# 2024 Annual Compliance Monitoring
# &
# Operational Performance Report

## Reporting Period January 1 – December 31, 2024

## Cameco Fuel Manufacturing Inc.
## Operating Licence
## FFL-3641.0/2043

**200 Dorset Street East**
**Port Hope, Ontario**
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Submitted to:
**The Canadian Nuclear Safety Commission**
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Submitted on March 31, 2025

## Executive Summary

Cameco Corporation (Cameco) is a major supplier of uranium processing services required to produce nuclear fuel for the generation of safe, clean, and reliable electricity around the world. Cameco's Fuel Services Division (FSD) is comprised of the Blind River Refinery (BRR), the Port Hope Conversion Facility (PHCF), Cameco Fuel Manufacturing Inc. (CFM) and a divisional head office located in Port Hope, Ontario.

CFM operates a Class 1B nuclear facility in Port Hope, Ontario under Canadian Nuclear Safety Commission (CNSC) fuel facility operating licence FFL-3641.00/2043 employing approximately 130 workers. In addition, approximately 140 employees work at a metal manufacturing plant located in Cobourg, Ontario, which does not handle uranium products. CFM is licensed to produce nuclear fuel bundles using uranium dioxide ($UO_2$); those fuel bundles are used in domestic CANDU reactors.

Cameco is committed to the safe, clean, and reliable operations of all its facilities and continually strives to improve safety performance and processes to ensure the safety of its employees, local residents, and the environment. Corporate policies and programs, including the Safety, Health, Environment and Quality (SHEQ) policy provide guidance and direction for the development of site-based programs and procedures that are defined in CFM's Management Systems Program Manual (CFM-MS).

CFM continues to be included in Cameco's ISO14001:2015 Environmental Management System certification. CFM has a Safety Analysis Report (SAR) that documents the detailed safety analysis carried out for the facility.

At CFM, changes to the physical design of equipment, processes, and the facility with the potential to impact safety are evaluated using the internal change and design control process from project planning through to completion of the project. This process is used to help identify potential impacts to safety, health, and the environment. There were no modifications undertaken in 2024 that required written approval from the Commission, or a person authorized by the Commission during the year.

CFM maintains a number of programs, plans and procedures in the areas of health and safety, radiation protection, environment protection, emergency response, fire protection, waste management, and training. As a result of these programs, plans and procedures, CFM's operations have maintained radiation exposures and environmental emissions well below regulatory limits.

For various radiological and environmental parameters, CFM has established action levels, accepted by the CNSC, that may be indicative of a potential loss of control for that specific parameter. These action levels serve as an early warning of a condition that warrants further

investigation. In 2024, there were no action level exceedances in the radiological or environmental monitoring program.

CFM maintains a comprehensive uranium inventory system to demonstrate compliance with safeguard requirements. In 2024, periodic audits of this inventory system were conducted jointly by the International Atomic Energy Agency (IAEA) and the CNSC. All audits were completed to the satisfaction of both regulatory bodies.

The scope of transportation activities at CFM includes the transport of Class 7 radioactive materials outlined in the *Transportation of Dangerous Goods Act SOR/2008-34*. There were no reportable transportation events involving CFM produced material in 2024.

Cameco works to build and sustain the trust of local residents by acting as a responsible corporate citizen in the communities in which it operates. A key element of building and sustaining that trust is a commitment to provide those in the community with accurate and transparent reporting of environmental practices and performance. Cameco continued its strategic approach to community outreach in 2024 with the continuation of newsletters and continued to expand the use of social media into the overall communication strategy.

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# 1. INTRODUCTION

## 1.1 General Introduction

Cameco Corporation (Cameco) is a major supplier of uranium processing services required to produce nuclear fuel for the generation of safe, clean, and reliable electricity around the world.

Cameco's Fuel Services Division (FSD) is comprised of the Blind River Refinery (BRR), the Port Hope Conversion Facility (PHCF), Cameco Fuel Manufacturing Inc. (CFM), and a divisional head office located in Port Hope, Ontario.

CFM operates a Class 1B nuclear facility in Port Hope, Ontario under Canadian Nuclear Safety Commission (CNSC) fuel facility operating licence FFL-3641.00/2043 that is valid until February 28, 2043. The Port Hope facility employs approximately 130 workers. In addition, approximately 140 employees work at a metal manufacturing facility located in Cobourg, Ontario, which does not handle uranium products. CFM (Figure 1) is located at 200 Dorset Street East in the Municipality of Port Hope, Ontario and operates a fuel manufacturing facility. The facility is licensed to produce nuclear fuel bundles using uranium dioxide ($UO_2$) for domestic CANDU reactors. The licence also provides continued authorization to process, and store depleted and enriched $UO_2$.

**Figure 1 - Cameco Fuel Manufacturing (Port Hope)**

Cameco is committed to the safe, clean, and reliable operation of all its facilities and continually strives to improve safety performance and processes to ensure the safety of its employees, local residents and the environment.

CFM maintains the required programs, plans and procedures in the areas of health and safety, radiation protection, environmental protection, emergency response, fire protection, waste management, and training.

As a result of these actions, CFM maintained radiation exposures to the workforce well below dose limits. Environmental emissions and public radiation exposures are being controlled to levels that are below regulatory limits.

The submission of this report fulfills the Licence Condition 3.2: *Reporting Requirements* of FFL-3641.00/2043. CFM's annual report is structured according to *REGDOC-3.1.2, Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills.* The purpose of this report is to summarize operating performance for the 2024 calendar year and provide a summary of the Safety and Control Areas (SAC) to demonstrate that CFM has met the regulatory requirements of the *Nuclear Safety and Control Act* (*NSCA*).

Cameco is committed to reducing the frequency and significance of all events at site, including loss of primary containment (LOPC) events. Therefore, most events ranked level two or higher are investigated and resulting actions are tracked through Cameco's Incident Reporting System (CIRS).

Action levels are referenced in the Licence Conditions Handbook (LCH) under the Radiation Protection section for worker dose and the Environmental Protection section for emissions. There were no action level exceedances in the radiation protection or environmental protection program in 2024.

In addition to the CNSC, CFM is regulated by other federal and provincial agencies, such as the Ontario Ministry of the Environment Conservation and Parks, Environment and Climate Change Canada, Employment and Social Development Canada, and Transport Canada. CFM is compliant with applicable federal, provincial, and municipal regulations.

The acronyms in the following table are used in this report.

**Table 1**

| Acronyms Used in This Report | |
|---|---|
| **Acronym** | **Description** |
| **ACL** | Administrative Control Limit |
| **ALARA** | As Low As Reasonably Achievable |

| | |
|---|---|
| **AM&R** | Asset Management & Reliability |
| **BRR** | Blind River Refinery |
| **Bq** | Becquerel |
| **CAM** | Continuous Air Monitor |
| **Cameco** | Cameco Corporation |
| **CFM** | Cameco Fuel Manufacturing Inc. |
| **CIRS** | Cameco Incident Reporting System |
| **CFM-MS** | Cameco Fuel Manufacturing-Management System document |
| **CCM** | Contaminated Combustible Material |
| **CCME** | Canadian Council of Ministers of the Environment |
| **CNSC** | Canadian Nuclear Safety Commission |
| **CSA** | Canadian Safety Association |
| **DRL** | Derived Release Limit |
| **ERA** | Environmental Risk Assessment |
| **ERAP** | Emergency Response Assistance Plan |
| **FHA** | Fire Hazard Analysis |
| **FPP** | Fire Protection Program |
| **FSD** | Fuel Services Division |
| **g** | Gram |
| **HPP** | Hazard Prevention Program |
| **hr** | Hour |
| **IAEA** | International Atomic Energy Agency |
| **ICP-MS** | Inductively Coupled Plasma Mass Spectrometry |
| **JHSC** | Joint Health & Safety Committee |
| **kg** | Kilogram |
| **KPI** | Key Performance Indicator |
| **L** | Litre |
| **LCH** | Licence Conditions Handbook |

| | |
|---|---|
| **Mg** | megagram |
| **$m^3$** | cubic metres |
| **µg** | micrograms |
| **µSv** | microsievert |
| **mSv** | millisievert |
| **MECP** | Ministry of the Environment Conservation and Parks |
| **MOC** | Management of Change |
| **CFM-NC** | Nuclear Criticality Safety Program Manual |
| **NEW** | Nuclear Energy Worker |
| **NDR** | National Dose Registry |
| **NFPA** | National Fire Protection Agency |
| **OSLD** | Optically Stimulated Luminescence Dosimeters |
| **PDP** | Preliminary Decommissioning Program |
| **PHCF** | Port Hope Conversion Facility |
| **PHFES** | Port Hope Fire and Emergency Services |
| **PM** | Preventative Maintenance |
| **PP2** | Powder Preparation and Powder Receiving Area |
| **PPE** | Personal Protection Equipment |
| **QA** | Quality Assurance |
| **RP** | Radiation Protection |
| **SAR** | Safety Analysis Report |
| **SAT** | Systematic Approach to Training |
| **SCA** | Safety Control Area |
| **SCI** | Site Condition Inspection |
| **SHEQ** | Safety/Health/Environment & Quality |
| **STAR** | Stop Think Act Review |
| **TLD** | Thermo Luminescent Dosimeters |
| **TED** | Total Effective Dose |

| | |
|---|---|
| **TRIR** | Total Recordable Injury Rate |
| **TSP** | Total Suspended Particulate |
| **UO2** | Uranium Dioxide |
| **yr** | Year |

## 1.2 Facility Operation

Cameco continues to strive for operational excellence at all its facilities through consistent application of management systems to ensure that they operate in a safe, clean, and reliable manner. Corporate policies and programs, including Safety, Health, Environment and Quality (SHEQ) provide guidance and direction for all site-based programs and procedures that define the site management system.

The General Manager at CFM has overall accountability for safely operating and maintaining the facility. The responsibilities for supporting programs and procedures have been delegated among the leadership team at CFM and their respective personnel. All members of the site's leadership team are accountable for their roles and responsibilities.

In March of 2024, organizational changes were made at the senior leadership level at CFM. This change was implemented for several reasons including:

- Improve cooperation and communication between like functions at both CFM locations to develop and utilize common systems and solutions, removing silos and gaining efficiencies.
- Move decision making closer to the operational level where the challenges faced can be better appreciated.
- Provide a development pathway for future Cameco leaders.

Prior to the leadership change in 2024 the Manager, Environment/Occupational Health, and Safety (E/OH&S) was the primary site radiation safety officer reporting directly to the General Manager. This position was transferred to the Senior Coordinator, Regulatory Compliance, a new position at CFM. The role was filled with the Radiation Protection Coordinator. This position reports directly to the Superintendent of Safety, Health, and Environment and also acts as the primary radiation safety officer and single point of contact with the CNSC.

Other organizational changes included the following:

- Operations Manager for Port Hope was promoted to the position of Manager for all CFM Operations (both facilities in Cobourg and Port Hope).
- Superintendent, Port Hope Production was a new position filled by the Coordinator of Technical Services.
- Superintendent, Port Hope Technical Services was a new position that was recruited outside CFM.
- Superintendent Projects was a new position filled by the Supervisor, Project Engineering.

- Superintendent, Human Resources was a new position filled by the Coordinator of Human Resources.
- Superintendent, Safety, Health, and Environment was a new position filled by the Senior Coordinator of Safety and Environment Programs.
- Senior Coordinator, Compliance and Training was a position that was filled by the Compliance Coordinator.

Figure 2 outlines the organization of the management team prior to the change implemented in March and Figure 3 provides the current leadership team structure.

**Figure 2: CFM Organizational Chart January to March, 2024**

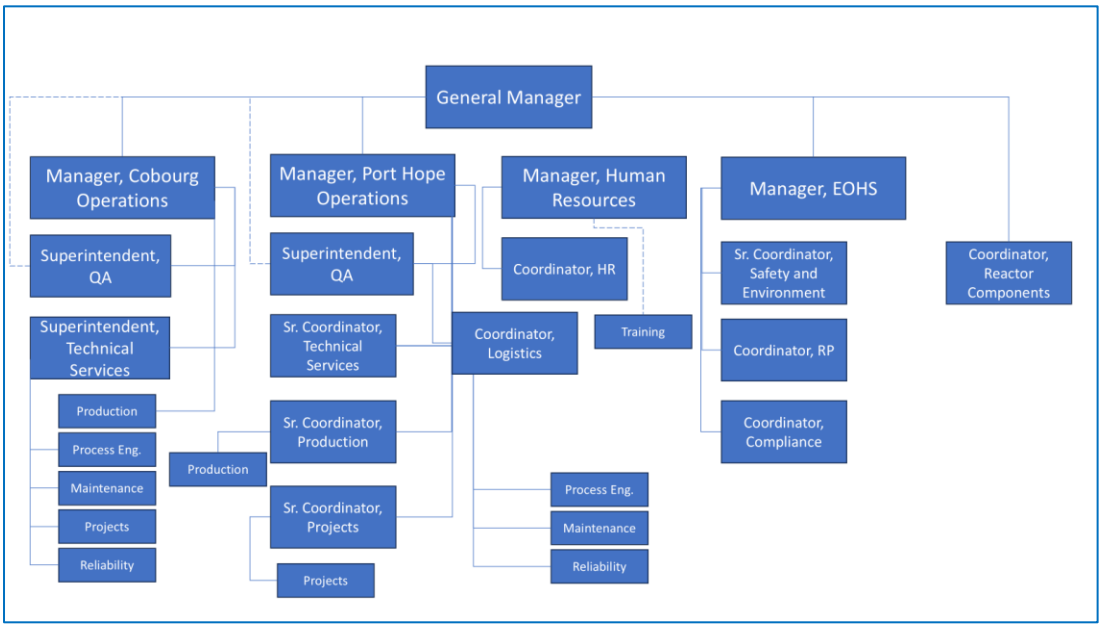
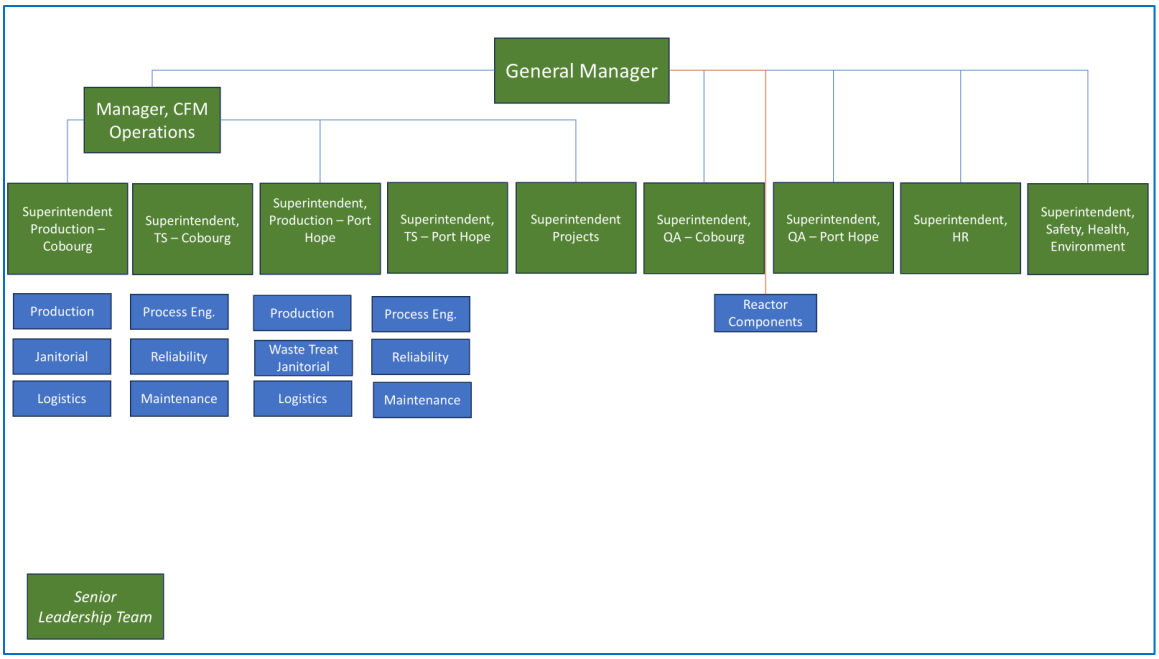


**Figure 3: CFM Organizational Chart March to December, 2024**




On August 31, 2023, an updated Licence Conditions Handbook (LCH) was issued by the CNSC to reflect the changes in the 20-year licence. This handbook establishes the compliance framework related to the CFM licence. The LCH outlines CNSC expectations by defining the licensing basis, explaining the regulatory context related to each licence condition, and identifying the verification criteria for each licence condition.

CFM also has a Facility Licensing Manual (FLM) that describes the commitment by CFM to operate a safe and efficient nuclear facility which meets the requirements of the CNSC. The FLM was updated in 2023 and remained in place in 2024.

CFM schedules and conducts internal audits to assess the organization's level of conformance to management systems. In addition, independent third-party experts conduct compliance audits in the areas of health, safety, environment, and radiation protection to help ensure that CFM continues to meet all applicable legal requirements. Cameco's corporate office also performs periodic audits of the site management systems programs to ensure the site complies with corporate expectations.

Changes to the physical design of equipment, processes, and the facility with the potential to impact safety are evaluated using an internal change and design control process from project planning through to project completion. This process is used to help identify potential impacts to radiation protection, the environment, health and safety, security, and fire protection.

CFM underwent two planned shutdown events during the course of the year to conduct maintenance and project activities.

CFM maintains the required programs, plans, and procedures in the areas of health and safety, radiation protection, environment, emergency response, fire protection, waste management, and training. As a result of these actions, CFM's operations have maintained radiation exposures well below regulatory limits. Environmental emissions are being controlled to levels that are a fraction of the regulatory limits, and public radiation exposures are well below the established limits.

The performance of the facility in 2024 demonstrates that CFM is qualified to carry out the activities permitted under the operating licence. CFM is committed to take all reasonable precautions to protect the environment and the health and safety of employees and the public, to maintain the security of the facility and the nuclear substances associated with the facility as well as the necessary measures to facilitate Canada's compliance with international safeguard obligations.

## 1.3 Production or Utilization

CFM's operating licence permits the production of up to 1,650 tonnes of uranium (tU) as uranium dioxide ($UO_2$) pellets per year. The facility may possess natural, depleted, and enriched uranium compounds for the purposes outlined in the licence.

Production rates for 2024 were within the annual limit. Detailed plant production information is considered confidential and is submitted to CNSC staff on an annual basis under separate confidential correspondence.

## 1.4 Facility Modification

In 2024, there were no modifications undertaken that required written approval from the Commission or a person authorized by the Commission. Several projects, both capital and expense were planned and/or implemented in 2024. Additional information on the projects completed in 2024 are provided in 2.2.1 Physical Design section of this report. Changes to equipment or processes are captured through CFM's Management of Change (MoC) process.

The LCH references core CFM documents that form the licensing basis of the facility in each safety and control area. In 2024, there were three documents that were updated and required to be submitted to the CNSC:

- Physical Security Plan (MSP 30-01), version #11
- Safety and Health Manual (CFM-SH), version #4 & #5
- Management Systems Program Manual (CFM-MS), version #7

# 2. SAFETY AND CONTROL AREAS

## 2.1 Management

### 2.1.1 Management System

This safety and control area covers the framework which establishes the processes and programs required to ensure that the organization achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture.

The Safety, Health, Environment and Quality (SHEQ) Policy was last revised on July 30, 2024. The SHEQ Policy is posted in various areas of the facility, and a reference card has been issued to all employees. It is also posted on the Cameco website.

CFM's Management Systems Program Manual (CFM-MS) is designed to meet the requirements of *CSA N286-12 Management System Requirements for Nuclear Facilities* for a quality program. The CFM-MS provides the controls to ensure all processes are conducted in a safe manner and that processes applying to licensed activities are conducted in accordance with applicable CNSC quality and other regulatory requirements.

The application of management system requirements is scaled according to the complexity and hazard potential of a particular activity. The CFM-MS was revised in 2024 to update the organizational roles, remove reference to CIRS for safety culture assessment actions, modify the competency model, and clarify the effectiveness review process. The changes were reviewed against the licensing basis and were deemed acceptable to be implemented.

Other management system documents were updated in 2024 as part of the ongoing continual improvement of the management system. Those updates were:

- Physical Security Plan – MSP 30-01 was updated to reflect current systems and processes in place.
- Safety and Health Manual - CFM-SH, version #4 & #5, were updated to reference a new document structure for Safety and Health Procedures (SHP), added reference to the Hazard Prevention Program, updated the language to match the corporate policy, as well as updated self-assessment frequencies to align with the corporate procedure. The next version updated the responsibilities throughout the document to capture organizational changes, updated the terminology from E/OH&S to the Safety, Health and Environmental (Safety) department, revised Appendix 1 to include a new Safety Health Procedure (SHP) for Hazardous Substance Management, and updated the language under medical surveillance.

A site management review meeting is held annually to review the suitability, adequacy, and effectiveness of the management system at CFM. The site programs and procedures that support the policy and ensure conformance to both Cameco and CNSC requirements are reviewed in adequate detail to demonstrate effectiveness. The review is conducted in alignment with of the SCAs contained within the CNSC regulatory framework outlined in CFM's LCH. The 2024 annual site management review meeting was held on March 6, 2025, during which a review of the suitability, adequacy, and effectiveness of the management system at CFM was completed. The site management systems, which cover all site programs, were reviewed and sufficient information was provided to demonstrate effectiveness.

The management review determined CFM's management systems continue to be effective in providing an appropriate level of management direction to CFM. Opportunities for continual improvement continue to be identified and acted upon. As such, CFM is positioned to effectively manage operational risks and needs while continuing to improve. Improvements will include continued work to clarify expectations through improved procedures and training material, continued responsiveness to employee identified and data driven SHEQ improvements, increased supervisor oversight for procedural compliance, and continuing to stabilize equipment reliability. Furthermore, internal audits performed in 2024 identified findings, non-conformances and opportunities for improvement. Corrective actions address the concerns. The audits provide evidence of effectively implemented management systems.

Overall, the conclusion of the site is that the Management System program and the LCH are adequate, suitable and effective for the following reasons:

- Adequate – The identified Management System Programs fully meet the requirements of all the standards required by our customers and regulatory organizations.
- Suitable – The CFM-QA (N299.1) and QA-002 (N285) quality programs capture the needs of our customers, including our regulatory customers. The Quality Manual QA-002 is a separate manual required by our customers who require ASME code work. There are several common procedures and work instructions that apply to both programs, and these are referenced in the manuals as required.
- Effective – The internal and external audits are identifying non-conformances and opportunities for improvement; the results show that the systems are effectively implemented.

Overall, at Management Review it was recommended that the conclusion be that the CFM Management Systems, adhering to the N286, N299.1 and N285.0 standards, SHEQ Programs, and the CFM's License Conditions are suitable, adequate, and effective.

Engagement of all teams at CFM in continual improvement for all 4 pillars of success continued in 2024. Sources of continual improvement activities included:

- Realigned daily huddle meetings. The daily huddle meetings were aligned into a single format at each CFM location in 2024; the meeting utilizes an in-person element and allows for others to join remotely via Teams. The huddle continued to involve all departments in a review of the previous day's performance and the identification and implementation of improvement activities including attention given to communicating decisions to those affected.
- Improved monthly performance review. CFM continued with a standardized approach to monthly review of business performance using a balanced scorecard to identify performance gaps and improvement opportunities in 2 venues:
    - Monthly Operating Review. The extended leadership team (all people leaders) meet monthly to review performance to operational objectives, report on analysis of those results as well as other themes of importance.
    - Monthly Continual Improvement review. Supervisors and support staff review opportunities for improvement within the areas of quality, OEE, production and maintenance system performance.
- Modified Kaizen (Green) cards. After several years of measuring participation in continual improvement activity through the number of names that were included on green card submissions, it was recognized in 2024 that continuing this approach threatened to reduce the effectiveness of the involvement. An alternate approach was planned to increase effectiveness whereby each green belt would be responsible for participating in one and leading another improvement activity during the year. However, it was recognized that some additional guidance and infrastructure would be required to manage this activity. As a result, the number of green card participations understandably dropped to 307 in total, involving 145 team members or 48% of the workforce.
- Formed a team mid-year to review the format of continual improvement processes and systems at CFM; the team came up with a number of recommendations for implementation in 2025 and 2026. This included:
    - Shift from a mandatory participation model weekly and monthly to a focused approach in the form of both specific subcommittees of the JHSC to address specific and relevant initiatives and create a framework for quarterly week-long Kaizen events to take place in a specific work area.

- Created a system of managing workload that ranks initiatives based on the improvement opportunity to allow resources to focus on the critical few and not the trivial many.
- Increased visibility of continual improvement initiatives that are being worked on and completed.
- Improved the effectiveness of the monthly area specific continual improvement meetings with a standard, data driven agenda portion and a review of the sorted list of active projects.

The last safety culture assessment at CFM was completed in 2021. Areas of focus that have been identified in the assessment include improving communications of all types, continuing to simplify the structure of the management system, improving change management practices, and implementing diversity and inclusion improvements.

In support of taking deliberate action to improve safety culture, the following initiatives were advanced in 2024.

- Internal communications were improved based on employee feedback and consultant recommendations from a 2023 Communication Assessment. The following enhancements were implemented:
    - Quarterly, in-person town hall meetings on each shift in each CFM plant (total of 6-7 meetings per quarter). Changes to safety programs, human resources policy updates, customer and general business updates were provided at these meetings. Care was taken by the Senior Leadership Team to encourage and record the questions asked at each meeting and then publish those questions to all personnel along with the responses given.
    - The toolbox communication template was updated to add clarity for the supervisors delivering these important messages.
    - A weekly summary of all toolbox communication, safety alerts and quality alerts issued in the prior week was created to ensure that all personnel have access to the information, the context related to it as well as any upcoming or important events.
- Work continued towards the simplification of the safety and health management system. Program level documents were published for hazardous substance management, medical services, ergonomics and working at heights. This brings the total of programmatic level documents published at CFM to 9 of 12 planned. CFM's MDS system continues to be re-organized to align the lower tier work instruction documents within these categories.

- The development of materials in support of a Systematic Approach to Training continued on a risk priority basis. The scope of this work includes integrating shop floor instruction documents with the training materials to further clarify responsibilities and expectations.
- CFM's Diversity, Equity and Inclusion (DE&I) Committee implemented improvements in addition to the corporate committee's work aimed at reinforcing openness, inclusion and safe space at CFM where everyone can contribute. These included the continuation of inclusion moments into each monthly safety meeting, installation of multipurpose quiet rooms in each facility and the creation of a 'Diversi-Tree' in each CFM location to raise awareness of the value of diverse viewpoints and inclusion of ideas.
- Deliberate promotion and awareness building of the Self Check Standard were executed including:
    - Safety Alerts issued that outline real world CFM examples of where the S.T.A.R. program was used to identify a hazard and mitigate it before work began.
    - A S.T.A.R. moment was included in all monthly safety meetings.
    - A S.T.A.R Seach contest was run by the workplace safety committees to raise awareness and allow the workforce the opportunity to identify practical applications of the standard in their daily work.
- Work continued to develop all people leaders within the organization, providing opportunities for learning and development. This included an off-site leadership development day where the group collectively learned about effectively managing conflict.
- The December safety meeting was used to outline all of the mental health supports that are available for CFM team members. This comprehensive review was delivered by members of the Senior Leadership Team with an emphasis on education, normalizing discussion on the topic, and increasing psychological safety in the workplace.

There were organizational changes and changes in roles and responsibilities in 2024; however these changes did not affect the facility, prescribed information, or nuclear substances. In March of 2024, organizational changes were made at the senior leadership level at CFM and were described earlier in this report in section 1.2 Facility Operation. The main change that impacted CFM's commitments to the CNSC was the primary radiation safety officer and single point of contact with the CNSC. This responsibility was transferred from the Manager of E/OH&S to the Senior Coordinator of Regulatory Compliance who is supported by the Superintendent of Safety, Health and Environment with direct reporting to the General Manager.

In 2024, CFM continues to be included in Cameco's ISO14001:2015 Environmental Management System certification. The last surveillance audit at CFM was conducted in 2024 and no significant findings were noted.

All documents that support the licensed activities are subject to the site document control process. Documents that support the licensed activities are maintained in electronic format on a database available to all site personnel. This includes, but is not limited to, procedures for operating and maintaining the facility, as well as environmental, health and safety, radiation protection and quality assurance documentation. A listing of management program documents that were revised in 2024, with a summary for the reason for the revision, were provided earlier in this section.

In 2024, CFM submitted the *2023 Annual Review Report Metals in Groundwater and Surface Water*, and the *2023 Annual Review Report Volatile Organic Compounds in Groundwater and Surface Water.*

As part of the management system program, CFM scheduled and conducted internal audits in 2024 to assess the level of conformance to these management systems. In 2024, there were three internal audits conducted by Cameco Corporation and by CFM. The audits focused on N299.1 Management Systems, Environmental Protection, Radiation Protection, Transportation, Health and Safety, Contractor Management, Training, as well as Emergency Preparedness and Response. Findings, opportunities for improvement and areas of concern from all audits are entered into CIRS to ensure that they are reviewed by site management and processed accordingly.

