-TRN-001.

The proposed production increase would not impact the current licensing basis for this SCA.

5.0 REVIEW OF OTHER REGULATORY AREAS

5.1 Reporting Requirements

CFM reports information to the Commission as required under the NSCA, its regulations, and REGDOC- 3.1.2 *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*.

Quarterly compliance reports and an annual compliance and performance report are submitted to CNSC staff as per the LCH. These reports are available to the public on the FSD community website (www.camecofuel.com).

Non-routine reporting includes incidents related to facility operations, action level exceedances and environmental releases and other events as defined in sections 29-32 of the GNSCR, section 27 of the NSCA, REGDOC-2.12.3 and the LCH. All non-routine reporting is included in the quarterly and annual reports. In accordance with the Public Disclosure Protocol for Ontario Operations, the following events are also posted to the FSD community website:

- unusual operational events at our facilities that may have off-site consequences or that would be of interest to our target audience.
- environmental event that triggers a notification to the CNSC under section 29 of the GNSCR.
- summaries of non-routine environmental incidents that are required to be reported to the Ontario Spills Action Centre.

5.2 Public and Indigenous Engagement

The objective of the FSD Public Information Program (PIP) is to ensure local target audiences with an interest in FSD's CNSC-licensed facilities are informed on a timely basis about operations, activities, and potential effects on the environment and the health and safety of persons, and thereby build the trust and support of stakeholders. This includes a commitment to and protocol for ongoing, timely communication of information related to the licensed facilities during the licence periods. As a publicly traded company, Cameco must comply with strict disclosure requirements under securities laws both in Canada and the United States. These requirements may affect the content and timing of information releases to the public.

The PIP is designed to fulfill the requirements of the CNSC's REGDOC 3.2.1, *Public Information and Disclosure*.

A licence application requires a licensee to complete a self-assessment of REGDOC-3.2.2, *Indigenous Engagement*. CFM submitted its self-assessment and Indigenous Engagement Report on October 1, 2021*.

Specific to this licence renewal, CFM will engage with local communities, Indigenous groups, and other stakeholders early in the relicensing process in order to address any concerns. This engagement will begin with a letter being sent to the Indigenous groups in the primary and secondary target audiences informing them of the upcoming licensing activity, providing links to relevant information on FSD's community website [and hard copies of this information], advising of opportunities for participation and inviting them to contact FSD for further information.

*CFM letter. Self-Assessment of REGDOC-3.2.2, Indigenous Engagement for Cameco Fuel Manufacturing. October 4, 2021

5.3 Facility Specific Conditions

CFM's current operating licence contains facility specific licence conditions for a financial guarantee and nuclear liability insurance.

The financial guarantee is associated with the PDP for the facility. Section 4.11 noted that the proposed production increase would not impact the PDP or the financial guarantee for CFM.

CFM maintains an appropriate level of nuclear liability insurance as required by the *Nuclear Liability and Compensation Act*. This insurance is renewed annually.

The proposed production increase would not impact the current licensing basis for Nuclear Facility Specific licence conditions.

6.0 CONCLUSION

In its review of the proposed increase to production, CFM has assessed the change under its licensing basis for the 14 SCAs as well its licensing basis for other regulatory areas. This assessment has concluded that the proposed production increase would only impact the production limits and require minor administrative changes to documents within the current licensing basis. The changes required to implement the proposed production increase can be safely and systematically completed with the programmatic SCA framework that is in place to ensure licensed activities are carried out to ensure the safety of worker, the public and the environment. The proposed production increase is within the current safety case for the facility, including the Safety Analysis Report, Derived Release Limit Report and Environmental Risk Assessment. This supports CFM's requests for the Commission to consider in the licence application submitted October 4, 2021.