There were eight external audits or inspections completed in 2024. The following is a list of the external audits:

- Compliance Inspection General Facility conducted by CNSC staff.
- Compliance Inspection focusing on Environmental Protection SCA conducted by CNSC staff.
- Compliance Inspection focusing on the Waste Management SCA conducted by CNSC staff.
- Compliance Inspection focusing on Radiation Protection SCA conducted by CNSC staff.
- Compliance Audit focusing on N299.1, N285.0 Management Systems conducted by CANPAC.
- Certification to ISO 14001 Environmental Management program conducted by Intertek.
- Annual Facility Condition Inspection conducted by PLC Fire Safety Engineering.
- Annual FSD Internal Dosimetry Program audit conducted by Arcadis Canada.

Further information regarding CFM's auditing process will be submitted under separate confidential correspondence.

The Management System is in place to integrate the requirements for health, safety, environment, security, quality and finance as described in *CSA Standard N286-12* and in the LCH. Operationally, and as presented to the CFM Board of Directors annually, CFM continues to achieve performance that is in overall compliance with requirements in these areas, including the Safety and Control Areas (SCAs) and can therefore conclude that the management system is effective at achieving its intended purpose. Resultant improvement actions / opportunities are identified from this management review and are tracked for completion.

### 2.1.2 Human Performance Management

This safety and control area covers activities that enable effective human performance, through the development and implementation of processes to ensure that there are enough team members in all relevant job areas and that they have the necessary knowledge, skills, and tools to safely carry out the licensed activities.

CFM has a sufficient number of qualified team members as well as the minimum number of responsible people to carry on the licensed activities safely and in accordance with the *NSCA* and its Regulations.

CFM has a number of programs, procedures and processes that establish the framework for a safe work environment and foster a sustainable safety culture. All employees are encouraged to maintain a questioning attitude with respect to health, safety, radiation protection and environmental issues.

The training program at CFM is compliant to the *CNSC REGDOC 2.2.2, Personnel Training*. In the fourth quarter, a new Training Coordinator was appointed to focus on the requirements for CFM specific training.

The SAT method of training applies a robust, risk-informed system to analyze and track training requirements and develop and deliver appropriate training. The SAT process covers the initial training of team members, routine re-qualification, as well as re-qualification of team members after an extended absence. Records are maintained for all training documentation. CFM documents this system in a site procedure titled *Systematic Approach to Training – Training Plan* CFM-HR-01 to meet the CNSC Regulatory Document 2.2.2 *Personnel Training*.

Mandatory, legislated, and other job specific training activities were carried out in 2024. This training ensures that all personnel have the level of training related to radiation safety, onsite emergency response, environmental protection, and conventional health and safety, appropriate for their duties. Mandatory, federal, provincial, and Cameco required training is tracked and trended with 97.6% compliance achieved in 2024. CFM also ended the year with a 97% completion of ‘No Go’ courses. The training department continued providing weekly No-Go status updates during the daily huddle meeting.

During the year, eighty team members or Cameco contractors were assigned and completed Radiation Protection training. By the end of the year, 100% of active team members were up to date with the training.

At the end of 2024, safety training metrics were at 100% compliance in other training programs such as Fall Protection and Job Hazard Analysis. Other safety courses such as Electrical Safety – Non-electrical Worker, Confined Space, and Control of Hazardous

Energy (CoHE) had compliance rates above the 95% target with a range of 96.1% to 97.8% compliance.

Some improvements in the training program advanced in 2024 include:

- SAT Waste Treatment Analysis – analysis is 85% complete.
- SAT BMS Update – Development is 85% complete. New work instructions will be linked to the SOP once onboarding has been completed.
- SAT Health Physics Technician Analysis – analysis is developed and will be finalized in 2025 with design work beginning.
- SAT PP2 package – analysis and design has been updated. 95% of work instructions have been updated with the remainder completed early in 2025.

Several improvement opportunities for onboarding team members were implemented in 2024. Senior leaders continue to meet new team members and review safety culture fundamentals during their first week of onboarding. The New Employee checklist and the Employee Transfer workflows were updated in 2024.

CFM complies with Part III of the *Canada Labour Code* as it defines the maximum hours of work for all employees on-site. In addition, CFM has committed to the CNSC that a minimum complement of team members will be available to respond to emergency situations.

Cameco continues to have a range of programs in place to ensure that team members are fit for duty. These programs and procedures cover human resource matters such as a program for alcohol and substance abuse, mental health assistance, violence in the workplace, respectful workplace as well as addressing more general health matters such as routine medical surveillance and radiation protection monitoring.

Updated documents (procedures, work instructions, etc.) flow through a Document Review Record (DRR) process. Any document that is identified as impacting a team member's tasks is electronically routed through this process for the team member's review. The process documents the changes to the document and that the team member has reviewed the document. The process also allows for feedback from the reviewer to the document owner. In 2024, documents were reviewed to better align document owners as well as the requirements for who needs to be included in reviewing documents.

There are no CNSC certified positions at CFM; however, CFM does employ trade staff such as electricians, millwrights, and process technologists (instrumentation technologists). Personnel movement at CFM in 2024 supported the organization's position of developing people and providing opportunities for career growth within CFM and Cameco. The operational reliability organization re-alignment completed in 2023 was able to provide better service to both CFM facilities in alignment with the technical

services organizations. An Inventory Control Analysis Specialist and a Production Supervisor position were filled with new team members in 2024.

CFM continues to enhance communication between facility management and team members as this is critical to sustaining a positive safety culture. To support communication with team members and contractors, several methods are utilized to ensure critical/important information is delivered in a timely fashion. Critical/important information may include topics of industrial safety, radiation safety, environmental protection, quality performance, production and project plans, management systems, etc.

CFM Training continued to provide support to team members and long-term contractors on training, qualifications, and requalification at CFM. Through a continuous improvement mindset and attention to course completion, compliance results for 2024 remained strong throughout the year.

### 2.1.3 Operating Performance

This safety and control area includes an overall review of the conduct of the licensed activities and the activities that enable effective facility performance.

In 2024, CFM continued to operate in a manner that supports safe, clean, and reliable production and in compliance with applicable acts and regulations.

Production rates for 2024 were within license limits. Detailed plant production information is considered "proprietary" and is submitted to CNSC staff on an annual basis under separate confidential correspondence.

For a three-week period in July of 2024, the facility underwent a planned shutdown to complete maintenance and project work and to conduct uranium physical inventory activities (in support of CNSC/IAEA requirements). The facility also shut down for a one-week period in December to complete planned maintenance and project work.

The objectives for Supportive communities' include activities related to local community support as well as broader support for the nuclear industry through ensuring that the quality of product that is produced meets customer expectations.

In 2024 there were three incidents that were reported to the CNSC Duty Officer as required in *Reg. Doc 3.1.2 Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills.*

The incidents were posted to Cameco's web site and can be viewed using the following hyperlink.

Environment & Safety - Fuel Manufacturing: Port Hope & Cobourg - Fuel Services - Businesses - Cameco

In May, a Loss of Primary Containment (LOPC) event occurred after a groundwater pumping well maintenance hole was found discharging groundwater onto CFM's parking lot surface. Approximately 100 L of groundwater was released and discharged to the municipal storm water system. The pump was shut down and the liquid in the well maintenance hole was pumped into a temporary storage container. A confined space entry was completed with contractors reconnecting the open line fitting. The system was then put back into service approximately 3 hours after the discharge was noticed and the collected water was routed back into the system for treatment.

In July, a fire alarm was activated due to an automated signal received from the fire suppression system on one of the two pelleting area dust control units. This signal automatically triggers a fire department response with the municipality of Port Hope Fire and Emergency Services (PHFES) responding. The PHFES responders attended the area

and confirmed that there was no heat detected with no visible smoke or release of suppression system; therefore, the alarm was considered a false alarm. The cause of the alarm was a faulty notifier module. The dust control units remained locked out until the module was replaced the following day.

In September, the fire panel in security signaled that there was an issue with the Fuel Storage Building dry chemical system. PHFES responded to the site and investigated the cause of the alarm. It was confirmed that there was no fire, but that the dry chemical suppression system in the Fuel Storage building had been activated. At the time of the event, there was no work being done on the system. The fire panel notification was advising that the system had been deployed. A root cause investigation was completed for this event. Recommendations included a review of alternate fire suppression systems, better lifecycle management of fire protection systems and clarification of supplier responsibility with respect to fire protection systems.

The reportable incidents were thoroughly investigated with corrective action plans developed. There was no risk to the public related to any of these incidents. There was no impact to the environment resulting from these events, the health and safety of persons was maintained as was the maintenance of national and international security. Each incident is reviewed against Cameco's severity matrix and is entered into the incident reporting system to document the investigation and corrective actions. Cameco is confident that through the corrective actions implemented, the review of the incidents that occurred and robust management systems CFM will continue to operate in a safe, clean, and reliable manner.

Overall, CFM's Operational Performance remains effective. CFM continued to meet customer requirements safely and at expected quality levels. Continual improvement activities continue to focus on reducing internal defect levels and improving equipment performance. CFM continues to maintain the implemented management system and programs for the safe and effective operation of the facility.

## 2.2 Safety Analysis

This safety and control area covers the maintenance of the safety analysis, which supports the overall safety case for the facility. The safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventative measures and strategies in reducing the effects of such hazards.

To operate in a safe, clean, and reliable manner, CFM utilizes various programs and procedures including the Safety Analysis Report (SAR), Fire Hazard Assessment (FHA), environmental aspects registry, chemical hazards, and other assessments.

The design, construction, operation, and maintenance of CFM is intended to eliminate or minimize to the extent possible the potential of radiological, chemical, or other physical hazard to facility personnel, the environment, and the general public. This is accomplished not by a single approach but rather by a defense-in-depth approach and has been systematically reviewed and documented from several perspectives.

CFM's Safety Analysis Report (SAR) documents the hazards, preventative measures and mitigating controls associated with the licensed activities at the facility. This report summarizes major assessments for the facility and is updated to incorporate facility changes and improvements since the last version. The safety analysis for the facility is updated approximately every five years. The most recent SAR was accepted by the CNSC in July of 2021 and is due for revision in 2026. Since then, Regulatory Document 2.4.4 *Safety Analysis for Class 1B Nuclear Facilities* (RegDoc 2.4.4) was published in October 2022. A gap analysis was performed by FSD personnel against the requirements of REGDOC 2.4.4 in 2023. As part of the implementation plan, an FSD Safety Analysis Program will be developed in 2025, and the CFM SAR will be updated and submitted in May 2026.

This safety report is periodically reviewed to ensure it captures changing conditions in the facility's operation. This includes:

- assessing incidents that have occurred at the facility against the report to confirm the response of safety systems
- assessing all design changes, including those initiated as a result of an incident or accident
- assessing the results of supporting studies and reports
- reviewing the credible accident scenarios and predictive modelling

There were no changes in 2024 that would require an update to the Safety Analysis Report.

Other Safety Analysis initiatives in 2024 include the following:

- Completion of ergonomic hazard assessments exceeding the corporate target. Assessments were completed by a certified ergonomist. Following each report, the recommendations were reviewed and entered into CIRS for tracking. In the Port Hope facility assessments were performed on the Press Tooling Change and the Monza Grinder.
- Work was completed to address the gaps identified in the new regulatory documents which CFM has been asked to align with as part of its licensing basis. CSA N393-22 was fully implemented in 2024.
- Work continued towards the simplification of the safety and health management system. Program level documents were published for hazardous substance management, medical services, ergonomics and working at heights. This brings the total of programmatic level documents published at CFM to 9 of 12 planned. CFM's MDS system continues to be re-organized to align the lower tier work instruction documents within these categories.
- CFM continued to perform safety audits/inspections and implement recommendations through its corrective action process. Job Task Observations (JTOs) were completed at a rate of 101% overall throughout the year (423 JTO's were completed with only 418 scheduled) while 99% of all required layered inspections were completed.

The facility has a nuclear criticality program, accepted by the CNSC, to address the handling and processing of enriched uranium. The Nuclear Criticality Safety Program Manual (NCSPM) meets the requirements outlined in the CNSC regulatory document *RD-327 Nuclear Criticality Safety*. There were no processing activities of enriched material conducted on site in 2024. Quantities of enriched material onsite is provided in the plant production letter under a separate confidential letter.

The physical improvements implemented in 2024 did not alter or affect the overall design basis for the facility, therefore, the design basis remains valid. As required by its operating licence, CFM is subject to third party reviews for verification of the requirements under the current edition of the *National Building Code*, the *National Fire Code*, and *CSA N393 "Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances"* for all modifications. There were five changes to equipment in which third party reviews were submitted to the CNSC in 2024. The changes included:

- installation of additional press and a review of the sprinkler requirements,
- installation of Sub-Assembly temporary partition,
- installation of Quiet Room,
- modification of main floor washrooms, and
- modification of PP2 ventilation system.

For each modification the reviewer determined that CFM was in compliance with the requirements of the applicable codes and standards. There were four observations in the washroom review that were all satisfactorily dispositioned by CFM.

CFM maintains the Safety Analysis Report as part of an effective safety analysis program that identifies and assesses hazards and risks, including new and unforeseen risks not initially considered, on an ongoing basis. The analysis is a systematic evaluation of the potential hazards associated with the specific activities and considers effectiveness of preventative measures and strategies in reducing hazard effects.

### 2.2.1 Physical Design

This safety and control area relates to activities that impact on the ability of systems, structures, and components to meet and maintain their design basis, given new information arising over time and considering changes in the external environment.

As part of Cameco's budgeting process for capital expenditures, plant improvements related to physical design are identified and prioritized.

Design requirements impact all life cycle phases of CFM facilities, from site selection, construction, operation and through to decommissioning. To ensure ongoing effectiveness of all systems, structures, and components essential to the safe operations at CFM, changes to the physical design of equipment, processes and the facility are managed through the Change and Design Control program (MSP 13-02 - Change and Design Control).

These identified systems, structural, and component changes are subjected to a graded approach to the application of CFM's management systems; considering design inputs / requirements such as, but not limited to, regulatory, functional, performance, operational, safety, environmental and quality considerations, and stakeholder impact.

CFM continued to use the electronic Management of Change (MoC) process in 2024 and continues to track compliance with the system requirements. Subject Matter Expert questionnaires and reference documents were updated throughout the year to incorporate any new or changes to the existing regulatory requirements, standards, internal Cameco, and CFM procedural changes, etc., as well as to account for any organizational changes. Overall, the electronic process continues to be a better means to track the flow of the design change steps and continues to be improved upon.

Once designs are established and approved, equipment and services that are required to permit construction of the design are procured through supply chain management. Activities include but are not limited to, procurement documentation, specification development, vendor selection, receipt and inspection, and storage of items.

Improvements to the facility completed in 2024 include the following:

- New Weld Prep Machine - This project is a replacement for the current weld prep machines. The equipment was delivered in August 2024 and installed in a temporary location to commission and run the equipment without affecting current operations. This project is expected to be completed with the relocation of the machine to the Assembly area during the 2025 summer shutdown.
- Installation of 3rd Press and Takeoff - This project is for the installation of a third press and takeoff in the PP2 area. This enables the production of 37M pellets on a

separate press from the current fleet. This avoids several press changeovers which have historically been ergonomically problematic. Much of the work was accomplished in 2024 with commissioning scheduled for the second quarter of 2025.

- Air Handling Modifications of PP2 and Pelleting - This project is for the addition of general area exhaust equipment to enable proper air balancing between PP2 and the Pelleting area. This will prevent the possibility of fugitive airborne $UO_2$ powder from migrating from PP2 to the Pelleting area. Most of the work was completed in 2024; however, some programming of setpoints will need to occur in 2025 as ventilation conditions change in the plant between winter and summer.
- Installation of Shield Wall at Fuel Storage Building - This project is for the installation of a shield wall north of the fuel storage building along a section of the northeast fence line to lower the dose rate to the critical receptor. Installation of a concrete block wall was 90% completed by the end of 2024. The remaining work including the installation of a safety railing, adjusting the slope as well as repositioning the hi-volume air sampler in the area, will be completed when the weather allows in 2025.
- PP2 temporary fencing in Graphite Area - Created a temporary fenced-in area on the other side of the PP2 roll up door in the North Manufacturing Area. This is a storage area for PP2 equipment.
- Roll Compactor Work Platform - This will allow for an easier and safer way to conduct work for maintenance. This work was planned in 2023 and was installed in early 2024.

The physical improvements did not alter or affect the overall design basis for the facility therefore, the design basis was valid and maintained in 2024. The requirement in *REG DOC 3.1.2* requesting a description of validation activities and the results of the validation for any major changes is not applicable at CFM, as there were no major changes.

CFM has a contractual arrangement with the provincial Technical Standards and Safety Authority to ensure that oversight of pressure retaining components and systems continues to be carried out by a third-party expert.

CFM is maintaining a design control process that effectively ensures design outputs are reviewed, verified, and validated against the design inputs and performance requirements. CFM ensures that the design inputs selected for safety, performance and dependability of the design items are achieved.

### 2.2.2 Fitness for Service

This safety and control area covers activities that impact the physical conditions of systems, structures, and components to ensure that they remain effective over time. This includes programs that ensure all equipment is available to perform its intended design function when called upon to do so.

CFM has programs and procedures that ensure that the facility is operated in a safe, clean, and reliable manner.

CFM has an established Planned Maintenance (PM) program as defined in site documentation. In 2024, CFM upgraded to the SAP S4/HANA based system for all planned maintenance. All tasks are initiated and documented through this site work notification system. Although there were inefficiencies and a learning curve after the transition, the facility is back to previous levels of proficiency.

Maintenance plans are issued, reviewed, and updated periodically to ensure the routines developed continue to be effective and adequate. Key Performance Indicators (KPIs) are in place to monitor the effectiveness of the program. Testing and verification activities are integrated into the preventive maintenance strategy for systems, structures, and components.

The asset management program accounts for aging of equipment through a number of processes designed to detect early warning signs and to prescribe rehabilitation programs or proactive replacement strategies. The effectiveness of the program is measured by the same means as the overall maintenance program.

Fire protection systems are tested according to an established schedule as outlined in the Fire Protection Program. Third-party reviews on equipment, or process changes that affect fire protection, are conducted to confirm that required tests and inspections are completed and the reports are submitted to the CNSC. In 2024 there was five projects that required a third party review to be submitted to the CNSC.

CFM's operations continued to operate in a safe and compliant manner in 2024 while meeting all customer commitments. Continual improvement within the Fitness for Service SCA is contained within the Operational Reliability Improvement plan. This plan was established early in 2020 based on the results of an Operational Reliability Self-Assessment. An Operational Reliability Self-Assessment was again performed in 2024. A draft of the audit report was sent in January 2025 with the overall score showing an improvement of 77% from the previous 71% from the last assessment. After some additional review of the report and discussion of the areas of focus, the next 3-year plan will be developed.

There were no specific targets set for operational reliability in 2024. The team focused on maintaining performance through the SAP transition and awaited the Operational Reliability Assessment results to direct the next phase of the improvement plan.

In 2024, there was missed performance across key indicators for Asset Management and Reliability (AM&R), with notable improvements in some areas while facing temporary challenges in others.

2024 Achievements included the following:

- Equipment availability increased by 6% compared to 2023, showing a positive upward trend
- Operational Excellence self-assessment score improved to 77% from the previous 71%
- Overall Equipment Effectiveness (OEE) maintained stable performance levels across the organization
- Organizational changes were successfully navigated while maintaining operational stability, and
- Asset management fundamentals were maintained through the transition to S4/HANA.
- Reactive Work and Maintenance Order Backlog KPI remained consistent with previous years.

AM&R challenges in 2024 included a decrease in PM compliance to 41% from 64% in 2023. The results in 2024 were lower compared to the previous two years. This was primarily driven from the migration from SAP to S4/HANA which affected KPI calculations. The AM&R work management group will be looking at investigating data correction measures in 2025. Additionally, the PM Schedule Compliance target was 90% with a value of 70% achieved in 2024. This is also attributed to the S4/HANA transition challenges. Recent discussions with the corporate advisor have pointed out some possible opportunities in the metric that pulls the information that could help improve the tracking of performance.

The main challenges in 2024 were related to the learning curve for S4/HANA and the access to information in the system. Additionally, the AM&R group has an open position for much of 2024 due to internal movement of personnel.

It is notable that predictable operating performance in the CFM Port Hope operation was achieved in 2024. Extensive improvement work was completed in previous years which included providing a shield for the pellet ‘boats’ in the form of molybdenum cages to prevent loose pellets in the furnaces and using brick material for weekend banking heat

sink material. These actions in combination have dramatically improved equipment reliability in this area specifically, but in the total operation as a whole.

CFM continued to progress through improving existing failure analysis and maintenance task instructions (MTI's) through systematic review and auditing with the goal of improving Overall Equipment Effectiveness while reducing operating costs. Maintenance and reliability systems continue to mature at CFM as evidenced by the 2024 assessment. Improvement continues and the program continues to provide an effective fitness for service program to protect people and the environment.

## 2.3 Core Control Processes

### 2.3.1 Radiation Protection

This safety and control area covers the implementation of a radiation protection program, in accordance with the *Radiation Protection Regulations*. The program must ensure that contamination and radiation doses are monitored and controlled.

CFM has an extensive Radiation Safety Program in place to meet the requirements of the *Nuclear and Safety Control Act* and the *Radiation Protection Regulations* and to ensure exposures are kept to levels As Low As Reasonably Achievable (ALARA). The program includes the following components:

- external radiation dosimetry – personal monitoring,
- internal dosimetry – urine analysis and lung counting program,
- workplace air sampling program,
- respirator program,
- contamination surveys; and
- gamma surveys.

The CNSC regulatory limits for total effective dose for Nuclear Energy Workers (NEWs) are 50 millisievert (mSv) per year and no more than 100 mSv over specified five-year periods.

For various radiological parameters, CFM has established action levels, accepted by the CNSC, that may be indicative of a potential loss of control for that specific parameter. Action levels pertaining to radiation protection are listed in the Radiation Protection section of CFM's LCH and site procedures. These action levels serve as an early warning of a condition that warrants further investigation. A result above an action level is investigated and remedial actions taken if necessary.

Radiation protection objectives and targets are established annually and can address, among other things, worker dose reduction initiatives and other projects which examine ways to reduce airborne uranium concentrations. The status of these objectives and targets are reviewed by the site management team through KPIs and resources are allocated as required to achieve the targets.

Some of the radiological improvement activities in 2024 included:

- Annual cleaning of the CAMheads continued in 2024. Health Physics implemented an annual cleaning schedule of the CAMheads in 2023. This coupled with a better understanding of detector failure modes and quicker deployment of replacement CAMHeads led to improved performance of continuous air monitors with the number of alarms reduced from 2023.

- Commissioning and testing of a new alpha counter.
- Implemented controlled strategy for the review and release of waste from the changerooms.
- Continued collection and review of dose rate data through Optically Stimulated Luminescent Dosimeters (OSLDs) posted throughout the facility.
- Continued oversight for compliance to hand and foot monitoring requirements as well as urine submissions.

Procedural reviews related to radiation protection that were made in 2024 include the following:

- HSI – 043 Assessment and Release of Uranium Contaminated Materials – Revised to include requirements from *CAM-SHEQ-RP-03 Release of Materials for Unrestricted Transport*, reference work instruction *WI 11192 for Disposal of Electronic Waste*, add process for monitoring waste and recycled metal, and included the option to use an electronic removal pass.
- HSI – 200 Decanned, Burst and Tensile Tube Clearance – Revised to change the number of tubes checked to meet release requirements as well as to implement final contamination check prior to release.
- HSI – 201 Fuel Shipment Contamination Monitoring – Updated to clarify the process for surveying for contamination.
- HSI – 302 Decontaminated Items Monitoring and Release - Revised to include responsibilities and general update to HSI format. Updated to reflect the current process for releasing items from the Pelleting Area (i.e. updated release criteria, including survey meter spreadsheet, remove reference to grit blaster).
- HSI – 304 Beta/Gamma Contamination Survey Meter Efficiency Verification - Updated count time from 60 seconds to 90 seconds and corrected record storage location.
- HSI – 305 Alpha Contamination Survey Meter Efficiency Verification - Updated source information, responsibilities, and approvals as well as simplified the process.
- HSI – 337 Surface Contamination Monitoring – Updated responsibilities, equipment and process to take measurements.
- HSI – 345 Personnel Dosimetry Monitoring and Reporting – Revised to include dosimeter tracking spreadsheet and assessment form and update responsibilities.

- HSI – 360 Surface Contamination Monitoring Data Entry and Reporting – Updated to reflect entry of results into the Radiation Protection database (CAMRad).

CFM is committed to the ALARA concept and is continually identifying and implementing radiation protection improvements. The success of the above initiatives and programs are measured against set ALARA targets.

CFM's performance in 2024 regarding the ALARA targets is summarized below:

- Maintain employee radiation exposures to ALARA levels or below:
  - Average whole body dose for all NEWs was below the public dose limit of 1 mSv which is considered in the region of ALARA.
  - Maximum Whole Body dose in 2024 was lower than previous years (except 2022).
  - Maximum effective dose of 8.0 mSv is below the individual total effective dose ALARA target of 9.5 mSv/year.
  - Average Skin Dose was lower than previous years (except 2022).
  - Average internal dose was lower than or equal to previous years (except 2023).
  - Average Effective Dose was lower than the previous years (except 2023).
  - Urine results for employees in the program, continued to be low in 2024 with all routine sample results below the screening level.
- Achieve target of 98 % compliance to urine submission requirements.
  - Above the target of 98% with 99.8% of samples submitted.

Other ALARA initiatives started or implemented in 2024 include:

- ALARA assessments were completed to determine the impact to extremity dose from the bundle inspection, washing, and repack project.
- Air balance between PP2 and Pelleting Areas was improved. This project was initiated as an improvement project to ensure the air balance in the PP2 area was maintained at a negative pressure to the Pelleting area. This ensures airborne uranium does not enter the Pelleting area during an upset condition. This was accomplished by adding general area extraction capacity to the PP2 area by means of an additional extraction fan.
- Sintering furnace heat sink material was changed. As part of the sintering improvement project, the weekend banking heat sink material was changed. This reduced the amount of radioactive material from the work areas.
- Commissioning of additional extraction that was installed in the powder receiving area to assist with reducing airborne contamination while re-

packing drum liners for return to PHCF was not successful due to air balancing issues. There are fundamental issues upstream that need to be fixed to allow more flow into the powder receiving area. Additional work on the system will be completed in 2025.

As part of CFM's audit program, several audits and inspections related to radiation protection were conducted which included legal and regulatory compliance audits as well as procedural use and adherence inspections. Any issues identified during these audits are documented in the CIRS system and appropriate corrective actions were taken. Additional information on the findings related to Radiation Protection are provided under a separate confidential correspondence.

Radiation Protection training, which was developed using the Systematic Approach to Training framework, continued to be provided as computer-based training. During the year, eighty employees or Cameco contractors were assigned and completed the training. By the end of the year, 100% of active employees were up to date with the training.

In 2024, radiation monitoring instrumentation was maintained as per regular calibration and maintenance schedules. A new alpha counter was commissioned in 2024 with data entry and reporting of air monitoring results in a new database (EQuIS). There was also a new portable alpha counter purchased to replace an aging piece of equipment. Commissioning of this equipment will be performed in 2025.

CFM continues to ensure personnel working in the facility are wearing dosimeters for monitoring purposes. In 2024, dosimeters were worn properly 99.9% of the time. There were only two lost, damaged, or compromised dosimeters that required an estimated dose assigned in 2024. One dosimeter was lost at the end of the monitoring period and the other dosimeter was compromised due to a nuclear medicine treatment. In both instances the dose assessment for the monitoring period was less than 0.5 mSv Whole Body and/or 5.0 mSv Skin Dose; therefore, a formal dose change request as detailed in *REGDOC 2.7.2, Dosimetry, Volume 1 Part C* was not required for either NEW. Additionally, the two NEWs annual Whole body dose and Skin dose were reviewed to confirm the results were below 5.0 mSv Whole Body dose and/or 50 mSv Skin dose; therefore, a formal dose change request as detailed in *REGDOC 2.7.2 Dosimetry, Volume 1 Part C* for the annual dose was not required. The annual Whole Body doses were 0.38 mSv and 0.86 mSv and the Skin doses were 1.04 mSv and 1.43 mSv.

There were no reportable radiological incidents in 2024.

Inventory of sealed and unsealed sources that are used or possessed on-site are referenced in the radioisotope source work instructions. The inventory completed in 2024 determined the sources are in a state of safe operation and pose no undue risk to workers.

Radiological initiatives planned for 2025 include:

- Commission portable alpha counter.
- Maintain or reduce radiation dose levels.
- Commission extraction in PP2 area for bagging station.
- Investigate upgrades to CAMhead system

Employees enrolled in the urine analysis program continued to see low uranium in urine results in 2024 with no team member's routine urine samples above the screening level of 2 µgU/L. Doses remained low in 2024 with only six team members' effective dose greater than 5 mSv. Additionally, there were no action level exceedances in the radiation protection program.

The in-plant air monitoring system that was replaced by the CAMhead alpha monitoring system was reduced to three locations in 2024 with full phase out expected in 2025 or 2026.

Dose trends for Whole Body, Effective, Internal and Equivalent dose to employees remains low and consistent with previous years. Non-submission of urine samples was the lowest since inception and results remain low.

There was a Radiation Protection compliance SHEQ audit completed by Cameco Corporate along with a CNSC inspection focused on the Radiation Protection SCA. All findings were mainly administrative in nature.

Additionally, CAMhead activation was minimal and CAMhead issues were not concerning in 2024. The radiation protection results and improvements demonstrate that the Radiation Protection Program remains effective.

Dosimetry

At CFM, all employees and contractors working more than eighty hours per year are considered NEWs and are provided dedicated dosimeters to measure external radiation exposure. CFM uses Landauer's OSLD's to monitor whole body, skin, and eye dose. Dosimeters are changed monthly for production related team members and quarterly for all other team members. Landauer, a licensed dosimetry service provider, sends the dosimeter results to the National Dose Registry (NDR) and provides a copy to CFM.

CFM assesses internal dose using lung counting from Cameco's licensed internal dosimetry service. The internal dose program applies to CFM team members who are in direct contact with open uranium dioxide for more than 500 hours per year working in the Pelleting Area. These employees undergo a direct in-vivo (lung counting) measurement twice per year, with campaigns running six months apart. Internal dose for other team

members is prorated based on the number of hours that individual worked in the Pelleting Area throughout the reporting year and the average dose from the measured group. For team members and contractors that worked less than eighty hours per year in the Pelleting Area an internal dose is considered insignificant and is not assigned.

In 2024 there were no exceedances of CFM's radiation protection action levels.

The following tables and graphs summarize the 2024 annual dose results for team members:

- whole body dose.
- skin dose.
- eye dose.
- extremity dose.
- urine analysis results.
- internal dose; and
- total effective dose.

Whole Body Dose

The action levels for whole body dose for NEWs are 1.6 mSv per month for production staff and 1.0 mSv per quarter for support staff and contractors. The monthly action level applies to NEWs who are monitored on a monthly basis (primarily production team members). The quarterly action level pertains to NEWs who are monitored on a quarterly basis (i.e., office staff, contractors, etc.). These individuals receive lower radiation exposure and therefore a lower action level has been established. Additionally, all individuals that were assigned personal dosimeters and classified as non-NEW received no measurable whole body dose in 2024.

Table 2 and Figure 4 display the distribution, in 1 mSv increments, of whole body dose for all NEWs in 2024. Note that figures with ranges on the horizontal axis identify results that are greater than or equal to the first number and less than the second value. For example, 1 – 2 on the horizontal axis in Figure 4 means all results in that range are greater than or equal to 1 mSv (≥ 1 mSv) and less than 2 mSv (< 2 mSv).

As can be seen from the table and figure, 85.3% of team member external whole body doses in 2024 were 1 mSv or less, with all team member's whole body doses less than 5 mSv (100%). Distribution results for 2024 were different when compared to those in 2023 with more NEWs in the 0-1 mSv range and the 3-4 mSv range, while the remaining bins were less than or equal to the number of NEWs.

**Table 2**

| 2024 Whole Body Dose Distribution | |
|---|---|
| **Dose Range (mSv)** | **Percentage of Individuals (%)** |
| **0 – 1** | 85.3 |
| **1 – 2** | 6.0 |
| **2 – 3** | 4.4 |
| **3 – 4** | 3.6 |
| **4 – 5** | 0.8 |
| **> 5** | 0.0 |

**Figure 4**

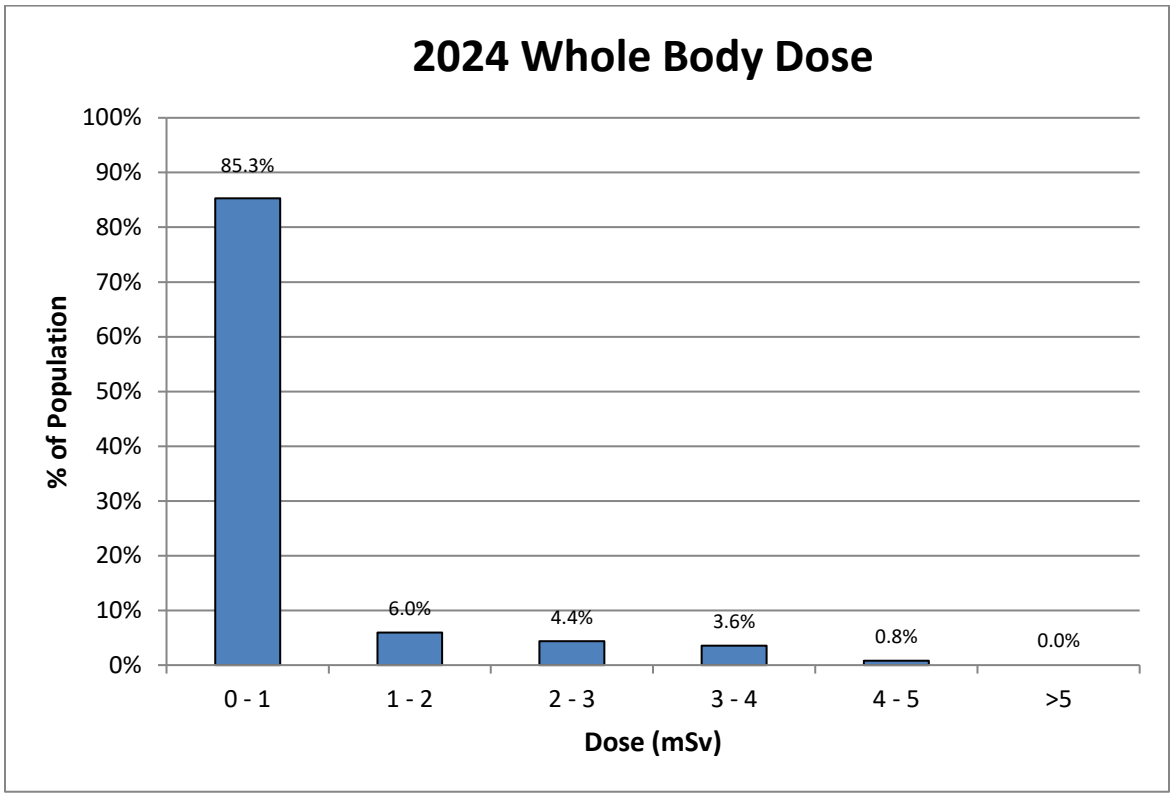



Table 3 shows the annual NEW whole body dose results for three work groups: team members in operations; team members in administration and/or support roles; and outside contractors/visitors. The highest exposures are from the operations work group, consisting of production, maintenance, and quality personnel. The average dose for all NEWs was 0.4 mSv in 2024 and the maximum individual external whole body dose was 4.6 mSv.

**Table 3**

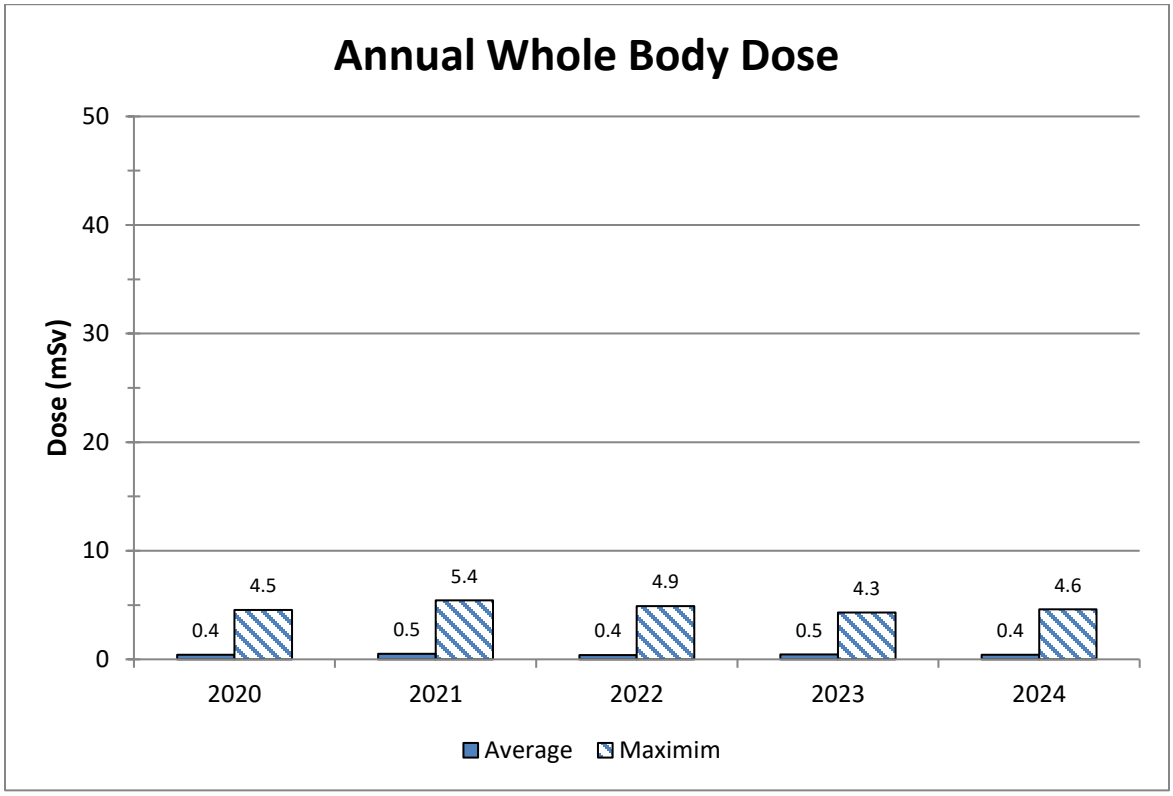
| 2024 Annual Whole Body Dose | | | | |
|---|---|---|---|---|
| **Work Group** | **Number of Individuals** | **Average (mSv)** | **Minimum (mSv)** | **Maximum (mSv)** |
| **Operations** | 116 | 0.9 | 0.0 | 4.6 |
| **Administration / Support** | 105 | 0.0 | 0.0 | 0.5 |
| **Contractors/Visitors** | 31 | 0.0 | 0.0 | 0.1 |

Table 4 and Figure 5 show the annual average, minimum, and maximum individual external whole body exposure for all NEWs from 2020 – 2024. The average dose in 2023 was similar to previous years. The maximum dose was lower than previous years except 2020 and 2022. Average and maximum dose can be impacted by numerous conditions such as the number of people, overtime, work tasks, etc. The individual with the maximum whole body dose is an operator in the Pelleting Area; and is not the same individual with the maximum Whole Body dose in 2023.

**Table 4**

| 2020 – 2024 Whole Body Dose | | | | |
|---|---|---|---|---|
| **Year** | **Number of Individuals** | **Average Dose (mSv)** | **Minimum Dose (mSv)** | **Maximum Dose (mSv)** |
| **2020** | 247 | 0.4 | 0.0 | 4.5 |
| **2021** | 217 | 0.5 | 0.0 | 5.4 |
| **2022** | 241 | 0.4 | 0.0 | 4.9 |
| **2023** | 240 | 0.5 | 0.0 | 4.3 |
| **2024** | 252 | 0.4 | 0.0 | 4.6 |

**Figure 5**




Skin Dose

The CNSC regulatory limit for skin dose to NEWs is 500 mSv per year. CFM's action levels are 20 mSv per month and 5 mSv per quarter. The action level for skin dose was not exceeded in 2024.

Table 5 shows the annual NEW skin dose results for three work groups: team members in operations; team members in administration and/or support roles; and outside contractors/visitors. The highest exposures are from the operations work group, consisting of production, maintenance, and quality personnel. The maximum skin dose in 2024 for a production team member was 47.3 mSv (9.5% of annual limit). The average dose for all NEWs in 2024 was 2.9 mSv. In 2024, all individuals that were assigned dosimeters and classified as non-NEW received no measurable skin dose.

**Table 5**

| 2024 Annual Skin Dose | | | | |
|---|---|---|---|---|
| **Work Group** | **Number of Individuals** | **Average (mSv)** | **Minimum (mSv)** | **Maximum (mSv)** |
| **Operations** | 116 | 6.2 | 0.0 | 47.3 |
| **Administration / Support** | 105 | 0.1 | 0.0 | 3.4 |
| **Contractors/Visitors** | 31 | 0.0 | 0.0 | 0.3 |

Table 6 and Figure 6 display the distribution of skin dose received by NEWs in 10 mSv increments at CFM in 2024. The majority of NEWs received a skin dose below 10 mSv (89.3%) with no employee exposures above 50 mSv. The distribution in 2024 had more NEWs in the 0-10 mSv range and less NEWs in the 10-20 mSv range.

**Table 6**

| 2024 Skin Dose Distribution | |
|---|---|
| **Dose Range (mSv)** | **Percentage of Individuals (%)** |
| **0 – 10** | 89.3 |
| **10 – 20** | 5.2 |
| **20 – 30** | 4.4 |
| **30 – 40** | 0.8 |
| **40 – 50** | 0.4 |
| **> 50** | 0.0 |

**Figure 6**

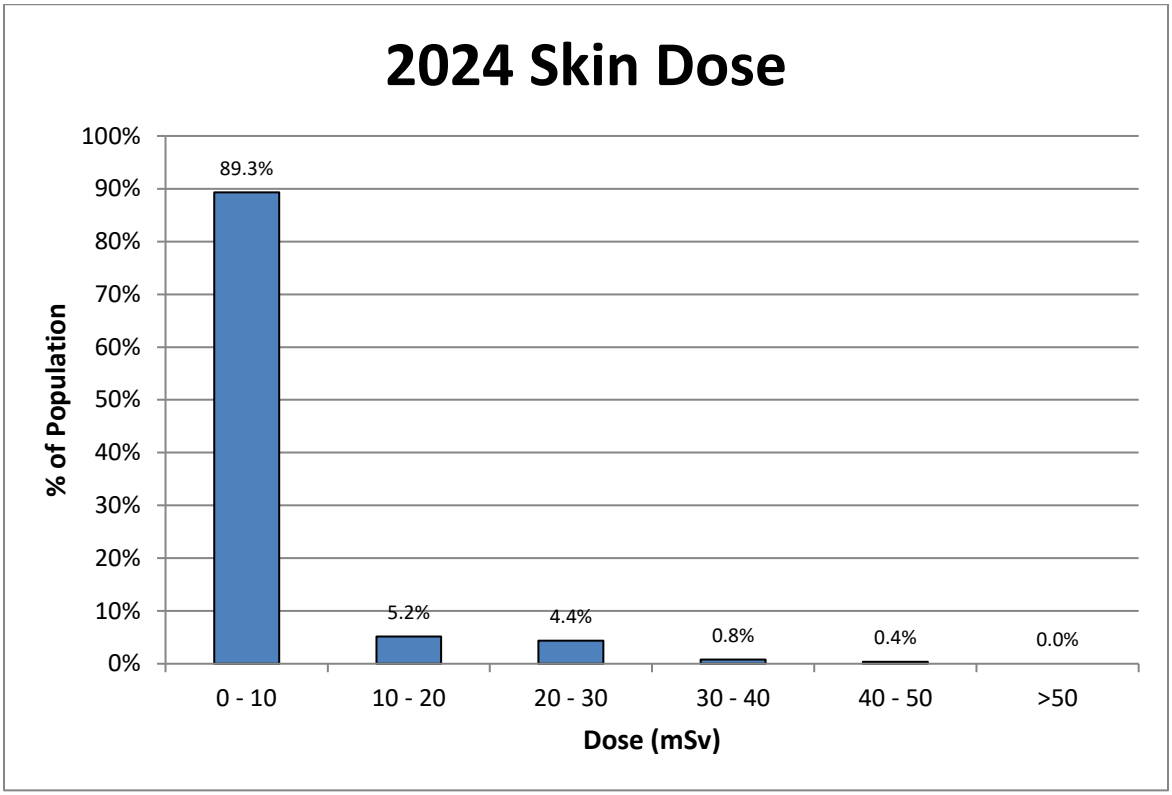
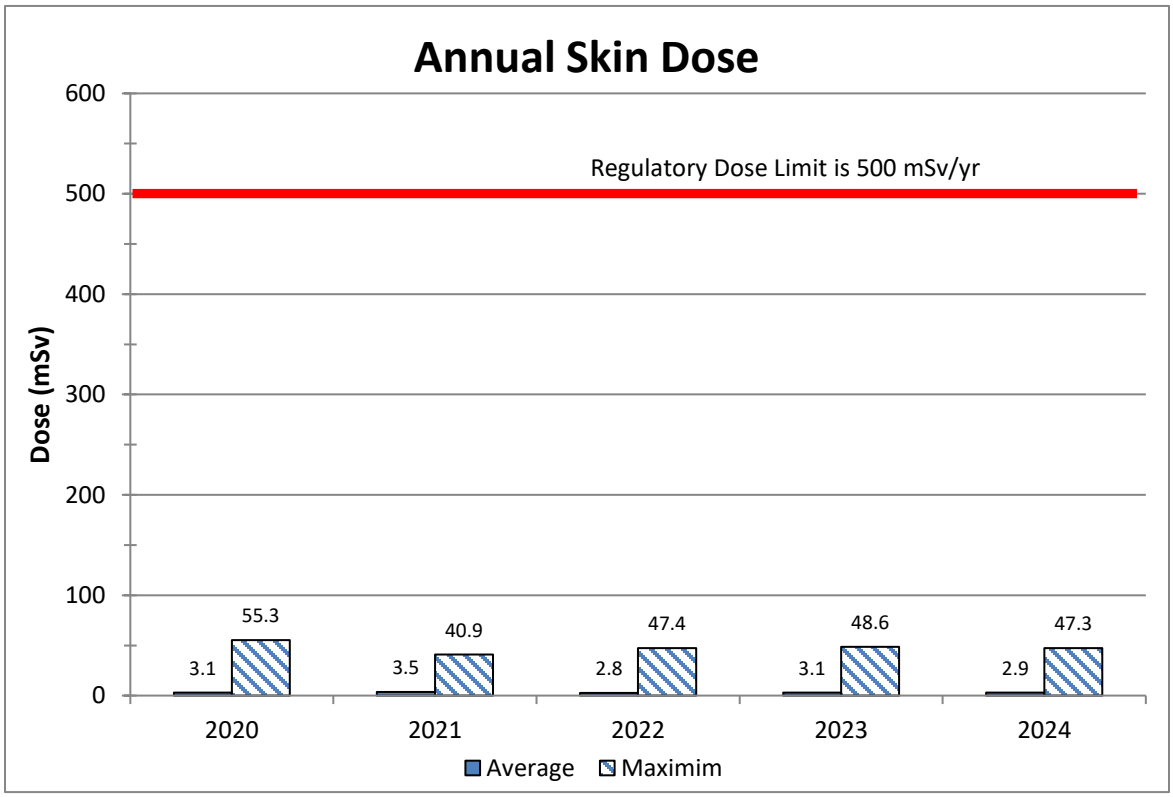



Table 7 and Figure 7 present the employee annual average, minimum, and maximum individual skin exposure for the five-year period from 2020 – 2024. The average skin dose in 2024 was lower than previous years, except 2022. The maximum skin dose was lower in 2024 than previous years except for 2021. Average and maximum dose can be impacted by numerous conditions such as the number of NEWs onsite, overtime, etc. The team members with the maximum skin dose was a Pelleting Area employee and is not the same team member with the maximum whole body dose in 2024.

**Table 7**

| 2020 – 2024 Skin Dose | | | | |
|---|---|---|---|---|
| Year | Number of Individuals | Average Dose (mSv) | Minimum Dose (mSv) | Maximum Dose (mSv) |
| 2020 | 247 | 3.1 | 0.0 | 55.3 |
| 2021 | 217 | 3.5 | 0.0 | 40.9 |
| 2022 | 241 | 2.8 | 0.0 | 47.4 |
| 2023 | 240 | 3.1 | 0.0 | 48.6 |
| 2024 | 252 | 2.9 | 0.0 | 47.3 |

**Figure 7**




Eye Dose

The CNSC regulatory limit for dose to the eye for NEWs is 50 mSv per year. CFM's interim action levels are 6.0 mSv per month and 12.0 mSv per quarter. The interim action levels were approved by the CNSC in July 2022. There were no exceedances of these action level in 2024. All individuals that were assigned visitor dosimeters and classified as non-NEWs received no measurable eye dose in 2024.

Table 8 and Figure 8 display the distribution, in 5 mSv increments, of the calculated dose to the eye for all NEWs in 2024. The dose to the eye for the majority of NEWs was below 5 mSv (89.3%) with very few employees above 20 mSv (less than 1%). The distribution in 2024 has changed when compared to 2023 with more NEWs in the lower bin, with less in the 5-10 mSv range and the 15-20 mSv range in 2024.

**Table 8**

| 2024 Eye Dose Distribution | |
|---|---|
| **Dose Range (mSv)** | **Percentage of Individuals (%)** |
| **0 – 5** | 89.3 |
| **5 – 10** | 4.8 |
| **10 – 15** | 4.8 |
| **15 – 20** | 0.8 |
| **> 20** | 0.4 |

**Figure 8**

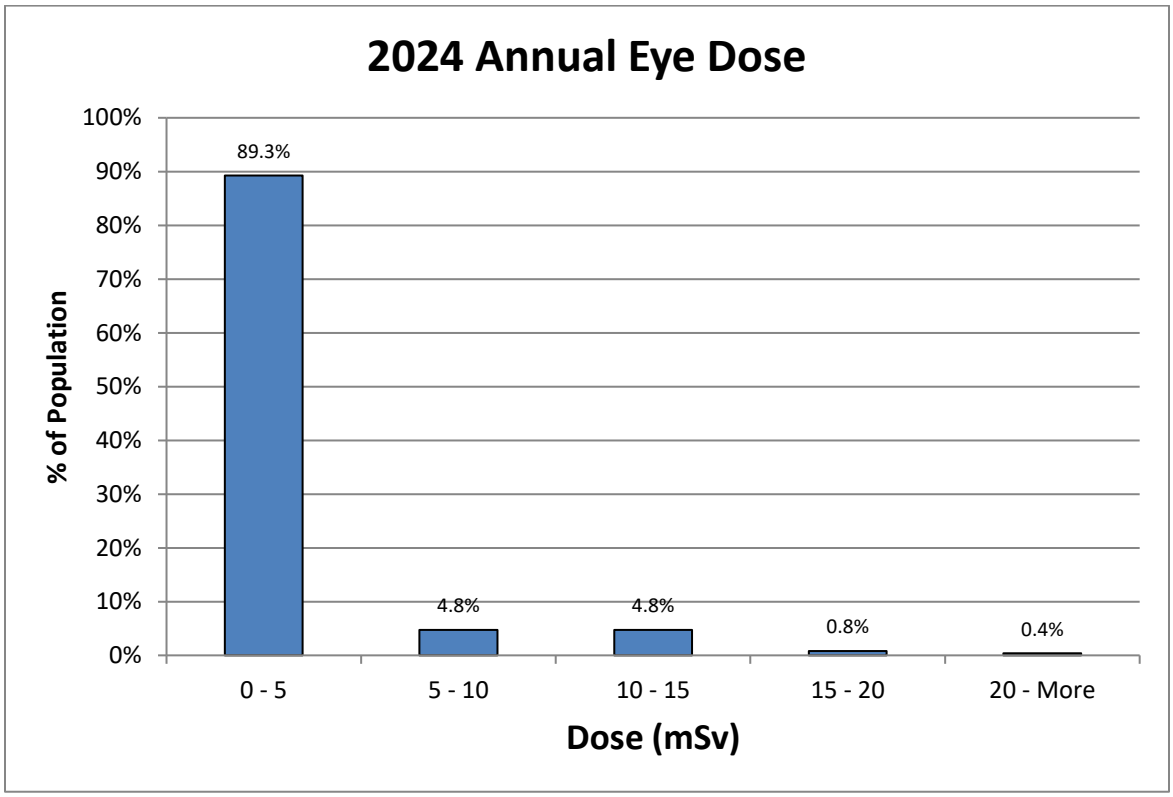



Table 9 shows the annual NEW eye dose results for three work groups: team members in operations; team members in administration, and/or support roles; and outside contractors/visitors. The highest doses are from the operations work group, consisting of production, maintenance, and quality personnel. In 2024, the average eye dose for all NEWs was 1.5 mSv and the maximum annual eye dose for production team members was 21.8 mSv.

**Table 9**

| 2024 Annual Eye Dose | | | | |
|---|---|---|---|---|
| **Work Group** | **Number of Individuals** | **Average (mSv)** | **Minimum (mSv)** | **Maximum (mSv)** |
| **Operations** | 116 | 3.2 | 0.0 | 21.8 |
| **Administration / Support** | 105 | 0.1 | 0.0 | 1.8 |
| **Contractors/Visitors** | 31 | 0.0 | 0.0 | 0.2 |

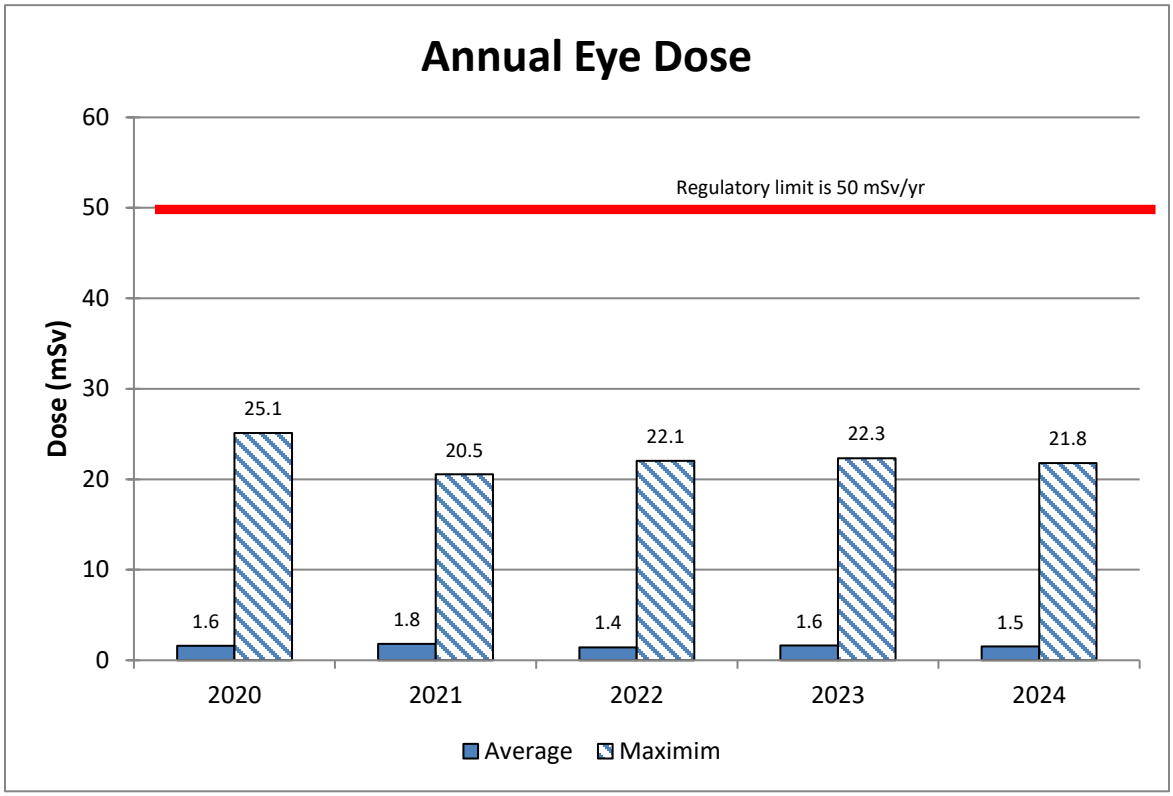
Table 10 and Figure 9 presents the team member average, minimum, and maximum eye dose for the five year period from 2020 – 2024. The average dose to the eye was lower than previous years except 2022. The maximum eye dose in 2024 was similar to previous years except 2022. In 2024, the individual with the highest dose was a Pelleting Area employee and was the same individual with the maximum skin dose.

**Table 10**

| 2020 – 2024 Eye Dose | | | | |
|---|---|---|---|---|
| **Year** | **Number of Individuals** | **Average Dose (mSv)** | **Minimum Dose (mSv)** | **Maximum Dose (mSv)** |
| **2020** | 247 | 1.6 | 0.0 | 25.1 |
| **2021** | 217 | 1.8 | 0.0 | 20.5 |
| **2022** | 241 | 1.4 | 0.0 | 22.1 |
| **2023** | 240 | 1.6 | 0.0 | 22.3 |
| **2024** | 252 | 1.5 | 0.0 | 21.8 |

*Regulatory dose limit in 2020 was 150 mSv/yr and from 2021-2024 the limit is 50 mSv/yr.

**Figure 9**


Annual Eye Dose
Dose (mSv)
60
50
40
30
20
10
0
Regulatory limit is 50 mSv/yr
25.1
20.5
22.1
22.3
21.8
1.6
1.8
1.4
1.6
1.5
2020
2021
2022
2023
2024
Average
Maximim

Extremity Dose

The CNSC regulatory limit for extremity dose to NEWs is 500 mSv per year. The action level for CFM is 55 mSv per quarter.

In 2021, CFM began an assessment for extremity dose to align with the *Radiation Protection Regulations (RPR)* issued in 2020. Specifically, section 8 of the RPR adds the requirement to use a licensed dosimetry service for equivalent doses to the skin, hands, and feet if the annual dose would be greater than 50 mSv. In order to determine if doses were above this level team members were asked to wear extremity rings continuously for a set period. A review of the doses in 2021 identified all NEWs were below the 50 mSv criteria and did not require dose to be assigned from a licensed dosimetry service provider.

Beginning in 2022 the quarterly extremity dose has been estimated using historic data. The extremity dose for 2024 was estimated by summing the quarterly averages and maximum results.

If there is a change in processing techniques or work configurations that would impact extremity dose, then an assessment is required to determine if the 50 mSv/yr criteria would be exceeded. Changes to equipment or processes are captured through CFM's Management of Change (MoC) process.

In 2024, there was one project that required an assessment of the impact to extremity dose. In the fourth quarter of 2024, a bundle inspection, washing, and repacking project was required as a result of a fire suppression system discharge that occurred in the Fuel Storage Building. Each team member assigned to the project underwent an assessment to determine the impact to the individual's extremity dose. Team members' time was limited for job tasks that were in higher extremity dose areas associated with the bundle wash project if the team members' normal duties were in a higher extremity dose area (i.e. Pellet Lab and Final Inspection). Team members were also provided ring dosimeters to wear during the project to assess the potential dose accrued. In 2024, a total of fourteen team members had assessments performed to determine the time the team members was able to work on the project and not increase the extremity dose that would have been received from their normal duties. All team members received extremity dose that was similar to the dose received in their normal wok activities would have been below 50 mSv/yr. Therefore, the extremity dose did not need to be adjusted for 2024 and continued to be estimated. The activity related to washing and repacking bundles was completed in the early in 2025.

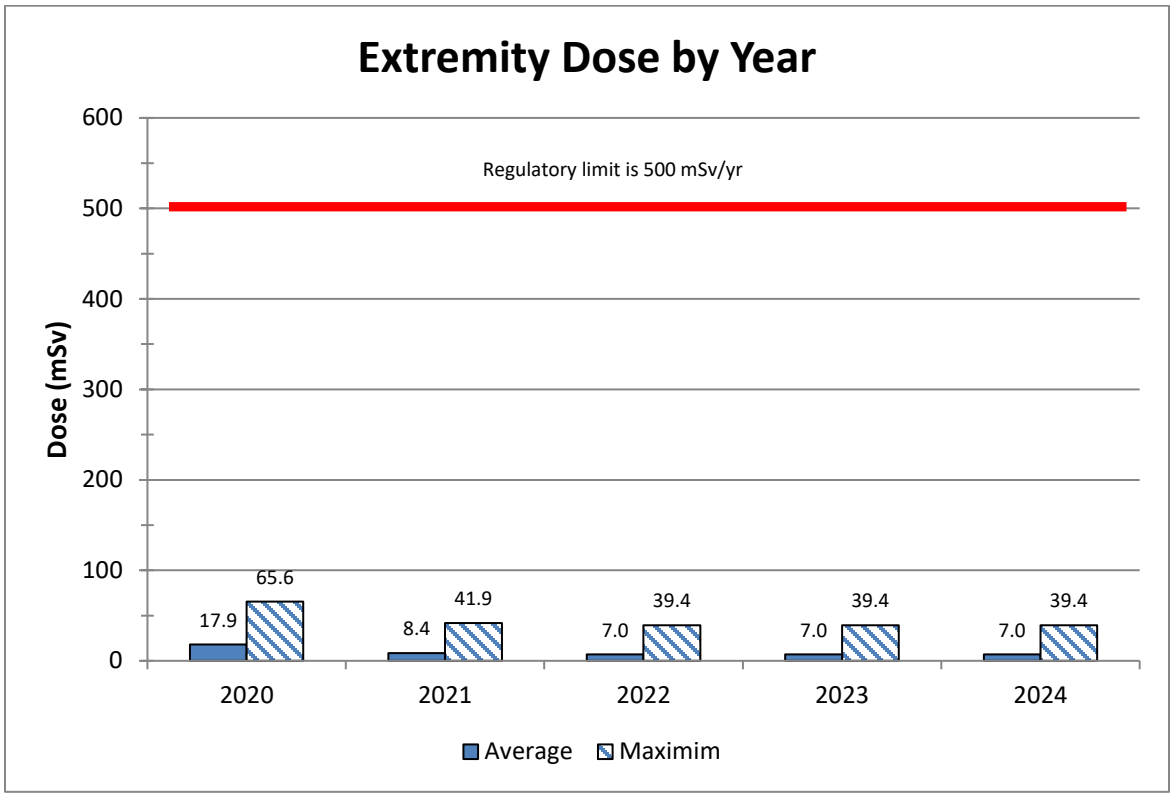
As the data was estimated for 2024 there is no distribution available. Table 11 and Figure 10 show the estimated annual average, minimum, and maximum extremity dose for all NEWs enrolled in the extremity program from 2020 – 2024. Using the data from 2021, the average extremity dose in 2024 is estimated to be 7.0 mSv and the estimated maximum dose in 2024 was estimated at 39.4 mSv. As this is an estimated dose based on historical data there is no one NEW that represents the maximum dose; however, historically the group that represents that highest extremity dose at CFM is a NEW from the Pelleting Area Inspectors.

The chart illustrates that the maximum annual dose received by an individual in 2024 is well below the regulatory limit and below the requirement to use a licensed dosimetry service provider (i.e., 50 mSv/yr).

**Table 11**

| 2020 – 2024 Extremity Dose | | | | |
|---|---|---|---|---|
| Year | Number of Individuals | Average Dose (mSv) | Minimum Dose (mSv) | Maximum Dose (mSv) |
| 2020 | 85 | 17.9 | 3.4 | 65.6 |
| 2021 | 83 | 8.4 | 0.0 | 41.9 |
| 2022 | - | 7.0 | 0.0 | 39.4 |
| 2023 | - | 7.0 | 0.0 | 39.4 |
| 2024 | - | 7.0 | 0.0 | 39.4 |

**Figure 10**




Urine Analysis

CFM collects routine bi-weekly urine samples from NEWs who work in the Pelleting Area. The samples are sent to Cameco's PHCF, a licensed dosimetry service, that analyzes urine samples for uranium content. The action level for NEWs that participate in the internal dosimetry program is 10 µg/L uranium concentration for a routine sample. In 2024, there were no exceedances of the urine analysis action level.

Table 12 provides the distribution, in 2 µg/L increments, for the urine analysis results in 2024. Of the 1777 routine urine samples analyzed during the year, no routine sample result was above 2.0 µg/L. The maximum routine sample result collected in 2024 was 1.6 µg/L and the annual average was 0.2 µg/L. Table 13 provides the average and maximum results from 2020 – 2024. The average result was lower than or equal to previous. The maximum result was lower than previous years except 2021. Urine results in 2024 are reflective of the improvement initiatives taken in previous years such as the use of enclosures (cells), increased extraction, and use of and knowledge of CAMheads, thereby reducing uranium in air concentrations.

**Table 12**

| 2024 Urine Analysis Uranium Concentration Distribution | |
|---|---|
| **Single Sample Range (µg/L)** | **Percentage of Individuals (%)** |
| **0 – 2** | 100 |
| **2 – 4** | 0.0 |
| **4 – 6** | 0.0 |
| **6 – 8** | 0.0 |
| **8 – 10** | 0.0 |
| **>10** | 0.0 |

**Table 13**

| 2020 – 2024 Urine Sample Results | | | |
|---|---|---|---|
| **Year** | **Number of Samples** | **Average Result (µg/L)** | **Maximum Result (µg/L)** |
| **2020** | 1685 | 0.3 | 2.0 |
| **2021** | 1565 | 0.3 | 1.5 |
| **2022** | 1564 | 0.2 | 2.2 |
| **2023** | 1667 | 0.2 | 1.8 |
| **2024** | 1777 | 0.2 | 1.6 |

Internal Dose

CFM team members are incorporated into the approved and licensed internal dosimetry program for Cameco's FSD.

In 2024, there were no routine urine sample results above the internal administrative level of 4.0 µgU/L for routine samples and no internal dose was assigned to any team member from urine data.

Lung Counting

As part of the licensed FSD internal dosimetry program, Cameco employs the use of a lung counter to measure uranium in the lungs and calculate the associated committed effective dose. Team members who work in the Pelleting Area for more than 500 hours in a year undergo direct in-vivo (lung counting) measurements. The action level for CFM is 5 mSv per year for an annual lung dose.

In 2024, there were no exceedances of the annual lung count action level. A total of 64 team members in the production work group met the criteria and required lung counting. These lung counts were performed in the second and fourth quarter of 2024. The remaining NEWs were prorated to obtain an internal dose. This was calculated according to the number of hours the person was physically in the Pelleting Area during the year and the average dose received by the measured group. The internal dose program does not apply to NEWs who worked less than 80 hours in the Pelleting Area. As per the dosimetry program, lung count measurements above the Decision Level (DL) result in individual dose assessments, rather than an assessment based on the group average. In 2024, one lung count was above the DL and the NEW was assigned a dose in 2024 based on an individual assessment rather than on the group average.

There were a total number of 79 NEWs who were either measured for internal dose by lung counting or were assigned an internal dose by prorating the hours worked in the Pelleting area. The maximum internal dose assigned from lung counting was received by a Pelleting area team member who was assigned an internal dose based on an individual assessment. This individual was not the same person with the maximum whole body dose but is the same team member with the maximum total effective dose.

Table 14 and Figure 11 show the distribution of lung counting doses in 1.0 mSv increments. All NEWs were assigned an internal dose below 4.0 mSv. The majority (72.2%) were assigned a dose between 1 – 2 mSv.

**Table 14**

| 2024 Internal Dose Distribution (Lung) | |
|---|---|
| **Dose Range (mSv)** | **Percentage of Individuals (%)** |
| **0 – 1** | 26.6 |
| **1 – 2** | 72.2 |
| **2 – 3** | 0.0 |
| **3 – 4** | 1.3 |
| **4 – 5** | 0.0 |
| **>5** | 0.0 |

**Figure 11**

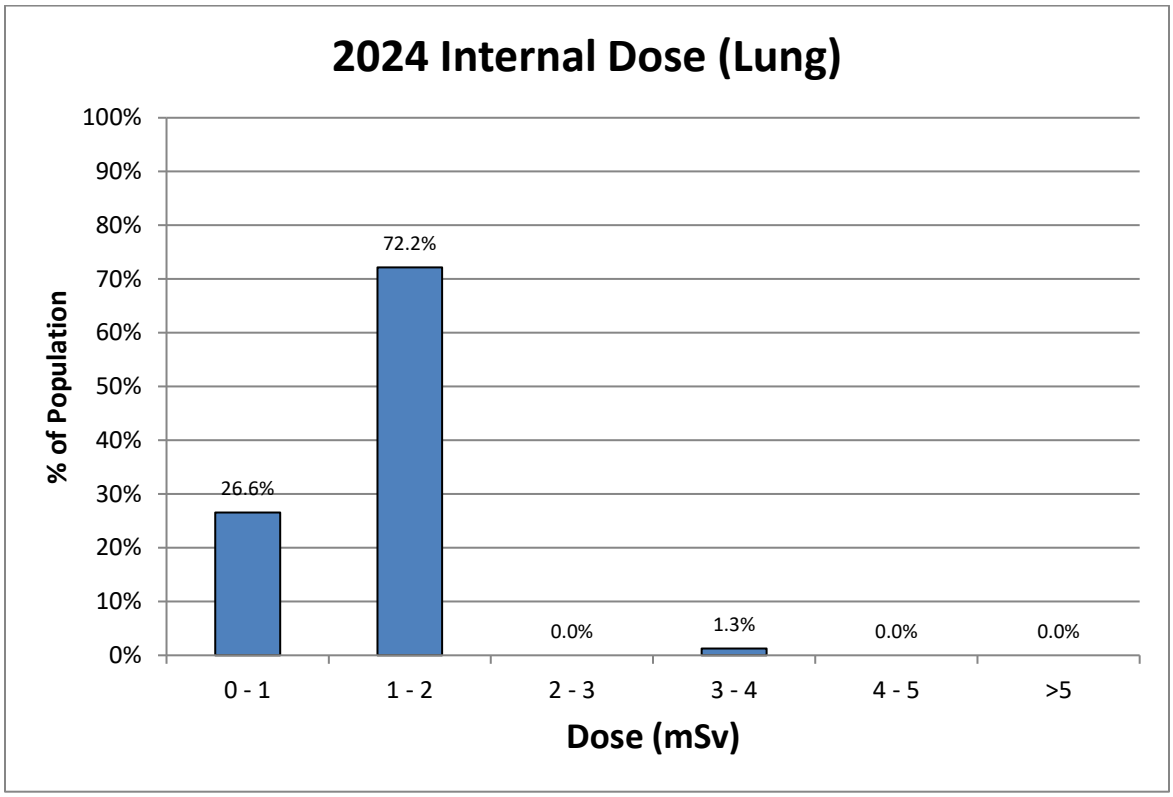



Table 15 shows the annual NEW lung dose results for two work groups: team members in operations; and team members in administration, and/or support roles. There were no outside contractors/visitors enrolled in the lung counting program in 2024 due to the low number of hours worked in the Pelleting Area during the year. The number of individuals in the support group (7) reflect team members that are not part of the operations group, worked more than 80 hours in the Pelleting Area; therefore, they are prorated based on the measured group. The majority of the team members in the operations work group (64) have a measured lung dose because they meet the criteria of greater than 500 hours working in the Pelleting Area. The remainder of the operations group (8) include team members who are part of the operations group, worked in the Pelleting area more than 80 hours and less than 500 hours; therefore, their lung doses were prorated. Therefore, in 2024, there were 64 NEWs assigned doses from the measured group and 15 NEWs with prorated doses. The highest doses are from the operations work group, consisting of production, maintenance, and quality personnel.

**Table 15**

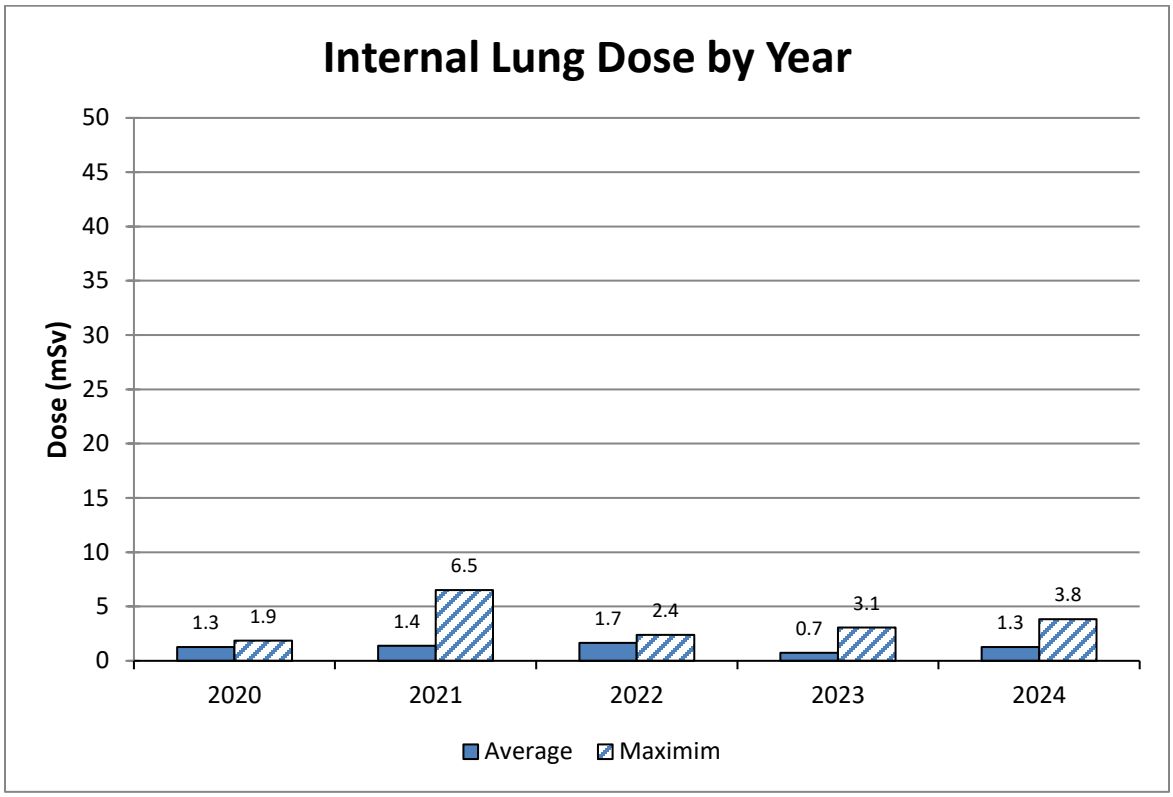
| Internal Lung Count Doses 2024 | | | | |
|---|---|---|---|---|
| **Dosimetry Group** | **Number of Individuals** | **Average (mSv)** | **Minimum (mSv)** | **Maximum (mSv)** |
| **Operations** | 72 | 1.4 | 0.1 | 3.8 |
| **Administration/Support** | 7 | 0.5 | 0.1 | 1.6 |

Table 16 and Figure 12 show the annual average, minimum, and maximum lung dose for the NEWs assigned a lung dose from 2020 – 2024. The chart illustrates that the maximum annual internal dose received by an individual is well below the regulatory limit. In 2024, the average lung dose for all NEWs in the internal dosimetry program was 1.3 mSv and the maximum lung dose was 3.8 mSv. The average internal dose for 2024 is lower than or equal to previous years, except last year (2023). The maximum dose is higher than previous years, except 2021 which was higher. The maximum dose was received by the NEW that was counted as an individual. The next highest dose was 1.7 mSv.

**Table 16**

| 2020 – 2024 Lung Dose | | | | |
|---|---|---|---|---|
| **Year** | **Number of Individuals** | **Average Dose (mSv)** | **Minimum Dose (mSv)** | **Maximum Dose (mSv)** |
| **2020** | 79 | 1.3 | 0.0 | 1.9 |
| **2021** | 80 | 1.4 | 0.0 | 6.5 |
| **2022** | 75 | 1.7 | 0.1 | 2.4 |
| **2023** | 79 | 0.7 | 0.0 | 3.1 |
| **2024** | 79 | 1.3 | 0.1 | 3.8 |

**Figure 12**




Total Effective Dose

Total effective dose is calculated by adding the whole body external dose measured from OSLDs and the internal dose derived from the lung count program as well as any internal dose assigned from the urine analysis program. The CNSC annual regulatory limits for total effective dose are 50 mSv per year and no more than 100 mSv for specific five year periods.

Table 17 and Figure 13 display the distribution of total effective dose for NEWs in 2024 in 2 mSv increments. The majority of NEWs (83.3%) had a total effective dose of 2 mSv or less, with all NEWs less than or, equal to 8 mSv. The number of NEWs with a total effective dose less than 2 mSv in 2024 was lower than the number in 2023.

**Table 17**

| 2024 Total Effective Dose Distribution | |
|---|---|
| **Dose Range (mSv)** | **Percentage of Individuals (%)** |
| **0 – 2** | 83.3 |
| **2 – 4** | 9.9 |
| **4 – 6** | 6.0 |
| **6 – 8** | 0.8 |
| **8 – 10** | 0.0 |
| **> 10** | 0.0 |

**Figure 13**

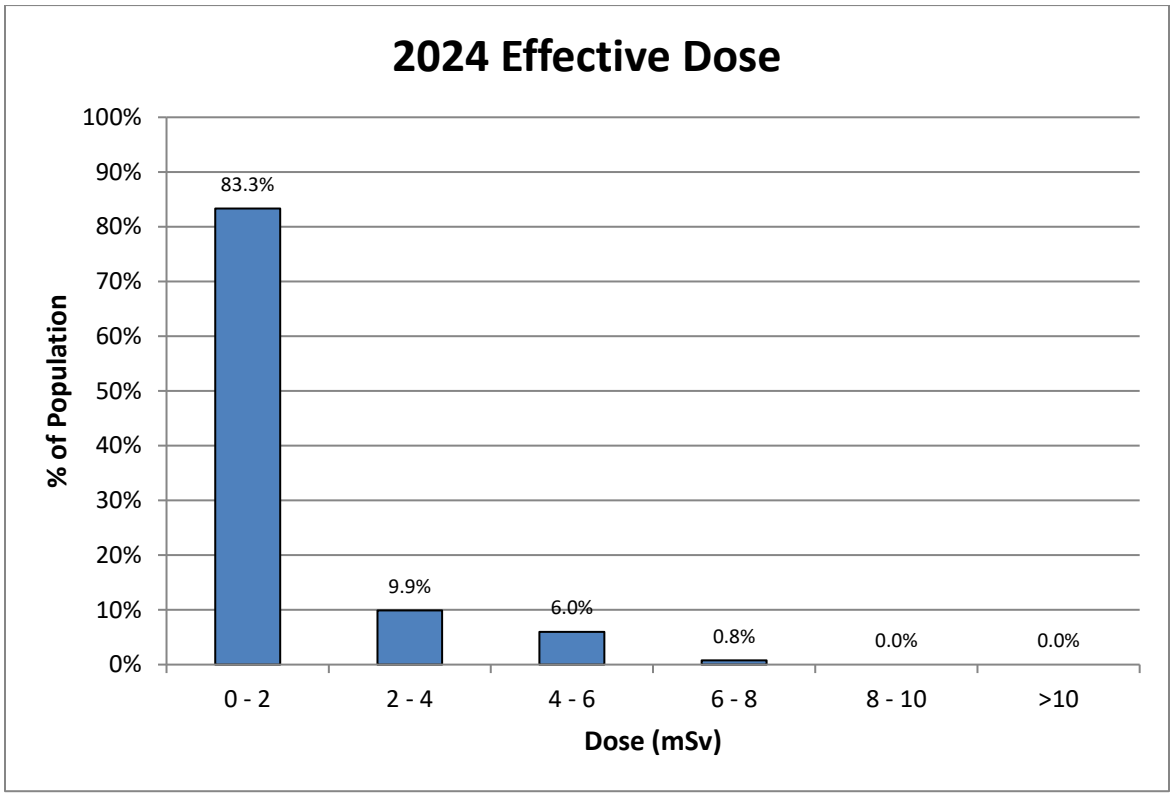



Table 18 shows the annual NEW total effective dose results for three work groups: team members in operations; team members in administration and/or support roles; and outside contractors/visitors. The highest exposures are from the operations work group, consisting of production, maintenance, and quality personnel. The maximum total effective dose for a NEW in 2024 was 8.0 mSv (16% of the annual dose limit), while the average total effective dose was 0.8 mSv.

**Table 18**

| 2024 Annual Total Effective Dose (all doses) | | | | |
|---|---|---|---|---|
| **Work Group** | **Number of Individuals** | **Average (mSv)** | **Minimum (mSv)** | **Maximum (mSv)** |
| **Operations** | 116 | 1.7 | 0.0 | 8.0 |
| **Administration / Support** | 105 | 0.1 | 0.0 | 2.0 |
| **Contractors/Visitors** | 31 | 0.0 | 0.0 | 0.1 |

Cameco measures and assigns dose to all workers with a potential to receive dose and designates workers as NEWs on this potential. Average results are reported using an assignment of a zero dose when the dose was too small to be measured. A measured dose of zero is a legitimate dose and reflects the radiation exposure controls in place at the facility. Table 19 shows the annual NEWs total effective dose results for measurable doses with zero doses removed for the three work groups: team members in operations; team members in administration and/or support roles; and outside contractors/visitors. The average effective dose for measurable doses with zero doses removed, for all NEWs in 2024 was 1.5 mSv.

**Table 19**

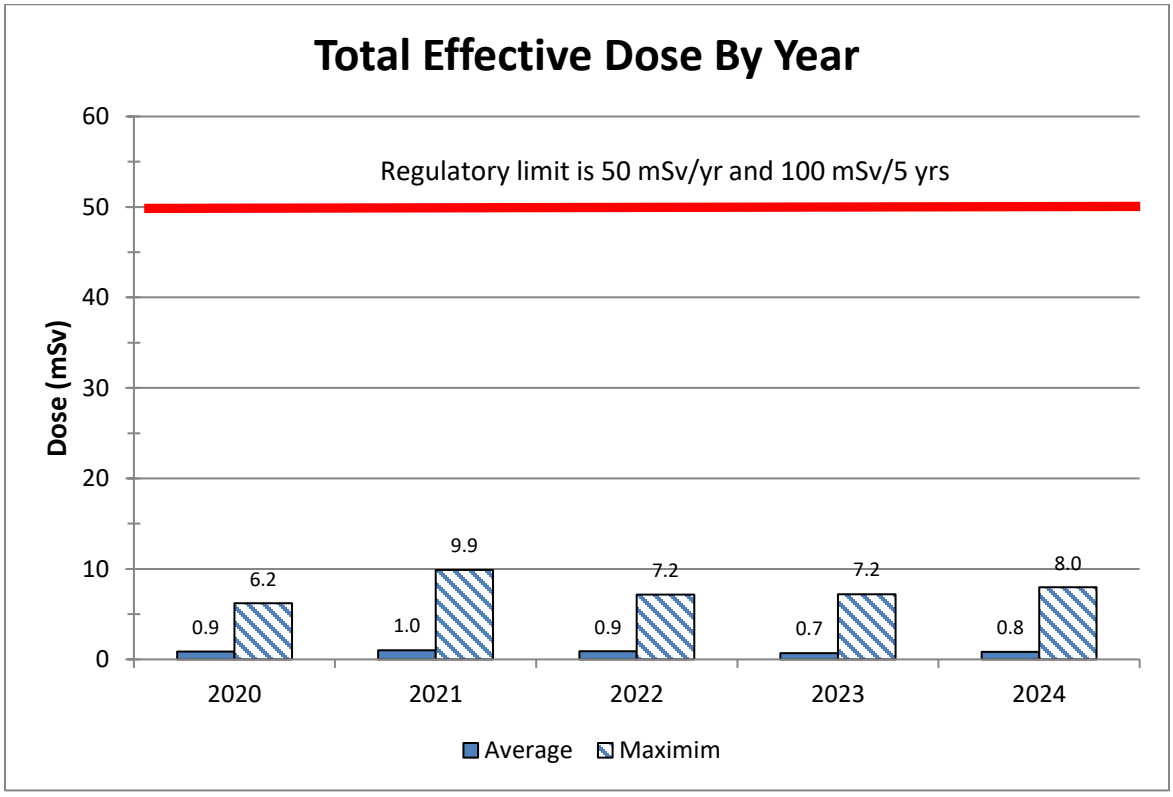
| 2024 Annual Total Effective Dose (all measurable doses, zero doses removed) | | | | |
|---|---|---|---|---|
| **Work Group** | **Number of Individuals** | **Average (mSv)** | **Minimum (mSv)** | **Maximum (mSv)** |
| **Operations** | 106 | 1.9 | 0.1 | 8.0 |
| **Administration / Support** | 26 | 0.3 | 0.1 | 2.0 |
| **Contractors/Visitors** | 9 | 0.1 | 0.1 | 0.1 |

Table 20 and Figure 14 show the team members annual total effective dose results for the period of 2020 – 2024. The average effective dose is lower than previous years, except 2023. The maximum effective dose in 2024 was higher than the maximum effective dose in previous years except 2021. The person with the highest total effective dose was the same individual with the maximum skin and eye dose and the maximum internal dose.

**Table 20**

| 2020 – 2024 Total Effective Dose | | | | |
|---|---|---|---|---|
| Year | Number of Individuals | Average Dose (mSv) | Minimum Dose (mSv) | Maximum Dose (mSv) |
| 2020 | 247 | 0.9 | 0.0 | 6.2 |
| 2021 | 217 | 1.0 | 0.0 | 9.9 |
| 2022 | 241 | 0.9 | 0.0 | 7.2 |
| 2023 | 240 | 0.7 | 0.0 | 7.2 |
| 2024 | 252 | 0.8 | 0.0 | 8.0 |

**Figure 14**




With respect to the regulatory limit of 100 mSv total effective dose over five years, the highest individual dose for the current five year dosimetry period (January 1, 2021 to December 31, 2025) is a Pelleting Area operator at 31.7 mSv.

The five NEWs with the highest total effective dose in 2024 are provided in Table 21. As indicated in the table, these individuals all work in the Pelleting Area. Furnace operators have historically received higher effective doses than their team members in the CFM

pelleting area; however there was more of an equalization in 2024 between positions in the Pelleting Area. The equalization is attributable to improvements such as the removal of 'heat sink material' from the area and replacing it with bricks used for this purpose. In addition, work required to wash bundles as a result of the fire suppression release event required more than usual handling of fuel bundles, particularly for individuals in the 'floater' role.The individual with the highest effective dose in 2024 is the same team member with the lung dose that exceeded the action level in 2022. The individual was measured and treated as an individual dose in 2023 and 2024. This team member is a general operator in the Pelleting Area.

**Table 21**

| 2024 Five Highest Total Effective Dose Individuals | | | |
|---|---|---|---|
| **Occupation** | **Whole Body Dose (mSv)** | **Internal Dose (mSv)** | **Total Effective Dose (mSv)** |
| **General Pelleting Area Operator** | 4.1 | 3.8 | 8.0 |
| **Furnace Operator** | 4.6 | 1.7 | 6.3 |
| **Floater Repair** | 3.8 | 1.6 | 5.4 |
| **Quality – Pelleting Lab** | 3.7 | 1.7 | 5.4 |
| **Floater Repair** | 3.5 | 1.6 | 5.2 |

Collective Dose

The collective dose in mSv for each dose component with all assigned doses from 2020 – 2024 is provided in Table 22. The number of team members included in each component is included in brackets next to the dose. The collective dose for Whole Body, Skin and Eye were lower in 2024, except 2022. The internal and effective collective dose was lower in 2024, except 2023.

**Table 22**

| 2020 – 2024 Collective Doses (mSv) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Whole Body | Skin | Eye | Extremity Left | Extremity Right | Internal Dose | Effective Dose |
| 2020 | 108.0 (247) | 761.9 (247) | 394.2 (247) | 1489 (83) | 1520 (83) | 102.1 (80) | 210.1 (247) |
| 2021 | 109.9 (217) | 752.3 (217) | 392.1 (217) | 656.4 (83) | 697.9 (83) | 111.0 (80) | 220.9 (217) |
| 2022 | 91.3 (241) | 678.8 (241) | 347.1 (241) | - | - | 124.0 (75) | 215.3 (241) |
| 2023 | 111.7 (240) | 754.3 (240) | 392.6 (240) | - | - | 57.4 (79) | 169.1 (240) |
| 2024 | 108.9 (252) | 730.1 (252) | 382.9 (252) | - | - | 100.4 (79) | 209.3 (252) |

( ) includes the number of employees
- extremity dose has been estimated since 2022

## Contamination Control

CFM has an extensive contamination control program. The facility is divided into four zones for contamination control purposes. Zone 1 areas are designated as clean areas with no contamination permitted. Food and drink can be consumed in these areas and include the Lunchroom and office areas. Zone 2 areas contain no open sources of radioactivity but have the potential for contamination. These areas include the assembly area, change rooms and the machine shop. Zone 3 areas are the access points to Zone 4. Zone 4 areas contain open sources of radioactivity and include the pelleting area. Consumption of food and drink are restricted in Zones 2, 3, and 4.

Routine contamination monitoring is done in all areas with results for 2024 provided in Table 23. Of the 2791 readings taken, none exceeded the Administrative Control Limits (ACL) for each zone.

**Table 23**

| 2024 Contamination Monitoring Results | | | |
|---|---|---|---|
| Area | Total Number of Measurements | Administrative Limits (Bq/cm²) | Number of Readings Above Internal Limits |
| Zone 1 | 532 | 0.4 | 0 |
| Zone 2 | 774 | 4.0 | 0 |
| Zone 3 | 167 | 4.0 | 0 |
| Zone 4 | 1318 | 40 | 0 |

In-Plant Air

Routine air sampling is conducted at workstations throughout the plant continuously during operations to monitor airborne $UO_2$ in the work environment. To ensure exposures to airborne uranium are well below the regulatory dose limits, CFM uses an internal Administrative Control Limit (ACL) for any daily air sampling result of 595 µg/m³ (15 Bq/m³) which is less than half the recommended concentration for an 80 hour monitoring period (urine bioassay schedule). The 2000 hour ACL represents an annual monitoring period and has been set at 52 µg/m³ (1.3 Bq/m³).

At CFM, air contamination monitoring is performed via a continuous air sampling system and/or a fixed air sampling system at calibrated sampling locations throughout the facility where uranium dust levels may be present. In December of 2024, the in-plant air sampling was reduced to three locations: one at each manual grinder and in the Pangborn Room. This transition is part of the final stages of the upgrade to the CAMhead system in the furnace hall of the Pelleting Area. Once the manual grinders are replaced the system will be removed completely. This is expected to occur in 2025 or 2026.

A summary of in-plant air sampling results including the area monitors for 2024 is provided in Table 24. Of the 9742 monitoring results, 5 results (less than 0.1%) exceeded the 2000 hour ACL with no results exceeding the 80 hour ACL. The past few years have seen a reduction in the in-plant air results with fewer maximum results above the ACL. The average in 2024 was 2 µg U/m³ and the maximum was 156 µg U/m³.

**Table 24**

**2024 Uranium In-plant Air Sampling Results**

| Plant Area | # of Samples | Average (µg U/m³) | Maximum (µg U/m³) | # Samples > $ACL^{2000\ hr}$ | # Samples > $ACL^{80\ hr}$ |
|---|---|---|---|---|---|
| Ceramics Room | 129 | 1 | 2 | 0 | 0 |
| Compaction Room | 258 | 2 | 9 | 0 | 0 |
| Load Room | 515 | 2 | 11 | 0 | 0 |
| Pangborn Room | 334 | 5 | 138 | 2 | 0 |
| Pelleting Area | 774 | 2 | 12 | 0 | 0 |
| $UO_2$ Grinders | 670 | 2 | 14 | 0 | 0 |
| Waste Treatment | 129 | 4 | 48 | 0 | 0 |
| PP2 Area | 1830 | 1 | 156 | 0 | 0 |
| Dry Waste Treatment | 2175 | 1 | 12 | 3 | 0 |
| Furnace Hall | 2928 | 2 | 21 | 0 | 0 |
| **TOTAL** | **9742** | **2** | **156** | **5** | **0** |

During normal operation, some processes in the Pangborn Room require respiratory protection. Therefore, procedures are in place requiring team members to wear respirators when performing specific job tasks in this area to minimize internal exposure (in addition to local extraction). Local extraction is sufficient in other areas where $UO_2$ powder is used.

All three of the elevated results occurred on the three CAMheads in the Dry Waste Treatment area on the same day. A Millwright was completing inspection of exhaust fans and belts and while inspecting the Pangborn motor and fan, the millwright shut down both systems from outside. This made the louvers stay open which allowed the extraction to backdraft into the Dry Waste Treatment area. The incident was entered into CIRS with an activity to review the work instructions resulting in improvements to instructions on how to shut down the Pangborns for inspections. Team members in the area were wearing respirators and submitted urine samples. This was reported as one event in the first quarter compliance report and should have been reported as 3 separate instances the ACL was exceeded.

Both of the elevated results that occurred in the Pangborn Room were from a split airline on a piece of equipment. The airline was replaced and tested several times to ensure there were no leaks present. Team members wear respirators when working in the Pangborn Room. Urine samples were provided to ensure there was no exposure to personnel as a result of the leak.

Gamma Surveys

An ongoing ALARA initiative involves posting OSLDs around the pelleting area, the waste treatment area, the PP2 area, as well as the assembly area to determine areas of elevated gamma radiation. The annual average, quarterly minimum, and quarterly maximum result in each location is summarized in Table 25. The results illustrate that the Fuel Storage Area had the highest gamma fields (average of 6.3 µSv/hr). The area is typically not occupied and has signage to notify team members and visitors to limit time spent in the area. The next highest reading (average 4.6 µSv/hr) was in the PP2 powder receiving area. This is expected due to the amount of raw material stored in this area and also has signage to notify team members and visitors to limit time spent in the area. All areas of the facility are consistent with the levels seen in previous years.

## Table 25

| 2024 Summary of Quarterly Plant Gamma Readings by Area (µSv/hr) | | | | |
|---|---|---|---|---|
| **Location #** | **Area** | **Average Result** | **Minimum Result** | **Maximum Result** |
| 13 | Kitting | 0.3 | 0.2 | 0.3 |
| 14 | S Stacking | 1.1 | 1.0 | 1.3 |
| 15 | Stacking | 0.2 | 0.2 | 0.3 |
| 16 | Pelleting Entry | 0.6 | 0.5 | 0.6 |
| 17 | Pelleting Lab | 0.1 | 0.0 | 0.1 |
| 18 | S Grinding | 1.0 | 1.0 | 1.1 |
| 19 | Grinding | 1.0 | 0.9 | 1.0 |
| 20 | N Grinding | 0.6 | 0.5 | 0.8 |
| 21 | S Wall Pelleting | 0.0 | 0.0 | 0.0 |
| 22 | S Furnace | 0.5 | 0.4 | 0.6 |
| 23 | Furnace | 0.7 | 0.4 | 1.0 |
| 24 | N Furnace | 0.1 | 0.0 | 0.2 |
| 25 | SE Wall Furnace | 0.3 | 0.2 | 0.3 |
| 26 | E Wall Furnace | 0.5 | 0.4 | 0.5 |
| 27 | NE Wall Furnace | 0.4 | 0.3 | 0.4 |
| 28 | N Corridor | 0.2 | 0.2 | 0.2 |
| 29 | Ceramics Lab | 0.1 | 0.1 | 0.1 |
| 30 | R7#1 East Wall | 2.0 | 1.6 | 2.3 |
| 31 | PP2 West Wall | 0.4 | 0.1 | 1.0 |
| 32 | S Pressing | 1.2 | 0.5 | 2.8 |
| 33 | N Pressing | 0.4 | 0.0 | 0.6 |
| 34 | Pangborn Room | 0.7 | 0.7 | 0.8 |
| 35 | S Waste Treat. | 1.5 | 1.3 | 1.9 |
| 36 | N. Waste Treat | 0.5 | 0.5 | 0.6 |
| 37 | PP2 Powder Rec. N | 1.1 | 0.9 | 1.3 |
| 38 | Powder Receipt | 0.1 | 0.0 | 0.2 |
| 39 | U3O8 Add-back | 1.1 | 0.9 | 1.6 |
| 40 | S End Cap | 0.2 | 0.2 | 0.3 |
| 41 | End Cap | 0.3 | 0.2 | 0.4 |
| 42 | N End Cap | 0.1 | 0.1 | 0.2 |
| 43 | E Offices | 0.0 | 0.0 | 0.0 |
| 44 | S End Plate | 0.0 | 0.0 | 0.0 |
| 45 | End Plate | 0.0 | 0.0 | 0.1 |
| 46 | N End Plate | 0.1 | 0.0 | 0.1 |
| 47 | W Offices | 0.0 | 0.0 | 0.0 |
| 48 | S Inspection | 0.1 | 0.0 | 0.1 |
| 49 | Inspection | 0.2 | 0.1 | 0.2 |
| 50 | N Inspection | 1.2 | 0.8 | 1.7 |
| 51 | W Inspection | 0.0 | 0.0 | 0.1 |
| 52 | Strapping Bay | 0.3 | 0.2 | 0.4 |
| 53 | Packing | 0.3 | 0.2 | 0.4 |
| 54 | Fuel Storage Area | 6.3 | 5.4 | 6.9 |
| 55 | Graphite East | 0.2 | 0.2 | 0.3 |
| 56 | BMS Loading | 0.9 | 0.6 | 1.2 |
| 57 | PP2 Receiving | 4.6 | 4.0 | 5.5 |
| 58 | PP2 Press R53-1 | 1.5 | 1.3 | 1.6 |
| 59 | PP2 E. Wall | 0.5 | 0.5 | 0.6 |

### 2.3.2 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.

A key element of a safe, clean, and reliable operation is a comprehensive and well-established worker protection program. The foundation of the program is based on the *NSCA* and its regulations as well as Part II of the *Canada Labour Code*.

Cameco has five key principles in the area of safety that form the framework for how safety is managed. These are:

- Safety is our first priority.
- We are all accountable for safety.
- Safety is part of everything that we do.
- Safety leadership is critical to Cameco Corporation.
- We are a learning organization.

CFM manages non-radiological health and safety through a comprehensive program as prescribed by the Cameco Safety and Health Program (CFM-SH). CFM maintains a series of detailed health and safety procedures and instructions. The safety program is further supported by monthly safety meetings on a wide variety of safety topics, regular safety audits and monthly inspections conducted by team members from all levels of the organization as well as regular safety training. Management is involved throughout the year to ensure the conventional safety and health program remains valid and effective. Regular meetings with the senior leadership team review progress on safety related objectives and KPI's. When targets are overdue or off track, the senior leadership team will take actions to address the concern. In addition, during the annual Management Review, the conventional safety and health program is reviewed by management on various aspects to determine the effectiveness of the program.

CFM's safety program sets out the requirements for safety and health management of the operation consistent with Cameco's corporate SHEQ policy. Key components of the program include:

- Compliance with all safety and health related legal and regulatory requirements.
- Setting of site safety and health objectives.
- Implementation of corporate safety standards.
- Development and maintenance of a formal hazard recognition, risk assessment and change control processes; and

- Documentation of safety and health significant incidents from the start through to the verification of completion of corrective actions via the CIRS database.

All program elements are audited at least once every three years. As part of the site internal audit program, audits of the various elements of the health and safety program are done on a routine basis. Any issues identified during these audits are documented in the CIRS database and any necessary corrective actions are tracked, and implementation verified. Further information on safety and health audit findings is provided in the Management Systems section of this report as well as submitted under separate confidential correspondence.

In 2024, CFM maintained its program of inspections and audits to not only identify potential safety risks, but also to take corrective actions to mitigate those risks to prevent team member injuries. JHSC workplace inspections continued throughout the year. The committee met twenty-one times, reviewed four documents/program, and completed twenty-one inspections, thereby meeting Canada Labour Code requirements. In 2024, on behalf of the workforce at CFM the JHSC worker co-chairs were presented the Mary Jean Mitchell Green award, a company-wide award, for excellence in safety performance.

Work continued towards the simplification of the safety and health management system. Program level documents were published for hazardous substance management, medical services, ergonomics and working at heights. This brings the total of programmatic level documents published at CFM to 9 of 12 planned. CFM's MDS system continues to be re-organized to align the lower tier work instruction documents within these categories.

Safety meetings are held monthly at each site with topics covering a range of safety program elements such as heat stress, modified tools, ergonomics, fire safety, workplace violence, and WHMIS. Each Safety Meeting includes an overview of objectives, a STAR self-check moment, and an inclusion moment. Ninety-nine (99%) percent of required safety meetings attendance was achieved.

There has been an intentional focus on the self-check tool, STAR, along with enhancing the safety culture through psychological safety. Both STAR and psychological safety support a questioning attitude that leads to near miss reporting of unsafe conditions (thirty-nine injury/illness near miss events reported in 2024).

Lagging indicators reveal that CFM had four recordable injuries in 2024. Three of the recordable injuries can be attributed to gradual onset conditions where the team member reported the injury after experiencing discomfort in their work tasks. One of the lost time injuries was initially reported as a non-work-related nuisance that escalated to surgical treatment. A second restricted work injury is still in active claim management with the

WSIB with disputes over work-relatedness. A review of the most serious top five safety incidents leaves one near miss and one injury when the four recordable injuries and the non-work-related events are removed.

Some of the other safety initiatives in 2024 included the following:

- Quarterly activities to help create a culture of safety such as:
    - mandatory winter safety boot check.
    - Safety-First scavenger hunt was held focusing on locating the answers in MDS, HSI 547 – Temporary Barriers, PHF 4289 – Spill Check List etc.
    - re-established the Employee Engagement Sub-Committee
    - implemented the 'Diversity Tree' to share celebrations throughout each month from all cultures and backgrounds
    - promote a STAR mindset via TV postings and wordsearch / crossword activity
    - held a BBQ to acknowledge all team members' contributions to helping keep a safe workplace and the JHSC shared gifts focusing on health & safety for the family during summer activities.
    - conducted a STAR Search contest to familiarize team members with the STAR methodology and get in the habit of regularly performing Self Checks.
    - continued with the annual Kids Safety Calendar encouraging children of team members to submit a safety related poster depicting what safety means to them with entries displayed in the CFM calendar.
- JHSC approached OPG for benchmarking best practices and a tour was arranged as well as committee members were able to attend an OPG JHSC meeting and discuss common safety issues between the two companies.
- JHSC participated in an ergonomic assessment with the goal of reducing repetitive strain/sprain injuries and committee members will then follow up with team members if any recommendations are implemented.
- JHSC encouraged the use of hearing protection at all times.
- JHSC participated in ergonomic assessments with the goal of reducing repetitive strain/sprain injuries and committee members will then follow up with employees if any recommendations are implemented.
- Conducted sound level and lighting assessments to identify any areas that could potentially lead to hearing damage and to ensure that lighting levels align with CLC requirements.

- Continued a scoring approach for completed Job Task Observations with JTO's provided to the leadership group for scoring. The group grades 50% of the units (1 JTO per person) for completeness/effectiveness. The items that are identified for actioning or suggestions provided are put onto the production newspaper bulletin for either follow up or further actioning.
- Continued to support mental health improvement initiatives.

Initiatives that are planned for 2025 include the following:

- Offer custom fit hearing protection to all team members in 2025.
- Continue to track and trend incidents, including near miss incidents, continue to direct the focus for safety improvements along with the JHSC objectives for 2025,
- Continue to complete ergonomics assessment on specified job areas, and
- Continue transferring health and safety procedures to align with the Safety and Health Program

Job Task Observations (JTO) completion for CFM in 2024 was over 100% throughout the year (with more than JTO's completed than required) while 99% of all required layered inspections were completed. In 2024, 281 Non-Routine Work Order (NRWO) permits were issued. Of the 255 NRWO's that were assessed, 76% were rated as satisfactory or higher. This is almost double the number of reviews that occurred in 2023. Feedback on the NRWO was provided to the permit holder to improve future adherence. The overall performance of the NRWO process since the review was implemented is consistent positive results.

All health or safety-related events are entered into the CIRS database system to ensure proper tracking and management. The CIRS classification system defines five categories of incidents based on actual and potential outcome, with Category I incidents being minor in scope and Category V incidents having the highest actual and potential consequences. The tracking and trending of incidents, including near miss incidents, continues to direct the focus for safety improvements along with the JHSC objectives for 2024.

Ergonomic risk assessments and physical demands analysis were completed in 2024 and will continue into 2025 with a spotlight on high-risk tasks.

CFM-SH is the top tier document that details the harm reduction measures for hazards identified within CFM's operations and complements the Hazard Prevention Program (MSP 34-01). The program encompasses the identification of hazards, including health, safety, radiation, and fire safety hazards as they associate with both routine and non-routine activities.

Following the Canada Labour Code requirement of a Hazard Prevention Program, CFM evaluates the effectiveness of its health and safety program based upon a review of the following:

a) Conditions related to the workplace and the activities of the employees.
    - Workplace violence survey/assessment
    - Management of Change process
    - Communication survey
    - Self-Check / STAR infusion into communications and training
    - Ergonomic assessments – ERA's/PDAs with recommendations dispositioned
b) Workplace inspection reports.
    - JHSC monthly inspection reports
    - Industrial hygiene reports – noise, lighting, mould, asbestos
c) Hazardous occurrence investigation reports.
    - All incidents are investigated back to root cause
d) Safety inspection.
    - JTO's
    - Layered inspections
    - Sweep inspections
    - Process inspections
e) First aid records and injury statistics, including records and statistics related to ergonomic related first aid injuries.
    - JHSC CIRS review
    - CFM Injury Classification reviews
    - Injury trending/statistics communicated to employees at monthly safety presentations
f) Observations of the Joint Health and Safety Committees; and
g) Any other relevant information that is made available.

Utilizing the program reviews above as they align with a Hazard Prevention Program, statistics indicate that CFM continues to demonstrate a robust safety and health program. Through education, pro-active initiatives, and recognition of performance, the number of injuries and the severity of those injuries are continuing to trend down over the last 5 years. Based upon this review, CFM has an effective safety program in place.

CFM's Total Recordable Injury Rate (TRIR), specific for the Port Hope facility, was 0.76 in 2024 which is below the target of <1.80. CFM's overall safety statistics for both sites saw a decrease in first aid incidents in 2024, a total of sixteen first aid injuries were reported, a decrease from the twenty-three that were reported in 2023. A critical

component of injury prevention at CFM is the reporting of near misses. There was thirty-nine near misses reported in 2024.

Table 26 shows the safety statistics for the last five years, from 2020 to 2024 for the Port Hope facility only.

**Table 26**

| 2020 – 2024 Safety Statistics* | | | | | |
|---|---|---|---|---|---|
| **Year / Parameter** | **2020** | **2021** | **2022** | **2023** | **2024** |
| **First Aid Injuries** | 17 | 15 | 5 | 16 | 14 |
| **Medical Diagnostic Injuries** | 1 | 2 | 9 | 1 | 4 |
| **Medical Treatment Injuries** | 2 | 0 | 3 | 0 | 1 |
| **Lost Time Injuries** | 0 | 0 | 1 | 0 | 0 |
| **Lost Time Injury Frequency** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Lost Time Injury Severity** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

*Port Hope facility specific statistics

### 2.3.3 Environmental Protection

This safety and control area covers programs that monitor and control all releases of nuclear and hazardous substances into the environment, as well as their effects on the environment, as the result of licensed activities.

There are both federal and provincial regulatory authorities that have legislative jurisdiction over environmental protection at the facility. CFM monitors facility discharges to ensure that they meet applicable provincial and federal requirements. CFM's environmental monitoring program is comprised of monitoring the following components:

- water and air emissions.
- gamma levels.
- ambient air; and
- soil and groundwater.

For key emission parameters, CFM has established internal action levels accepted by the CNSC, which may be indicative of a potential loss of control for that specific parameter. These action levels serve as an early warning of a condition that warrants further investigation. An exceedance of an action level does not indicate any adverse environmental effects; however, it is an indication there may be an issue that needs to be corrected within the environmental protection program. A result above an action level is investigated and remedial actions taken if necessary. Action levels are detailed in the Environmental Protection section of CFM's LCH.

The key characteristics of the operation and activities that can have a significant environmental impact are monitored and measured and are described in the Environmental Protection Program manual (CFM-EP) and associated procedures. This document identifies all of the emissions to the air, water and land, the programs that are in place to monitor them, what is measured, the legal requirements, and the reporting requirements.

To align with CFM's Environmental Protection Program (to align with N288.4 *Environmental Monitoring Programs at Class 1 Nuclear Facilities and Uranium Mines and Mills and CSA N288.5 Effluent Monitoring Programs at Class 1 Nuclear Facilities and Uranium Mines and Mills*, an assessment against performance criteria, objectives and targets, as well as the effectiveness of the effluent monitoring programs in accomplishing their respective objectives was performed. The following summarizes this review:

- All required planned sampling with both internal and external analysis was completed as required to meet the Environmental Protection Program planned samples.
- All sampling equipment was maintained in working order including applicable calibration cycles. A complete complement of back-up sampling equipment is maintained ready for immediate change over to limit sampling down time. Very few equipment failure events occurred in 2024. Planned sampling was only reduced by one sampling cycle during these events.
- All data is summarized and reported to the CNSC during CFM's quarterly and annual compliance reporting.

CFM updated its Environmental Risk Assessment (ERA) in 2021 to assess any risks that may have emerged since the last ERA review. There were no changes identified in 2024 which required an update of the ERA before the 5-year timeframe.

Environmental protection objectives and targets are established jointly by the site management team and site specialists as well as corporate and divisional leaders to ensure there is agreement, commitment, and awareness of these objectives and targets across all areas of the operation. These objectives and targets can address, among other things, waste reduction initiatives and other projects which examine ways to reduce environmental emissions. Resources are allocated as required to achieve the targets and the status of these objectives are reviewed by the site leadership team.

Some of the initiatives that impacted environmental objectives and targets from 2024 included:

- Reduced environmental risks by completing the following:
  - commissioning of new groundwater treatment system
  - performing sewer system inspections per the containment standard
  - preparing and submitting AFE for groundwater sampling well replacement program.
- Transitioned to a new Environmental Management Database (EQuIS). Validated transfer of historic and current data as well as reporting.
- Commissioning and testing of alpha counting system to replace aging equipment.
- Improve waste pathways including:
  - Increase waste diversion through assessment of alternative recycling handlers, which is ongoing and will continue in 2025.
  - Planning for removal of contaminated soils from beneath the Port Hope facility paved area.

- Use of CAMheads to calculate building ventilation concentrations in the Pelleting Area which is a better representation of the operations.
- Installation of shield wall to lower dose rate to location 12 representing the critical receptor location.

In 2024, a KPI target included ensuring sanitary sewer discharges satisfy historical benchmarks. Annual sanitary discharge of uranium was estimated at 0.25kg, which is below the historical benchmark of 1.8kg.

Procedural reviews related to environmental protection that were made in 2024 include the following:

- MSP 17-02 Safety, Health, Environmental and Radiation Nonconformances – Minor changes due to organizational changes, added Appendix 3 sheets deployed at SHER tag locations.
- HSI-347 47mm Stack Air Sampler System Calibration - Update to include current organization and titles and update wording to reflect current process for roof filter changes.
- CFM-EP-05 Surface Water and Storm Water Monitoring Program for Cameco Fuel Manufacturing – Updated to includes metals sampling detail and SW-1/7 location changes. Update Gages Creek Tributary to West Gage Creek. Updated Table 1, Table 2 and Figure 1.
- CFM-EP-04 Groundwater Monitoring Program for Cameco Fuel Manufacturing – Updates made throughout document including responsibilities, inclusive language, and program clarity. Table 1 updated for licensed site monitoring well changes and addition of new wells. Table 2 updated to include MECP Table 9 requirements. Figure 1 updated with new well locations.

Environmental initiatives planned for 2025 include the following:

- Installation of handrail and fix slope for shield wall.
- Maintain environmental performance without increasing environmental impact
- Increase waste diversion through assessment of alternative recycling handlers,
- Removal of contaminated soils from beneath the Port Hope facility paved area.
- Continue with plan to remove legacy uranium contaminated waste from the site by removing two legacy trailers.

As part of the audit program, audits of the various elements of the environmental program are done on a routine basis. Any issues identified during these audits are documented in the CIRS database so that corrective actions can be tracked, and implementation verified. Further information regarding audits is provided in the Management Systems section of this report and under separate confidential correspondence. There were no inspections conducted by the Ministry of Environment Conservation and Parks (MECP) in 2024.

In 2024, all environmental releases were below the limits detailed in CFM's licence FFL-FFL-3641.0/2043. There was one environmental incident in 2024 that were reportable to the MECP's Spills Action Centre and the CNSC Duty Officer. The incident is discussed in the Operational Performance section of the report.

The reportable incident was thoroughly investigated with a corrective action plan developed. There was no risk to the public related to the incident. There was no impact to the environment resulting from the event, the health and safety of persons was maintained as was the maintenance of national and international security. Any incident is reviewed against Cameco's severity matrix and is entered into its incident reporting system to document the investigation and corrective actions. Cameco is confident that through the corrective actions implemented, the review of the incidents that occurred and robust management systems CFM will continue to operate in a safe, clean, and reliable manner.

In 2024, there were no significant programmatic changes or challenges in the environmental protection program.

CFM's environmental protection initiatives have been effective as evidenced by low airborne and liquid emissions from the facility. Additionally, there were no regulatory limit or action level exceedances in the environmental program in 2024. Objectives focus on improving environmental conditions and responding to historical contamination events.

Dose to the Public

The *NSCA* requires that no member of the public shall receive from a neighboring nuclear facility an annual radiation dose in excess of 1 mSv. To ensure compliance with this regulation, explicit limits are placed on the quantities of radioactive materials that may be released from licensed facilities in gaseous and liquid effluents, and on the gamma radiation levels emitted from the facility. These "Derived Release Limits" (DRLs) take into account all significant physical pathways and are calculated based on the average member of the site specific critical group receiving an annual dose of 1 mSv from each of the pathways. Since the pathways are site specific, different release limits apply to different facilities.

The Derived Release Limit was last updated in 2021. This update resulted in significant changes to how the dose to the public is calculated. Most significantly, the critical receptor changed from the residents to the west of the facility to the residents of the palliative care facility to the northwest of the facility.

Similar to the changes to the calculations for dose to the public at PHCF in 2016 following the update to the DRL, the updated dose calculations for CFM related to the releases to water and the fence line gamma location are more conservative than those previously used. The reported dose since 2021 appears higher than previous years, but there has not been an actual increase in the emission/dose from the facility. The results represent a much more conservative estimate of dose to the public because the gamma monitoring location at the facility fence line is now closer to the operating facility than the previous location, resulting in the increase shown in Table 27. For this reason, the results beginning in 2021 should not be compared with previous years' results.

The dose to the public from CFM operations is calculated based on three components: dose to the public from air emissions, dose from water discharges, and dose from gamma radiation.

The DRLs used in the calculations are:

- air effluent (process stacks) – 299 kg/year
- air effluent (building ventilation) – 41.5 kg/year
- liquid effluent – 331 kg/year; and
- gamma radiation levels (location 12) – 1.35 microsievert (µSv)/hr

In August of 2023, the CNSC released an updated LCH after the 20 year licence was granted. The release limits in the LCH were changed for air emissions to 1.2 g/hr for an annual averaging period. In 2024, CFM implanted a new environmental software database which included the ability to report data against the release limit. This change was implemented in the second quarter therefore for 2024 CFM will continue to compare results against the yearly limit of 10.5 kg as well as the annual average of 1.2 g/hr.

Under its ALARA activities, CFM has focused considerable effort on ensuring adequate shielding to the west side of fuel storage areas due to the historical identification of the critical receptor as west of the facility. Prior to changing the critical receptor to location 12, CFM had implemented public dose reduction measures by installing a soil berm north of the Fuel Storage Building. Following the updated DRL and the first year of calculating dose based on a different critical receptor, CFM identified an ALARA opportunity to further improve the gamma shielding on the north and west side of the Fuel Storage Building. Planning for the project began in 2023 with

installation of the shielding was started in 2024 with full completion expected early in 2025.

Air effluent calculations include the assessment of releases of particulate $UO_2$ to air from process stacks and building ventilation from the facility. Process stacks are continuously sampled during operation and analyzed daily for uranium emissions. The total amount of $UO_2$ released to the environment during the year in gaseous effluent from stacks in 2024 was 0.004 kg.

In addition, each process area also has its own separate ventilation system. Emissions in the building ventilation from the Pelleting area has been historically determined using the average in-plant air sampling results from the Pelleting Area along with exhaust discharge rates. In 2024 continuous alpha monitors (alpha CAMs) in the area were used for both the Pelleting area and the PP2 area to calculate the daily average and amount of uranium emitted from the areas. As the building ventilation in the PP2 area uses HEPA filtration, a 90% efficiency factor is used in the calculation. The estimated release of $UO_2$ from all sources of building ventilation during 2024 was 1.09 kg. Therefore, the total amount of $UO_2$ released to air from stack emissions as well as building ventilation is estimated to be 1.09 kg in 2024.

Public dose is also calculated using the liquid emissions from the facility. This is calculated from sampling the main sewer emission point on the east side of the facility. Samples are taken twice a week and analyzed to calculate the uranium concentration in the sample. The volume of water used in the sampling period is used to calculate the emissions from the liquid effluent and compared to the DRL. In 2024 the amount of uranium released through liquid effluent in the sanitary sewer system was 0.255 kg.

At CFM, the gamma component represents the majority of the public dose. The closest residence to the CFM facility is located outside the fence line on the west side of the site. The location at the fence line that represents the critical receptor is location 12. To determine the total effective dose in this location, the natural background dose rate of 0.08 µSv/hr for the Port Hope area is subtracted from the result. The average dose rate at this location was 0.29 µSv/hr.

The public dose calculation is demonstrated in the following formula:

Public Dose = Dose Air (stacks) + Dose Air (building ventilation) + Dose Water + Dose Gamma (location 12)

The total dose to the member of the public, in 2024, from air emissions (process and building ventilation), liquid emissions and gamma levels is calculated to be 0.242 mSv.

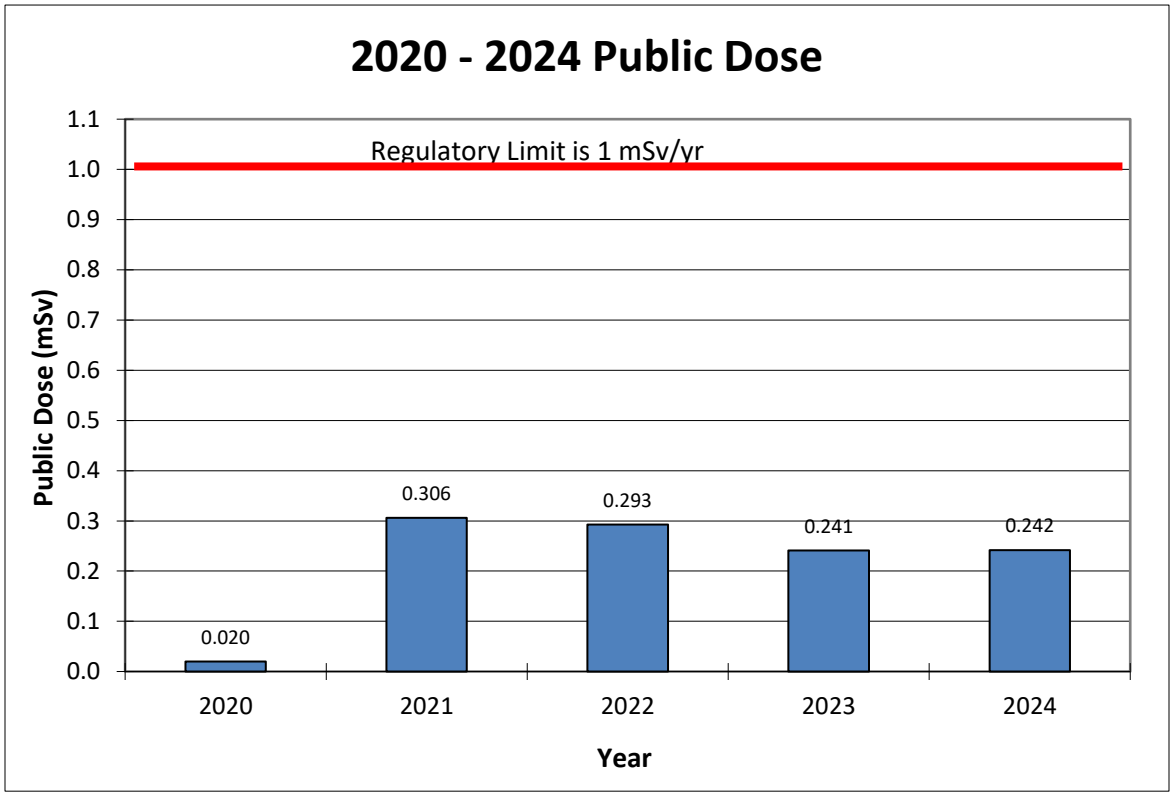
The 2024 annual estimated dose is provided in Table 27 and Figure 15. The table provides the total dose to the critical receptor as well as the individual contributions from air and gamma converted into mSv/yr units for comparison. The dose to the critical receptor remains low when compared to the dose. The public dose calculated in 2024 is lower than or similar to the public dose calculated in previous years. This is directly related to the gamma dose rate at location 12 which accounted for 89% of the public dose in 2024.

**Table 27**

| 2020 – 2024 Dose to the Public (mSv/yr) | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **2020** | **2021** | **2022** | **2023** | **2024** |
| **Air (combined)** | 0.003 | 0.021 | - | - | - |
| **Air (process stacks)** | - | 0.000 | 0.000 | 0.000 | 0.000 |
| **Air (building ventilation)** | - | 0.021 | 0.026 | 0.025 | 0.026 |
| **Liquid** | - | 0.004 | 0.001 | 0.001 | 0.001 |
| **Gamma (Location 12)** | - | 0.281 | 0.267 | 0.215 | 0.215 |
| **Gamma (Location 1)** | 0.017 | 0.002* | - | - | - |
| **Total dose to Previous Critical Receptor (Location #1)** | 0.020 | 0.027* | - | - | - |
| **Total Dose to Critical Receptor (Location #12)** | - | 0.306+ | 0.293 | 0.241 | 0.242 |

*Data calculated using location #1 gamma dose as well as revised DRL's and including liquid dose
+Data calculated using location #12 gamma dose as well as revised DRL's and including liquid dose
- not calculated in specified time period

**Figure 15**




*Public dose calculated in 2020 using location 1 for critical receptor and since 2021 using location 12

Gamma Monitoring

In order to ensure that local residents are not exceeding the public dose limit, environmental dosimeters are strategically placed (at chest height) around the exterior perimeter of the licensed facility. The dosimeters are deployed on a quarterly basis and measure gamma levels in mSv and are converted into µSv/hr when the number of hours the dosimeters were deployed are considered. Twelve locations have been selected around the licensed facility's fenced perimeter.

The perimeter gamma DRL for the critical receptor at location 12 is 1.35 µSv/hr and the action level remains at 1.0 µSv/hr respectively. The other DRL's listed for gamma monitoring are for location #1 and location #2 at 4.96 µSv/hr and 0.46 µSv/hr respectively. There were no exceedances of the DRL's or the action levels in 2024.

Table 28 provides the average quarterly and maximum gamma levels in µSv/hr for all fence line monitoring locations (i.e., 1-12) in 2024. The location with the highest gamma level in 2024 was location 12. This is due to the proximity of the location to the Fuel Storage Building.

**Table 28**

| 2024 Gamma Monitoring Results (µSv/hr) | | | | |
|---|---|---|---|---|
| **Location** | **Regulatory Limit (DRL)** | **Action Level** | **Annual Average** | **Quarterly Maximum** |
| **1** | 4.96 | 0.2 | 0.00 | 0.01 |
| **2** | 0.46 | 0.2 | 0.04 | 0.06 |
| **3** | - | 1.0 | 0.00 | 0.00 |
| **4** | - | 1.0 | 0.00 | 0.00 |
| **5** | - | 1.0 | 0.00 | 0.00 |
| **6** | - | 1.0 | 0.00 | 0.00 |
| **7** | - | 1.0 | 0.00 | 0.00 |
| **8** | - | 1.0 | 0.00 | 0.00 |
| **9** | - | 1.0 | 0.03 | 0.11 |
| **10** | - | 1.0 | 0.00 | 0.00 |
| **11** | - | 1.0 | 0.24 | 0.32 |
| **12** | 1.35 | 1.0 | 0.29 | 0.47 |

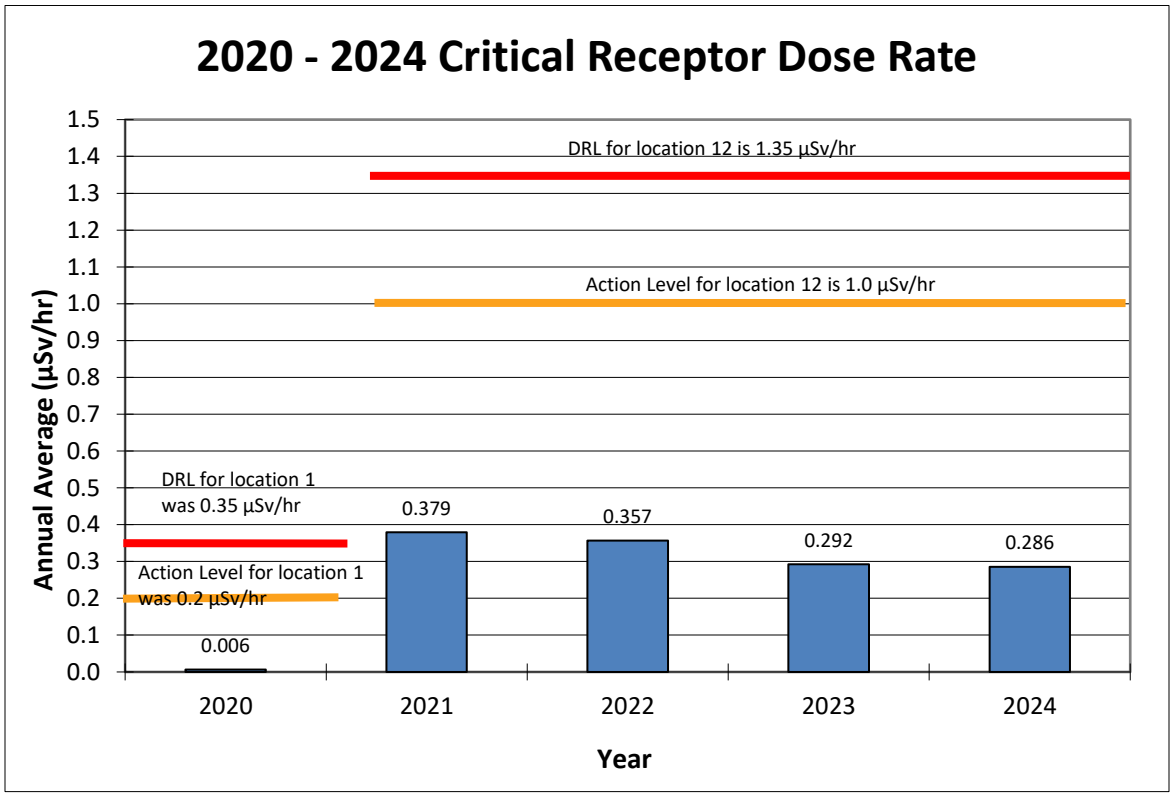
The annual average monitoring results for location 1 (previous critical receptor location) and location 12 (critical receptor from 2020 DRL report) are provided in Table 29 and Figure 16. Results have been corrected to take into account background gamma levels by subtracting 0.08 µSv/hr.

## Table 29

| 2020 – 2024 Critical Receptor Gamma Monitoring Results (µSv/hr) | | | |
|---|---|---|---|
| **Period** | **Regulatory Limit (DRL)** | **Action Level** | **Annual Average** |
| **2020** | 0.35 | 0.2 | 0.006* |
| **2021** | 1.35 | 1.0 | 0.379 |
| **2022** | 1.35 | 1.0 | 0.357 |
| **2023** | 1.32 | 1.0 | 0.292 |
| **2024** | 1.32 | 1.0 | 0.286 |

*Uses location #1 as the critical receptor and 2002 DRLs

## Figure 16



Discharge to Air

Discharge to air is calculated from the releases of particulate $UO_2$ to air from process stacks and through building ventilation. Process stacks are sampled and analyzed daily for uranium emissions. In addition, each process area also has its own separate ventilation system. Emissions from this system are determined using in-plant air sampling data and exhaust discharge rates.

On March 1, 2023, when CFM was issued a new licence, the release limit for air emissions changed from 10.5 kg/yr to 1.2 g/hr for an annual averaging period. This includes emissions from both the exhaust ventilation and process stacks. In April of 2024 CFM implemented a new Environment Data Management database that was designed to report the stack emissions in the same units as the annual release limit in the LCH. The annual average stack emission rate was 0.0001 g/hr for 2024. The PP2 annual average concentration for 2024 was 0.01 g/hr while the average concentration for the Pelleting Area was 0.11 g/hr. Therefore, the annual average of process stacks and building ventilation would be 0.04 g/hr in 2024, which is 3.3% of the release criteria. If the average were added the total emission rate would be 0.12 g/hr, which is 10% of the release criteria. Table 30 provides the 2020 – 2024 annual average of uranium emitted in building ventilation. Table 30 also provides the 2024 annual average in g/hr of all stacks, since April 1, 2024 which the first date that data was provided in this format. Also provided is the annual average of uranium emitted in air for process stacks and building ventilation as well as the sum of the averages of uranium emitted in air emissions.

**Table 30**

**Annual Average Uranium Emission Rates in Air by Year (g/hr)**

| Parameter | Release Limit | Measure | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|
| Stack | 1.2 | Average | - | - | - | - | 0.0001 |
| Building Ventilation - Pelleting Area | 1.2 | Average | 0.1 | 0.1 | 0.2 | 0.2 | 0.11 |
| Building Ventilation - PP2 Area | 1.2 | Average | 0.0 | 0.0 | 0.0 | 0.0 | 0.01 |
| Annual Average of process stacks and building ventilation | 1.2 | Average | - | - | - | - | 0.04 |
| Annual total of process stacks and building ventilation | 1.2 | Total | - | - | - | - | 0.12 |

*- data not available until April 1, 2024

Stack Emissions

Samples of the gaseous effluent released from the plant are obtained by stack sampling which are analyzed by alpha counting to obtain the uranium concentration. In 2024 CFM sampled nine process stacks throughout the year for uranium emissions.

A variety of pollution control equipment including baghouses, and absolute filters are used at the facility to control and reduce emissions to air. The stack effluent action level is 2.0 µg/m³ uranium concentration for a single stack reading. There were no exceedances of the action level with respect to air emissions.

Table 31 provides the 2024 average and maximum daily uranium concentration in µg/m³ by stack. The maximum for all the stacks was 0.4 µg/m³ and occurred in the North Pangborn stack.

Table 32 and Figure 17 provide the estimated uranium emitted in kilograms from 2020 to 2024. The total amount of uranium dioxide released to the environment during the year in gaseous effluent from stacks was 0.004 kg (4 grams). The annual average emission rate for stacks was 0.0001 g/hr in 2024. For this reason, and as indicated in the tables, stack emissions remain low and are well below the annual release limit of 1.2 g/hr and 10.5 kg/yr.

## Table 31

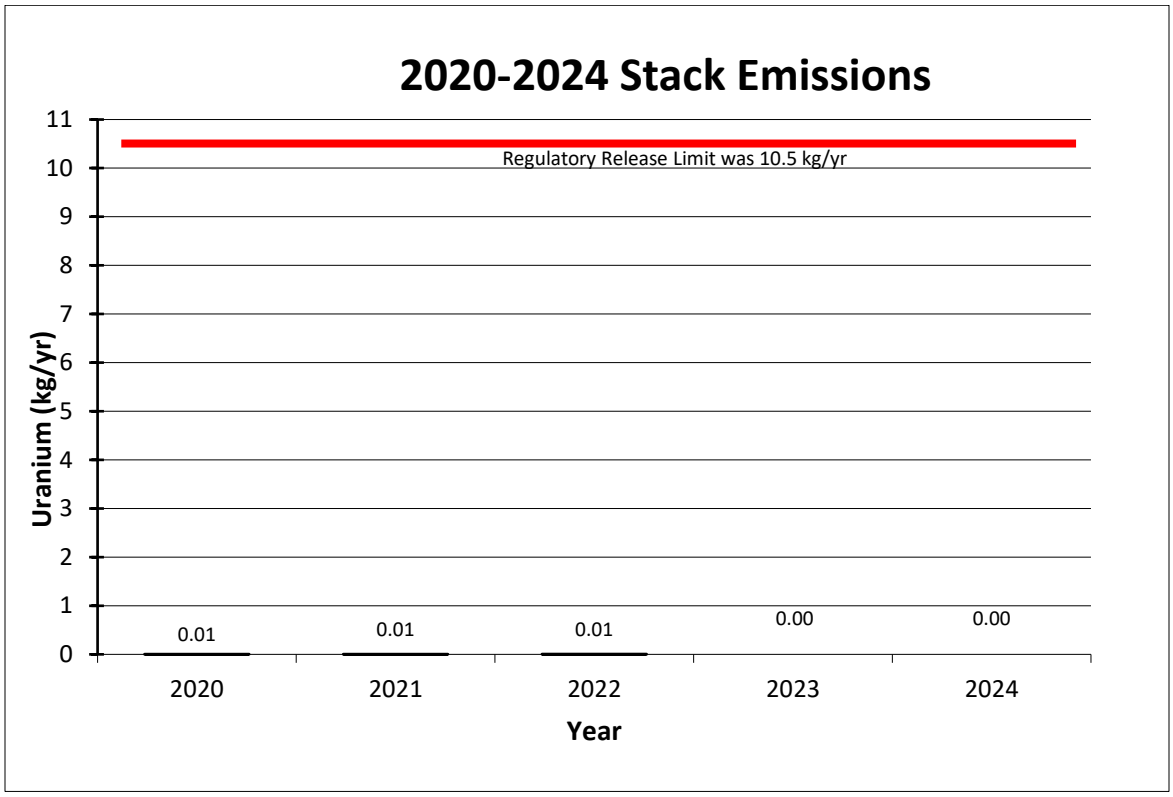
| 2024 Stack Sampling Summary (µg/m³) | | | |
|---|---|---|---|
| **Source** | **Action Level (µg/m³)** | **Average Annual Result (µg/m³)** | **Maximum Annual Result (µg/m³)** |
| **BMS Extraction** | 2.0 | 0.02 | 0.35 |
| **Furnace Burn-off** | 2.0 | 0.01 | 0.07 |
| **Hoffman Vacuum** | 2.0 | 0.00 | 0.07 |
| **Mist Collector** | 2.0 | 0.06 | 0.23 |
| **PP2 East** | 2.0 | 0.00 | 0.13 |
| **PP2 West** | 2.0 | 0.00 | 0.10 |
| **Pangborn North Dust Collector** | 2.0 | 0.02 | 0.38 |
| **Pangborn South Dust Collector** | 2.0 | 0.01 | 0.12 |
| **Waste Treatment Area Absolute Filter** | 2.0 | 0.03 | 0.37 |
| **Overall Average & Maximum** | | **0.02** | **0.38** |

## Table 32

| 2020-2024 Stack Emissions | | | | | | |
|---|---|---|---|---|---|---|
| | **Release Limit** | **2020** | **2021** | **2022** | **2023+** | **2024+** |
| **Annual Stack Emissions (kg/yr)** | **10.5 kg+** | 0.01 | 0.01 | 0.01 | 0.00* | 0.00* |
| **Annual Average Stack Emissions (g/hr)** | **1.2 g/hr** | - | - | -- | - | 0.0001 |

*Air emissions for 2023 and 2024 was 4 grams therefore reported as 0.00 kg
+ release limit 10.5 kg/yr under licence FFL-3641.00/2023 and 1.2 g/hr for all emissions (process stacks and building ventilation emissions) under licence FFL-3641.00/2043

**Figure 17**




+ release limit 10.5 kg/yr under licence FFL-3641.00/2023 and 1.2 g/hr under licence FFL-3641.00/2043. Chart of stack emission rate in g/hr will be provided in future reports once more a full year of data is available.

Building Ventilation Emissions

Emissions from the main Pelleting Area building ventilation system are determined using in-plant air sampling data and exhaust discharge rates. Emissions in the building ventilation from the Pelleting area was determined using the average in-plant air sampling results from the Pelleting Area along with exhaust discharge rates. In 2024, the source of the uranium concentration was shifted to using the continuous alpha monitors (alpha CAMs) in the area for both the Pelleting area and the PP2 area to calculate the daily average and amount of uranium emitted from the areas.

Emissions in the PP2 area are calculated using alpha continuous air monitors and the exhaust discharge rate for the area. As the exhaust in this area uses HEPA filtration, a 90% efficiency factor is also applied in the calculation.

The DRL for air effluent (building ventilation) is 41.5 kg/year. The release limit for air emissions is 1.2 g/hr. This includes emissions from both the exhaust ventilation and

process stacks. The action level for building ventilation is 1.0 g/hr monitored on a daily basis for the Pelleting Area and 0.4 g/hr for the PP2 area. There were no exceedances of the building ventilation release limit or action levels in 2024.

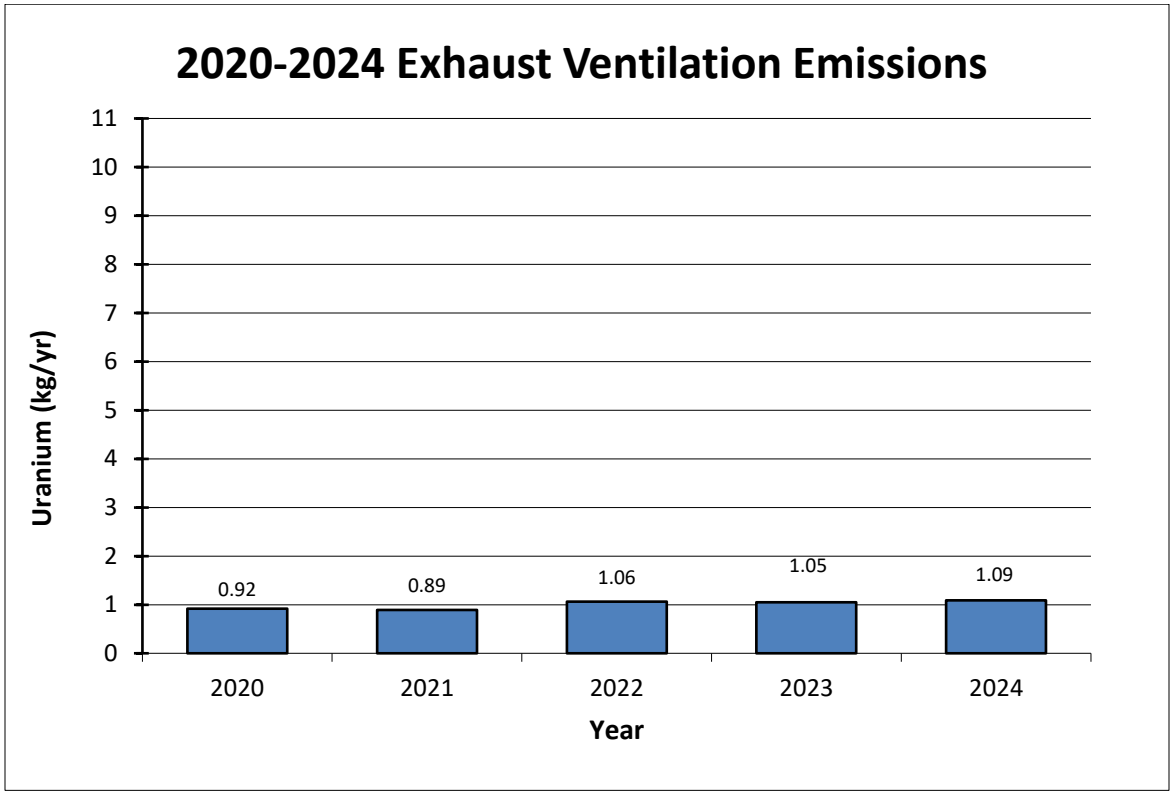
Table 33 and Figure 18 provides the estimated release of uranium concentration through exhaust ventilation from 2020 to 2024. The estimated release of $UO_2$ from all exhaust ventilation in 2024 was 1.09 kg, with the majority of the amount coming from the Pelleting Area (approximately 89%). The amount emitted in 2024 appears slightly higher than previous years. This was expected when the source of the concentration, used in the calculation, was transitioned to CAMheads as the units run continuously 24 hours per day, 7 days per week whereas the in-plant air samplers run only when the facility is operating. The actual release from the facility did not change.

**Table 33**

| Exhaust Ventilation Emissions (kg/yr) | | | | | | |
|---|---|---|---|---|---|---|
| Parameter | Release Limit | 2020 | 2021 | 2022 | 2023 | 2024 |
| Annual Exhaust Emissions | 10.5* | 0.92 | 0.89 | 1.06 | 1.05 | 1.09 |

*release limit 10.5 kg/yr under licence FFL-3641.00/2023 and 1.2 g/hr under licence FFL-3641.00/2043

**Figure 18**




The daily average concentration of uranium emitted through exhaust ventilation in the Pelleting Area in 2024 was 0.1 g/hr and the maximum concentration of uranium was 0.5 g/hr which is comparable to the average and maximum from previous years. The average and maximum value in the PP2 area in 2024 was 0.0 g/hr and 0.1 g/hr respectively which is the same as previous years. Table 34 provides the average and maximum uranium concentration emitted through the building ventilation system in g/hr from 2020 to 2024 for the Pelleting Area and the PP2 area. Figure 19 provides the average and maximum uranium concentration emitted through the Pelleting Area and Figure 20 provides the average and maximum uranium concentration emitted through the PP2 area.

The table and figures demonstrate that the PP2 area has much lower emissions through building ventilation than the Pelleting Area.

## Table 34

| Building Ventilation Rates by Year (g/hr) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Parameter** | **Action Level** | **Measure** | **2020** | **2021** | **2022** | **2023** | **2024** |
| **Uranium Emissions from Pelleting Area** | **1.0** | **Average** | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 |
| | | **Maximum** | 0.5 | 0.3 | 0.4 | 0.4 | 0.5 |
| **Uranium Emissions from PP2 Area** | **0.4** | **Average** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | **Maximum** | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |

## Figure 19

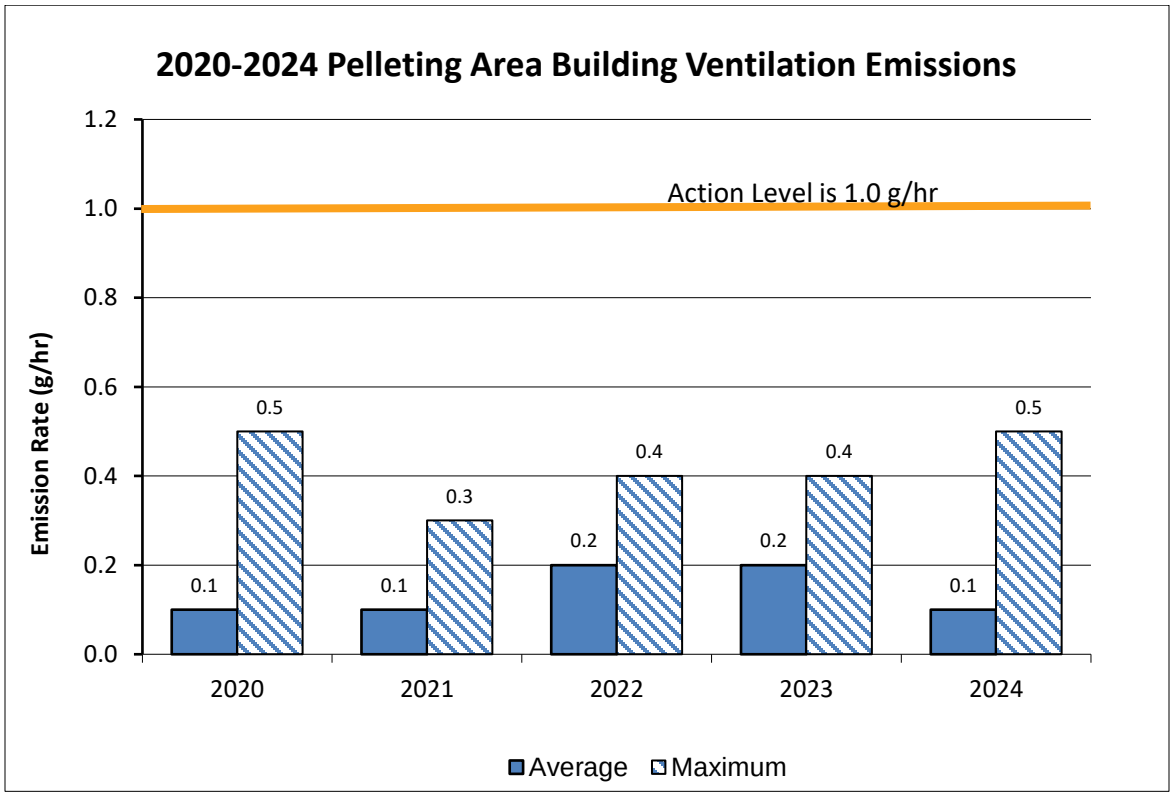
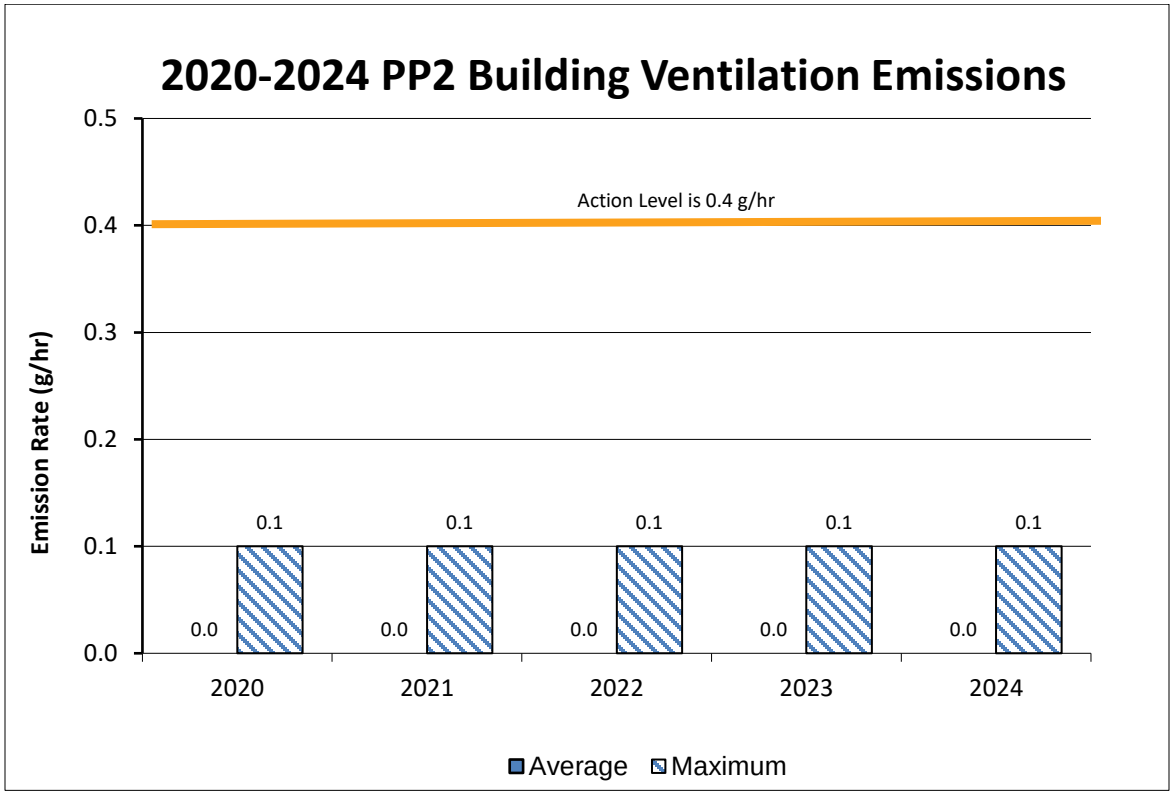


**Figure 20**




Discharge to Sewer

Liquid effluent generated from production processes is collected and treated to remove the majority of the $UO_2$ using an evaporator process. The condensed liquid is sampled and analyzed prior to a controlled release to the sanitary sewer. Liquid effluent generated from sanitary sewer systems (i.e., showers and bathroom facilities, laundry facilities, etc.) are released directly to sanitary sewer.

Liquid effluent is monitored for uranium content to ensure compliance with various federal, provincial, and municipal regulations. Automated sampling takes a sewer sample from the plant sewer line at regular intervals 24 hours per day at the point of discharge to create a composite. A composite sample is taken twice a week and is analyzed for uranium concentration. The composite sample is representative of liquid effluent discharged from the facility, including the condensate liquid effluent and the discharge from the groundwater treatment system.

The release limit for liquid emissions is 1.7 mg U/L for a twice weekly composite sample. The action level for the uranium concentration in sewer emissions discharged to

the municipal sewer system is 0.1 mg/L. The action level for pH is greater than or equal to 6.5 and less than or equal to 9.0.

The total amount of uranium released to the sanitary sewer in 2024 was estimated to be 0.25 kg. The average concentration of uranium in the sewer effluent for the year was 0.01 mg/L with a maximum result for a single composite sample of 0.03 mg/L.

Table 35 provides the average and maximum uranium concentration for single composite samples from 2020 to 2024. Also provided are the 2024 minimum and maximum pH measurements along with the volume of water discharged and the emission results. Figure 21 provides the estimated amount of uranium discharged through the sanitary sewer. Figure 22 provides the average concentration of a single composite sample for 2020 to 2024 discharged through the sanitary sewer. The release limit and the action level were not exceeded in 2024. The estimated annual discharge in 2024 was lower than previous years, except in 2022 when the operation of the groundwater treatment system was suspended for part of the year.

**Table 35**

| 2020-2024 Sanitary Sewer Emissions | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Parameter** | **Measure** | **Action Level** | **2020** | **2021** | **2022** | **2023** | **2024** |
| **Uranium** | **Avg.** | **0.1** | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 |
| **(mg/L)** | **Max.** | **0.1** | 0.05 | 0.03 | 0.09 | 0.03 | 0.03 |
| **pH** | **Min.** | **6.5** | 7.3 | 6.8 | 6.6 | 7.1 | 7.1 |
| **(pH units)** | **Max.** | **9.0** | 8.9 | 8.9 | 7.6 | 8.1 | 8.2 |
| **Volume of water (m3)** | **-** | **-** | 24 172 | 20 998 | 13 720 | 19 025 | 19 826 |
| **Estimated Discharge (kg)** | **-** | **-** | 0.34 | 0.29 | 0.21 | 0.27 | 0.25 |

**Figure 21**

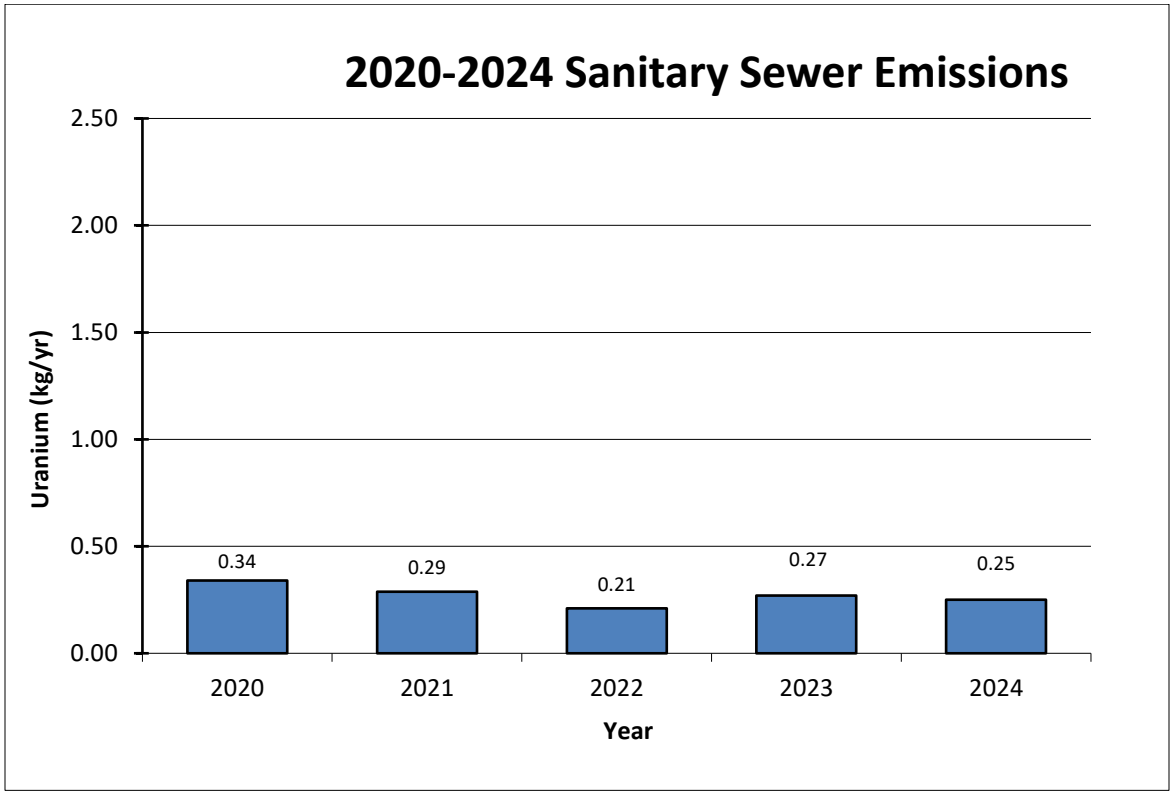
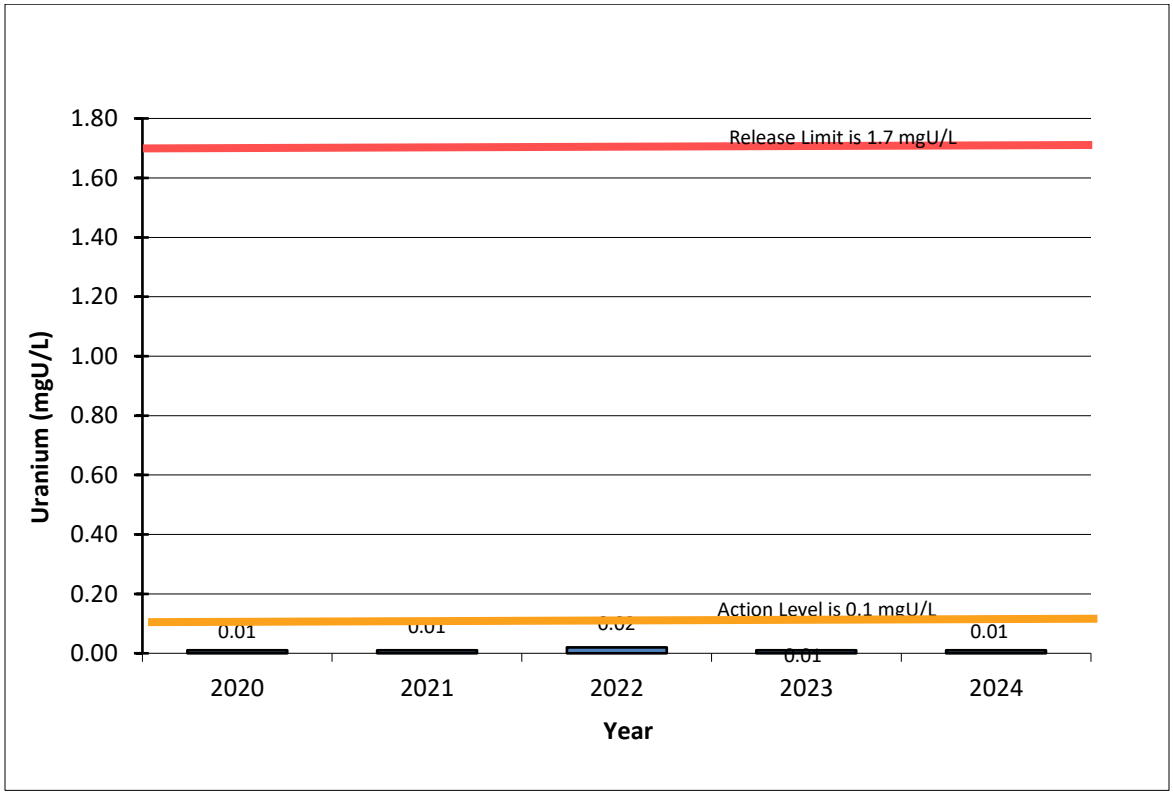

2020-2024 Sanitary Sewer Emissions
Uranium (kg/yr)
2.50
2.00
1.50
1.00
0.50
0.00
0.34
0.29
0.21
0.27
0.25
2020
2021
2022
2023
2024
Year

**Figure 22**




Ambient Air Monitoring

In addition to onsite monitoring of emissions, CFM has a comprehensive ambient monitoring program including sampling of ambient air, soil, and groundwater.

CFM uses hi-volume air samplers to measure the concentration of $UO_2$ that has been emitted from gaseous emissions (i.e., stack and building ventilation emissions) along the plant boundary at ground level. The system provides information on the impact to the public as well as the environmental impact from facility operations. Hi-volume air samples are collected in the four corners within the CFM fence line. The samplers are run for 24 hours per day on a continuous basis. The sample filter is changed once per week and analyzed for uranium concentration.

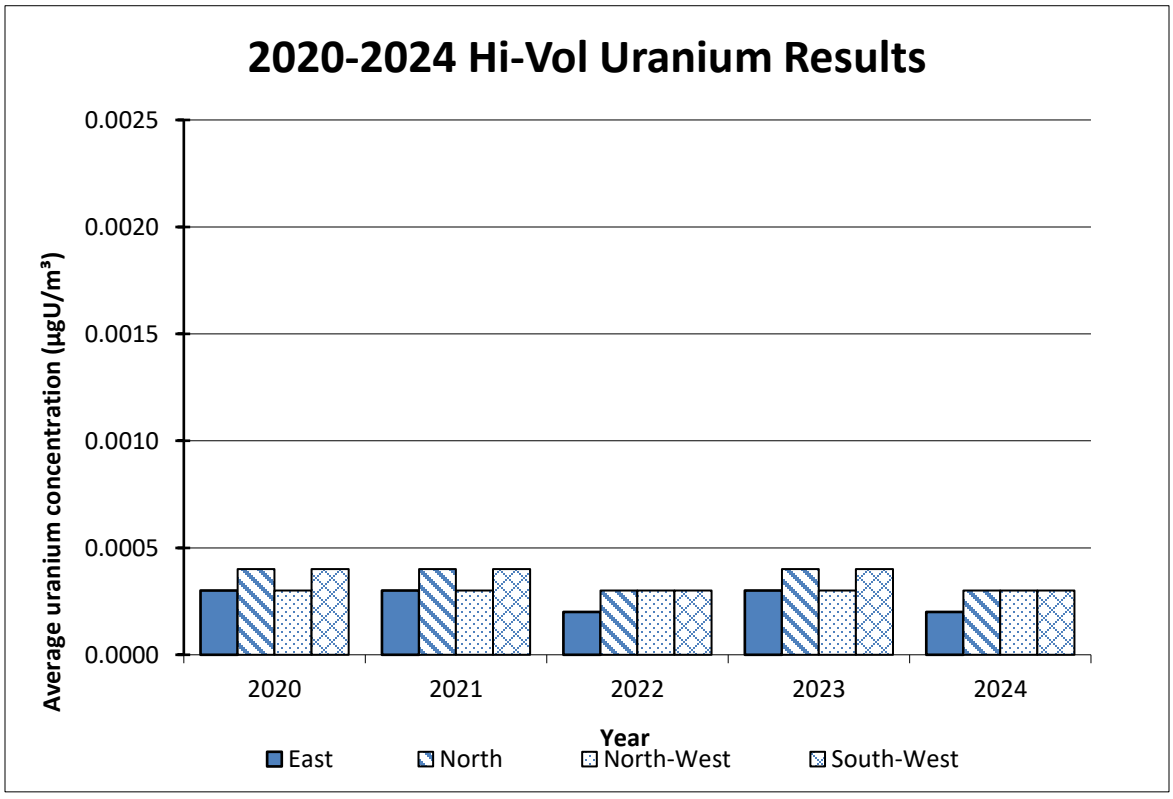
The maximum concentration of uranium in 2024 was 0.0054 µg/m³ and occurred during the fourth quarter in the North location. Annual results from all stations remain well below the MECP standard annual average limit of 0.03 µgU/m³ as well as the provincial ambient air quality criteria (AAQC) of 0.06 µgU/m³ for Total Suspended Particulate (TSP).

Table 36 and Figure 23 present results of the annual average and maximum uranium in air concentrations for 2020 – 2024 at the four locations.

**Table 36**

| Annual Uranium-in-Air Concentration at Hi-Vol Stations (µgU/m³) | | | | | | |
|---|---|---|---|---|---|---|
| | | 2020 | 2021 | 2022 | 2023 | 2024 |
| East | Average | 0.0003 | 0.0003 | 0.0002 | 0.0003 | 0.0002 |
| | Maximum | 0.0014 | 0.0039 | 0.0009 | 0.0008 | 0.0023 |
| North | Average | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0003 |
| | Maximum | 0.0024 | 0.0050 | 0.0023 | 0.0021 | 0.0054 |
| Northwest | Average | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| | Maximum | 0.0012 | 0.0042 | 0.0021 | 0.0012 | 0.0023 |
| Southwest | Average | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0003 |
| | Maximum | 0.0014 | 0.0056 | 0.0011 | 0.0013 | 0.0033 |

**Figure 23**



Soil Monitoring

As part of CFM's commitment to protecting the community and the environment, samples from the soil and vegetation are routinely collected from specific locations surrounding the facility for analysis. The purpose of the survey is to measure and document uranium concentrations in the soil and vegetation to verify that no significant build up from emissions of uranium have been released from the facility.

At least every three years, vegetation and core samples are each separately collected at twenty-three locations surrounding the facility (locations are provided in Figure 25).

Core samples are taken in five areas within each location. Each core sample is divided into three sections (0-5 cm, 5-10 cm, and bottom 10-15 cm) and combined with the other cores taken from the same site to obtain a representative sample of that location. In addition, a representative sample of the surface vegetation growing within the sampling site is taken. Uranium samples are sent to an external laboratory and are reported in micrograms per gram (µg/g).

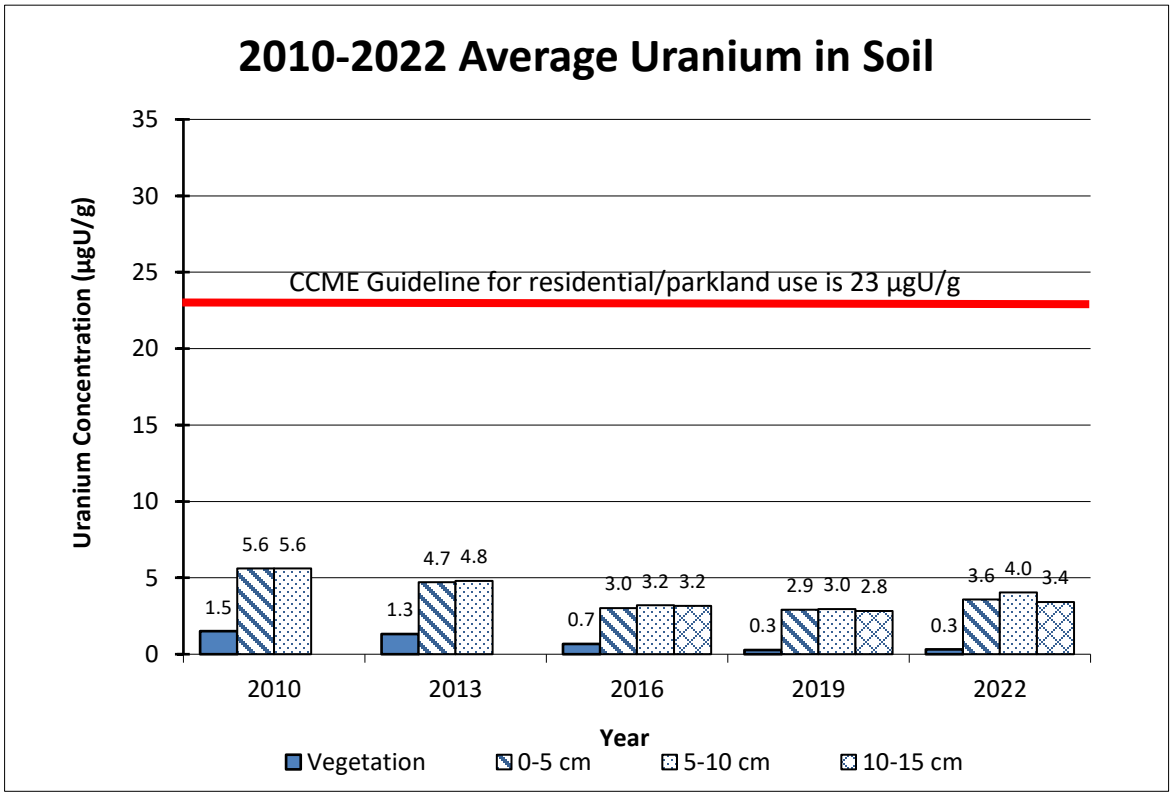
Soil sampling was conducted in 2022 on the three-year schedule. The average and maximum results of the soil sampling conducted in 2022 are provided in Table 37 and Figure 24 along with the last five sampling campaigns. The maximum results in 2022 were higher than previous years with the maximum of 33.9 µg/g measured in location 14 which is located in the north-east corner of the parking lot outside the fence line. This location has historically shown elevated results although not in recent years. Soil sampling will be conducted in 2025.

**Table 37**

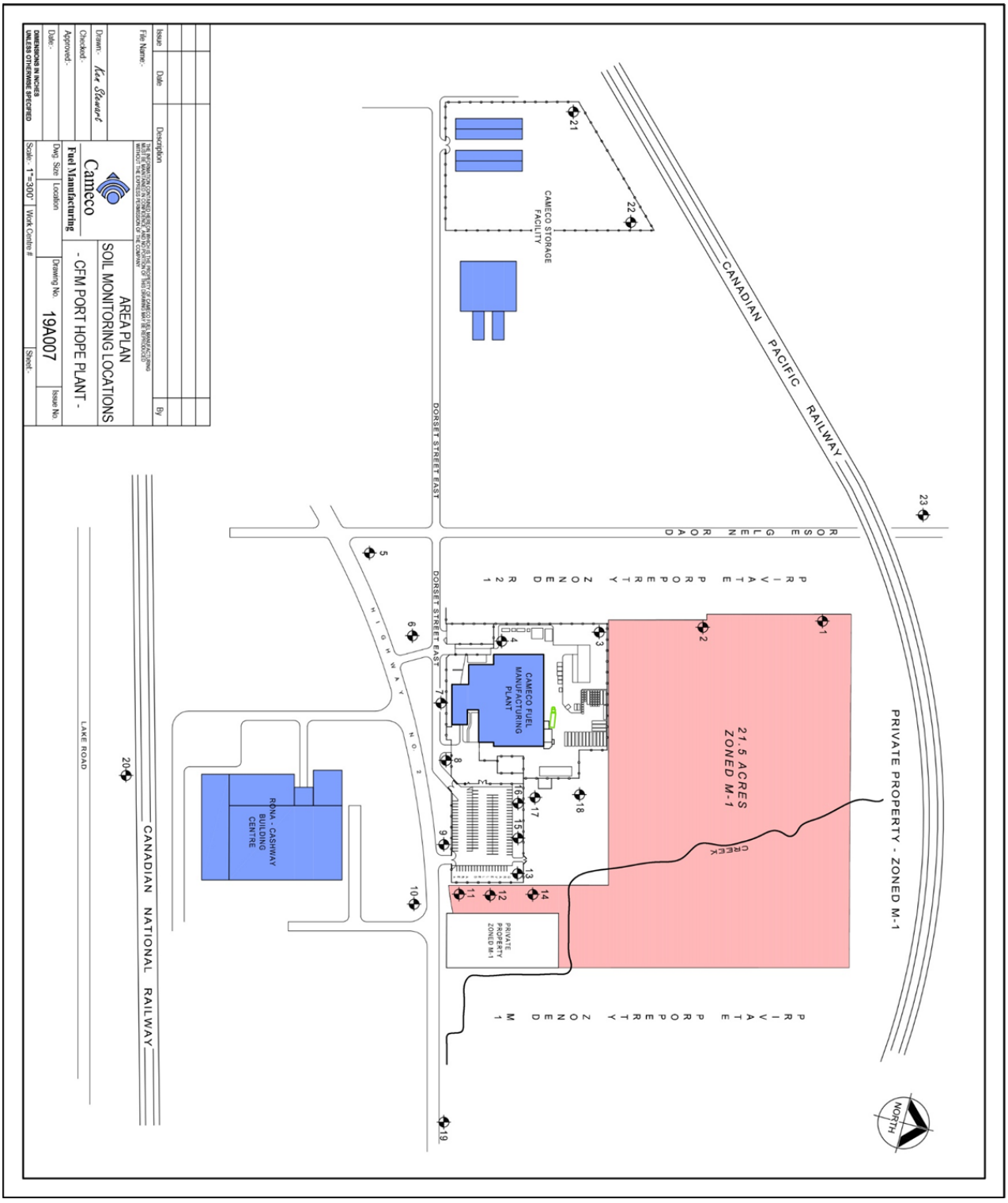
| Soil Results (µg/g) | | | | | | |
|---|---|---|---|---|---|---|
| Depth | Average/Maximum | 2010 | 2013 | 2016 | 2019 | 2022 |
| Vegetation | Average | 1.5 | 1.3 | 0.7 | 0.3 | 0.3 |
| | Minimum | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 |
| | Maximum | 6.0 | 2.9 | 3.4 | 1.3 | 2.8 |
| Surface | Average | 5.2 | 4.1 | - | - | - |
| | Minimum | 1.8 | 1.6 | - | - | - |
| | Maximum | 18.6 | 13.1 | - | - | - |
| 0-5cm | Average | 5.6 | 4.7 | 3.0 | 2.9 | 3.6 |
| | Minimum | 1.9 | 1.8 | 0.7 | 0.4 | 0.5 |
| | Maximum | 21.1 | 17.4 | 10.2 | 7.6 | 25.8 |
| 5-10cm | Average | 5.6 | 4.8 | 3.2 | 3.0 | 4.0 |
| | Minimum | 2.2 | 1.3 | 0.8 | 0.5 | 0.6 |
| | Maximum | 19.1 | 17.3 | 11.2 | 7.5 | 33.9 |
| 10-15cm | Average | - | - | 3.2 | 2.8 | 3.4 |
| | Minimum | - | - | 0.8 | 0.5 | 0.7 |
| | Maximum | - | - | 11.1 | 7.5 | 20.6 |

- results are not available due to change in sampling approach.

**Figure 24**



## Figure 25: Soil Sampling Locations



Groundwater Monitoring

CFM has an extensive groundwater monitoring program in place. Groundwater monitoring locations are sampled semi-annually in the spring and fall of each year, while the surface water and storm sewer intermittent drainage feature (drainage ditch) locations are targeted for sampling three time per year in the spring, summer and fall in association with precipitation events. Samples are collected by a third-party consultant and are sent to an independent laboratory for analysis. Results of the groundwater monitoring program, among other items, are summarized and discussed in third party annual groundwater and surface water review reports. These reports are submitted to the CNSC and the MECP under separate covers.

Groundwater recovery and treatment system operations have been in place since 2000. The current groundwater collection network includes twelve pumping wells and two sumps. Up to ten of the twelve pumping wells are in operation under baseline conditions. The 2024 mean recovery rate was approximately 25.1 m3/day, a slight increase from the 2023 mean recovery rate of 24.3 m3/day. Treated effluent is combined with other site sanitary sewer inputs and released to the municipal sanitary sewer system by way of the facility compliance monitoring station.

The groundwater treatment system was completely replaced in late-2023. Major treatment system components include a holding/equalization tank, blower, air stripper and associated pumps and controls. Groundwater collection network upgrades are next planned, and work is expected to be initiated in 2025.

Groundwater quality was compared to the MECP "*Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (2011)*. The Table 3 standard of 420 µg/L (full depth generic site condition standard, non-potable condition, all types of property use) was referenced for locations more than 30 m from a water body. For select monitoring wells in the vicinity of West Gage Creek, groundwater quality was compared to the Table 9 standard of 330 µg/L (generic site condition standards, within 30 m of a water body, non-potable condition, all types of property use).

Groundwater quality was reported at or below the Table 3 uranium standard, with one exception. A sample from overburden monitoring well TW-41-4 was reported at 1,000 µg/L. The Table 9 standard was otherwise satisfied at the two monitoring well locations within 30 m of West Gage Creek. Monitoring well TW-41-4 is positioned in the licensed facility yard area between the CFM production facility and the waste storage building. Uranium in soil impacts have been confirmed adjacent to the monitoring well installation, and it's inferred the historic soil impacts influence area groundwater quality.

Surface water and stormwater uranium results were compared to *Canadian Council of Ministers of the Environment (CCME)* water quality guidelines (freshwater). All West Gage Creek surface water samples satisfied the CCME long-term exposure guideline of 15 µg/L. The maximum recorded concentration was 1.8 µg/L. In addition, all drainage feature stormwater samples satisfied the CCME short-term exposure guideline of 33 µg/L. The maximum recorded concentration was 9.2 µg/L.

Figure 25 and Figure 26 illustrate the monitoring well locations and groundwater elevation contours applicable to the 2024 spring and fall sampling campaigns. Groundwater in overburden is interpreted as entering the site from the west to northwest and flowing to the east and southeast in the direction of Gages Creek. Groundwater recovery and treatment system operations have local influence on overburden groundwater flows.

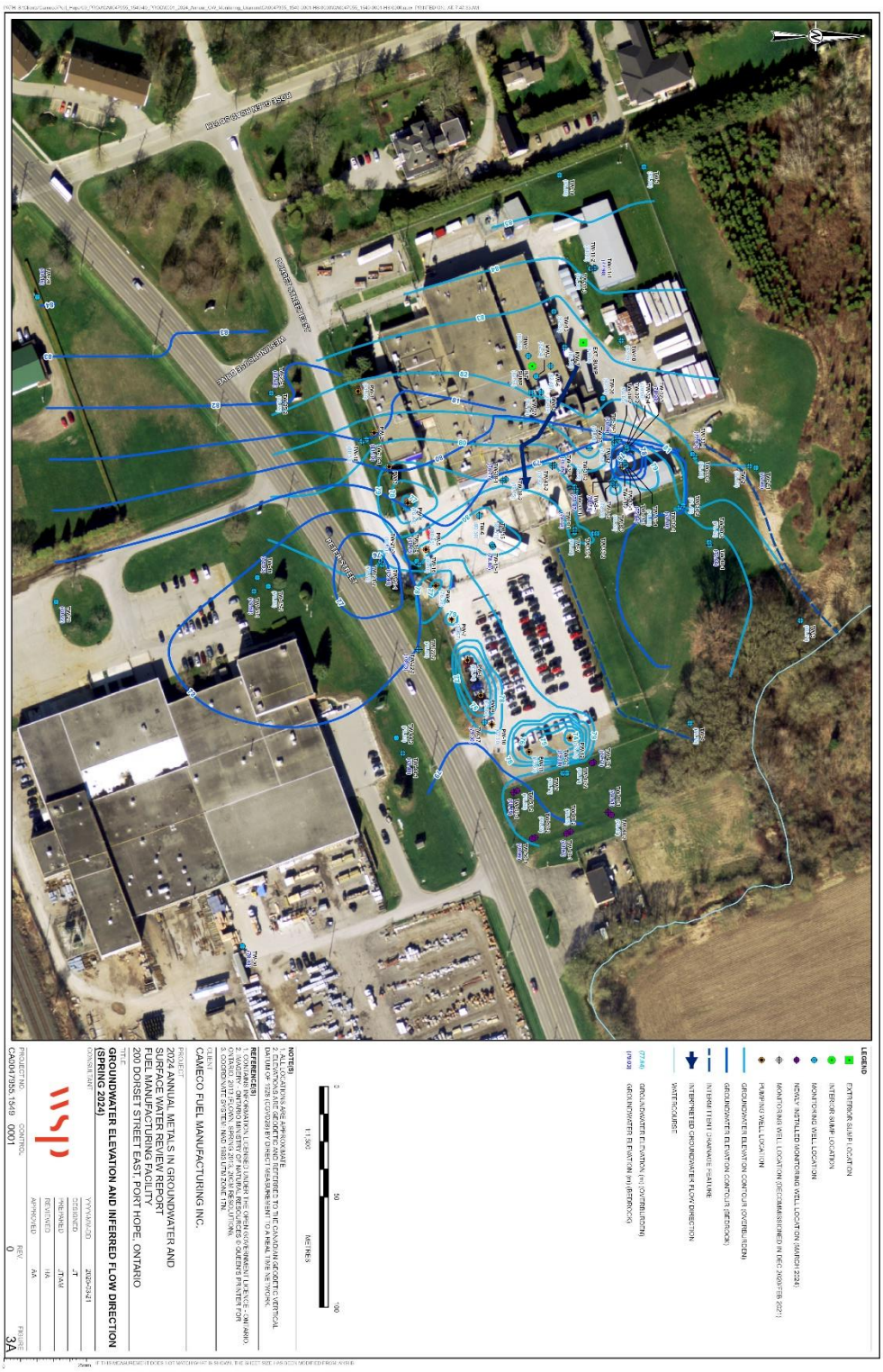
Effluent and Environmental Monitoring Program Performance

The facility Environmental Protection Program sets out the effluent and environmental monitoring requirements for the facility to ensure adequate environmental protection measures are in place. The performance criteria of these programs is that at least 90% of planned samples are collected and analyzed to meet the data acceptance criteria. Below is the performance criteria for the data collected during the year:

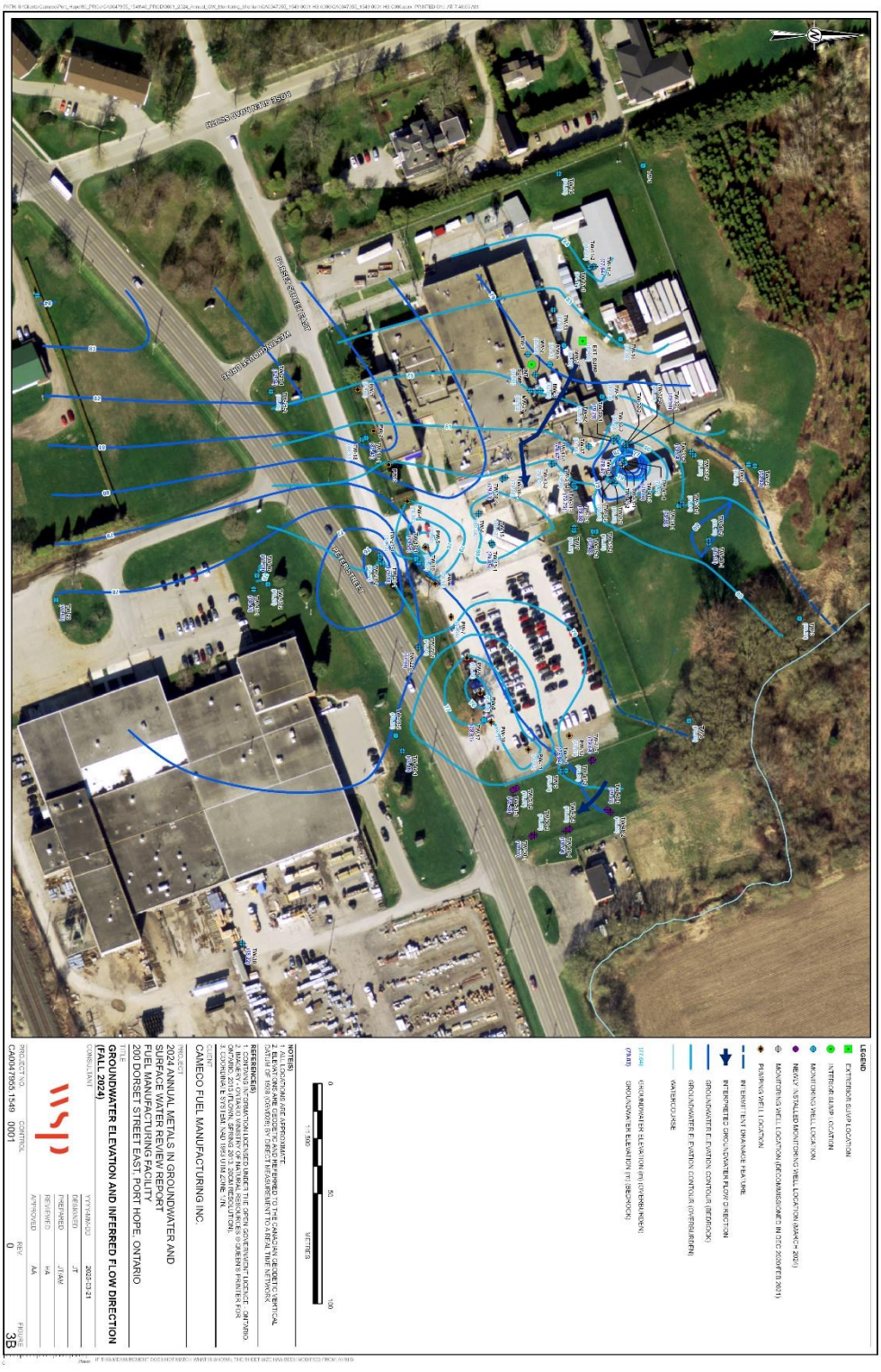
- Water samples (i.e., sanitary discharge) – 98% of planned samples were collected.
- Air samples (i.e., stacks, in-plant air, CAM heads) – 100% of planned samples were collected.
- Environmental Samples (i.e., 100% surface water, 97% groundwater, 100% hi-vol, 100% fence line gamma) – 98% of planned samples were collected.

In 2024, all analysis under the environmental program was completed with the quality control set out in the analytical methods. There were approximately 13 samples not collected (either due to analytical issues or collection issues due to weather, etc.). Therefore, the samples collected and analyzed throughout the year meet the data acceptance criteria.

## Figure 26: Groundwater Elevation Contours – Spring



## Figure 27: Groundwater Elevation Contours – Fall



### 2.3.4 Emergency Management and Fire Protection

This safety and control area covers emergency plans and emergency preparedness programs. These procedures must exist for emergencies and for non-routine conditions. This also includes the Fire Protection Program (FPP) and any results of emergency exercise participation.

Effective emergency response is carried out through CFM's Emergency Preparedness and Response Procedure. The plan assigns specific accountabilities and sets out processes and procedures to protect the health and safety of employees, contractors, the public, and the environment in the case of an emergency.

As the primary response provider for the facility, the Port Hope Fire and Emergency Services (PHFES) have the resources in place to effectively respond to emergencies at the facility. CFM has a memorandum of understanding with the PHFES and the Municipality of Port Hope which provides the framework for successful emergency response to the facility. Also, as part of the agreement, CFM provides PHFES with the necessary equipment and training to effectively respond to emergencies at the facility.

Emergency response is a key component of an effective FPP. The FPP at the facility meets both internal Cameco requirements, and it also meets the requirements of the standards: *N393-22; Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances*, *National Fire Code of Canada*, *2022* (CSA N393-22), and the *National Building Code of Canada*, *2020* (NBCC 2022).

In 2024, the Port Hope facility resolved gaps required to achieve regulatory compliance and commitment to the CNSC with the CSA N393-22 Standard and the NBCC 2020 and NFCC 2020. Activities included a review and update of the Fire Response Needs Analysis (FRNA) to include the intervention timelines for each of the most demanding fire risk on-site and revising the Memorandum of Understanding (MOU) between CFM and the municipal fire department to include the roles and responsibilities for facility personnel and external fire department.

CFM completed the annual emergency response training to the internal emergency response team, consisting of senior managers, supervisors as well as immediate responders. In 2024 the training department delivered the emergency response training in-person and offered a virtual format as well. Immediate Responder qualifications continue to be reviewed on a monthly basis. If any qualifications are not current, the Immediate Responder is deemed "inactive" and is informed they are not to take on an active role during an emergency situation. There are forty-five Immediate Responders, with nine not fully qualified at the time of the last report (December 01, 2024).

Incident Commander training was delivered to supervisors and Process Technologists at CFM Port Hope.

There was one drill conducted at the Port Hope facility in 2024. One was a tabletop fire emergency exercise (Operation Pikachu) that was completed with participation from FSD personnel and external responders. The exercise was a successful, valuable learning situation with three opportunities for improvement identified and entered as activities into CIRS.

There were two fire events in 2024. The first was a fire alarm that was activated due to an automated signal received from the fire suppression system on one of the two pelleting area dust control units. This signal automatically triggered a fire department response. PHFES responded and confirmed that there was no fire and the incident was the result of a false alarm. The Emergency Operations Centre was activated, personnel were evacuated to the evacuation area and roll call taken. Personnel returned to work after the all clear was given.

The second incident occurred when the fire suppression system in the fuel storage warehouse (warehouse 100) was triggered with 4 of the 12 pressurized dry chemical cylinders discharged. The fire suppression material that was discharged is classified as non-hazardous in accordance with the Globally Harmonized System of product labelling. The Port Hope Fire Emergency Services responded to the site and investigated the cause of the alarm. The incident was determined to be a false alarm. The issue was related to a faulty notifier module in the CO2 fire suppression system which was replaced the following day. The CNSC was notified for both of the incidents.

In developing the FPP, a defense-in-depth approach was used to ensure that the fire protection measures are adequate for the fire safety of the facility. The FPP is comprised of the FHA and other fire protection supporting documents which cover a number of areas including fire prevention and fire protection. The supporting documents define those elements which positively contribute to prevent fires, maintain fire safe conditions at the facility, maintain reliability of the fire protection systems, and provide an effective emergency response to limit the effects of fire.

The annual third-party review was completed in 2024 and included all elements according to the three-year cycle outlined in CSA N393-22. The annual SCI (Site Condition Inspection) report was completed as required by CSA N393-22. The SCI identified ten new findings that were minor in nature in terms of impact on the fire, life and nuclear safety at the Port Hope facility. As a result of the findings, eight corrective actions were entered into CIRS.

The Site Condition Inspection concluded that there is sufficient evidence to conclude that the fire protection program is being followed and effectively maintains the condition of

the facility in compliance with that required by CSA N393-22, the NFCC-2020, and other applicable codes and standards. With the positive outcomes from the tabletop emergency exercise and the findings from the Site Condition Inspection, the Emergency Management and Fire Protection program has been effective.

### 2.3.5 Waste and By-product Management

This safety and control area covers internal waste and by-product-related programs which form part of the facility's operations, up to the point where the waste is removed from the facility to a separate waste and by-product management facility. This also covers the ongoing decontamination and planning for decommissioning activities.

Solid waste materials contaminated with uranium are reprocessed, recycled, and re-used to the extent possible. Waste materials that cannot be reprocessed, recycled, or re-used are safely stored on site until disposal.

Waste generated at CFM are segregated as non-hazardous, contaminated hazardous, or non-contaminated hazardous waste at the point of generation. Non-hazardous waste is either recycled or transferred to an appropriate waste management facility. Contaminated hazardous waste and non-contaminated hazardous waste is stored in appropriate containers pending assessment of recycling or disposal options in accordance with site procedures.

The CNSC conducted a Waste Management Inspection in 2024 which identified five notices of non-compliance and six recommendations. CFM continues to work on the activities to address the findings.

During 2024, CFM continued to improve the existing waste management program in accordance with Canadian Safety Association (CSA) standards N292.3-14 *Management of low and intermediate-low radioactive waste* and N292.0-14 *General principles for the management of radioactive waste and irradiated fuel*. A significant number of legacy drums were processed for disposal and one legacy waste trailer was emptied, the contents disposed of and removed from site.

CFM continues the project to review legacy drummed material that did not meet the disposal site's criteria. This requires systematically opening each drum to visually identify the contents, sort, and segregate like materials. From this activity, recoverable uranium material is consolidated to be verified and the uranium recovered with other scrap material. Marginally contaminated material is repackaged, rescanned, and prepped for disposal in the United States. In 2024 there were two shipments removing approximately 16 006 kg of contaminated non-combustible and combustible waste from the facility for disposal at an appropriately permitted facility. CFM also processed the contents of a trailer which contained old equipment for disposal in the United States. All contaminated waste material was packaged and shipped in accordance with applicable *Transportation of Dangerous Goods* regulations. All waste was shipped to facilities that are licensed to accept the waste material.

Plans for 2025 include the completion of characterization of the legacy waste drums and the disposal of an additional two trailers, including the legacy contents inside of them.

There was no significant generation of by-products at the facility in 2024.

CFM has waste processing and disposal streams in place for contaminated combustible materials that are generated through current production as well as a stream for marginally contaminated material. CFM also performs decontamination of other materials for recycling (metal) or disposal through domestic waste streams. As a result of the waste minimization effort and the removal of legacy waste along with inspection and audit results completed in 2024, management determined the waste management program to be considered effective.

Table 38 provides the amount of waste generated and recycled for hazardous and non-hazardous materials in 2024.

**Table 38**

| 2024 Waste Management Results (kg) | |
|---|---|
| **Hazardous Waste Disposed via Certified Waste Disposal Co.** | 6596 |
| **Hazardous Waste Recycled** | 2595 |
| **Hazardous (Contaminated) Combustible Waste Shipped to BRR** | 0 |
| **Hazardous (Contaminated) Waste Shipped to Other Facilities** | 16 853 |

### 2.3.6 Nuclear Security

This safety and control area covers the programs required to implement and support the security requirements stipulated in the regulations, in *Nuclear Safety and Control Regulations*, the *Nuclear Security Regulations* and other CNSC requirements.

CFM's security plan provides the basis for security operations at the facility and identifies the systems and processes in place to meet security program objectives. Accordingly, the plan and related procedures are considered prescribed information, subject to the requirements of the *Nuclear Safety and Control Regulations.*

Though CFM's security program is well managed and remains in compliance with CNSC regulatory requirements, the facility continues to look for enhancement opportunities. Management determined the security program at CFM is suitable and was reviewed to be effective by reviewing audit and inspection findings along with reviewing security concerns or incidents.

A lockdown drill was conducted in December. The drill resulted in opportunities for improvement that were identified and entered as activities into CIRS.

### 2.3.7 Safeguards and Non-proliferation

This safety and control area covers the programs required for the successful implementation of the obligations arising from the Canada/ International Atomic Energy Agency (IAEA) Safeguards and Non-proliferation Agreement. CFM maintains compliance with the CNSC regulatory document, *Safeguards and Nuclear Material Accountancy, REGDOC – 2.13.1*.

All required reporting obligations to the regulators for 2024 were submitted either prior to the deadline or on time. The CFM Materials Management group has continued to submit Weekly Retention Reports to the IAEA. All reporting obligations to the regulators were completed and submitted on time.

CFM Port Hope participated in four Safeguard Inspection activities in 2024.

- Short Notice Random Inspection, April 2024
  - Findings: No major findings
  - Performed by IAEA inspectors and CNSC personnel (participated remotely).
- Short Notice Random Inspection, November 2024
  - Findings: No major findings
  - Performed by IAEA inspectors and CNSC personnel (participated remotely).
- Physical Inventory Verification, July 2024
  - Findings: No major findings
  - Performed by IAEA inspectors and CNSC personnel.
- Design Information Verification (DIV), July 2024
  - Findings: No major findings
  - Performed by IAEA inspectors and CNSC personnel.

All of the above activities were successfully completed without event or any notable non-conformance.

All reporting and surveillance requests were completed and maintained for both the CNSC and the IAEA. Continuing with the program change during the 2022 PIV, waste materials were physically inventoried and tabled in the Safeguards Ledger.

CFM is maintaining an effective Safeguards program and is ensuring all measures required to ensure safeguards are implemented at the facility.

### 2.3.8 Packaging and Transport of Nuclear Substances

This safety and control area covers the packaging and transport of nuclear substances and other nuclear materials to and from the licensed facility.

$UO_2$ powder is transported by road from the PHCF to CFM. As well, $UO_2$ in the form of finished fuel bundles is transported in shipping containers that meet the package requirements as specified in the CNSC *Packaging and Transport of Nuclear Substances Regulations, 2015.*

There were no reportable events which occurred at CFM in 2024 that were in violation of the CNSC *Packaging and Transport of Nuclear Substances Regulations, 2015* or the *Transport of Dangerous Goods Act*. CFM is maintaining an effective program for the receipt, packaging, and transport of nuclear and hazardous substances.

Cameco has in place an Emergency Response Assistance Plan (ERAP) describing the system used by Cameco to respond to off-site transport incidents for Class 7 products. The plan which has been accepted by Transport Canada is pursuant to federal transportation of dangerous goods requirements and applies to transportation emergencies. Transportation activities related to the shipping and receiving of goods to or from CFM are included in the plan.

# 3. PUBLIC INFORMATION PROGRAM

In 2024, Cameco Fuel Manufacturing continued to fully meet the requirements of the Canadian Nuclear Safety Commission's (CNSC) REGDOC 3.2.1, Public Information and Disclosure.

In 2024, the communications team for Cameco's Fuel Services Division was comprised of a director of public and government affairs, a specialist, Indigenous engagement and two communications specialists who joined in March. The divisional communications team is part of Cameco's Corporate and Community Relations department (formerly Sustainability and Stakeholder Relations).

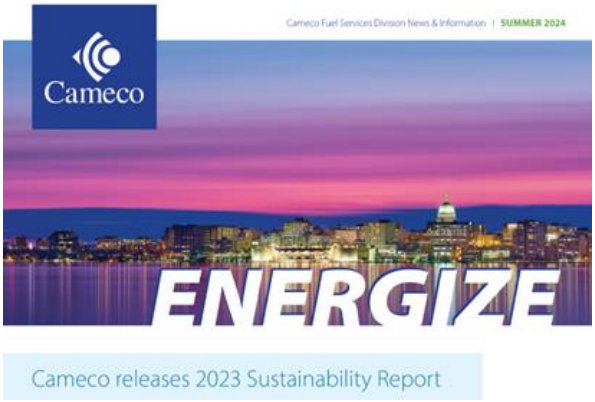
Education and Awareness

Cameco leverages a range of communications tools to help inform and educate interested persons and/or groups of Cameco Fuel Manufacturing (CFM) operations and activities.

Cameco issues its Energize newsletter to help keep the Port Hope community up to date. Three issues were published in 2024 and mailed to all addresses in the Municipality of Port Hope. The Fall 2024 issue was unable to be mailed due to the Canada Post strike that was ongoing at the time of publication (November/December 2024).

Each issue was posted to camecofuel.com and promoted on social media. The fall issue received additional promotion online due to the postal strike.


Energize Issue Spring 2024:
https://www.camecofuel.com/community/stories/energize-spring-2024




Energize Issue Summer 2024:
https://www.camecofuel.com/community/stories/energize-summer-2024


Energize Issue Fall 2024:
https://www.camecofuel.com/community/stories/energize-fall-2024

Each issue provided readers with a variety of updates about Cameco's activities such as Vision In Motion (VIM), community initiatives, and safety and environmental performance.

***Public Inquiries***: Ensuring stakeholders and residents have access to information about Cameco is an important component of the Public Information Program. Interested persons can contact Cameco via email (cameco_ontario@cameco.com) or phone (905.800.2020). In 2024, the cameco_ontario email received 17 emails from the public to RSVP to the annual BBQ.

Cameco received no inquiries regarding CFM.

**Community BBQ (June 27, 2024)**
Cameco's annual community barbeque was held on June 27 from 4-7 p.m. in Memorial Park, Port Hope. Postcards advertising the event were mailed out to approximately 3,622

addresses in Port Hope and advertised via social media. The invitation was also posted on Cameco's FSD website.

Cameco leadership and subject matter experts were available to talk with guests and answer questions. Information boards and displays provided information about CFM, regulatory compliance, benefits of nuclear and more. Approximately 400 people attended the BBQ.


**Port Hope Fair (September 13-15, 2024)**
Cameco sponsored an information booth at the Port Hope Fall Fair from September 13-15, 2024. The booth was staffed by Cameco leaders and subject matter experts throughout the weekend.

This year's setup featured a new large scale nuclear fuel cycle infographic and information boards of Cameco's operations and activities including CFM, medical isotopes, benefits of nuclear and more.

Public Polling

A third-party firm, Praxis Consulting, conducted a public opinion survey of 303 Port Hope residents between July 9 to 26. The objective of the survey was to measure support for Cameco's Port Hope operations and to gather perspectives regarding the corporation.

Results of the survey continue to demonstrate Port Hope residents consistent support for Cameco's local operations, citing the company's economic impacts, positive corporate citizenship and support for clean, nuclear energy as the top drivers.

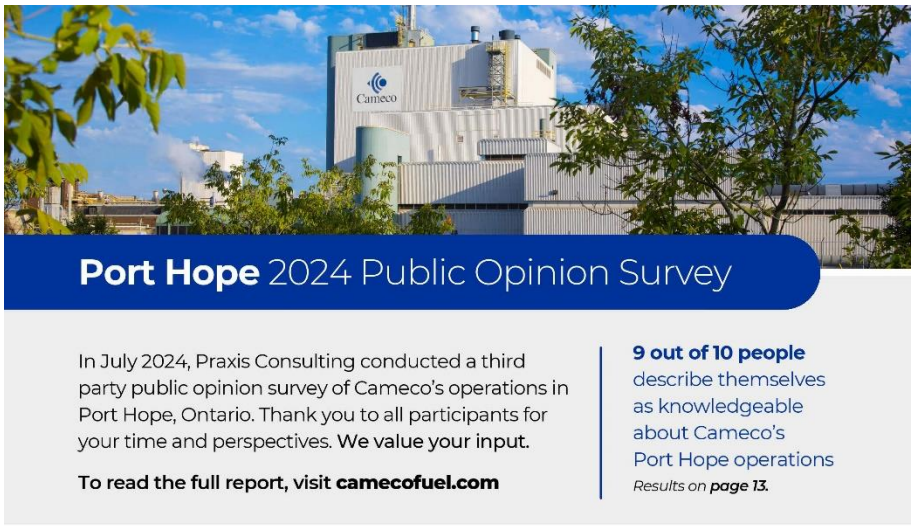
According to the most recent public opinion survey, 91 per cent of respondents support the continuation of Cameco's operations locally, and 82 per cent expressed pride in having Cameco as part of the Port Hope community.

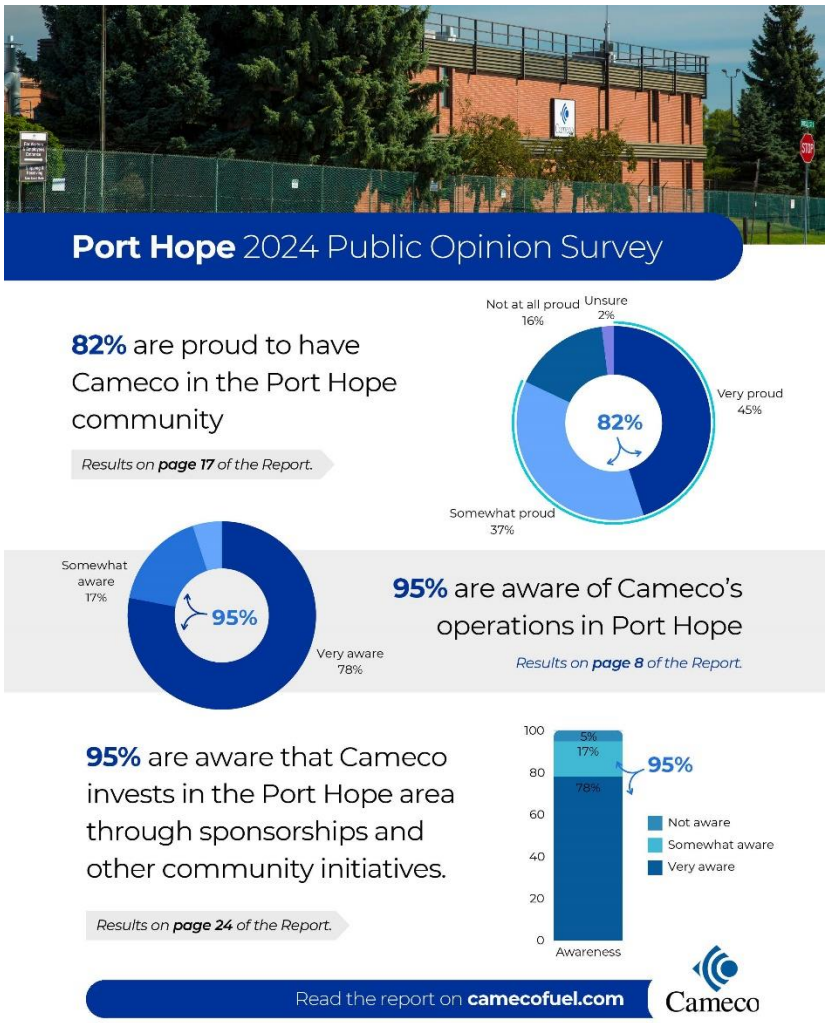
Further 2024 survey highlights include:

- 84% agree Cameco has the environmental monitoring in place to protect the health of the Port Hope community
- 93% of respondents describe themselves as knowledgeable about Cameco's operations
- 95% of respondents are aware that Cameco invests in the Port Hope area through sponsorships and other community initiatives

Since 2005, long-term tracking has shown high awareness of Cameco Corporation, and the majority of respondents are supportive of its Port Hope operations.

Polling results were promoted on Cameco's FSD website, on social media and in our Fall 2024 Energize issue.


Cameco
Port Hope 2024 Public Opinion Survey
In July 2024, Praxis Consulting conducted a third party public opinion survey of Cameco's operations in Port Hope, Ontario. Thank you to all participants for your time and perspectives. We value your input.
To read the full report, visit camecofuel.com
9 out of 10 people describe themselves as knowledgeable about Cameco's Port Hope operations
Results on page 13.
91% support the continuation of Cameco's operations in Port Hope
Results on page 10 of the Report.
Not supportive at all 5%
Somewhat supportive 27%
91%
Strongly supportive 64%
84%
60
50
40
30
20
10
0
52%
32%
Strongly agree
Somewhat agree
Somewhat disagree
Strongly disagree
Unsure
84% are confident Cameco has environmental monitoring in place to protect Port Hope
Results on page 15 of the Report.
Read the report on camecofuel.com
Cameco




Social Media

@Cameco.Ontario @CamecoOntario @Cameco_Ontario

The following are examples of content and updates provided across Cameco Ontario's social media channels:

- Cameco's participation in industry events such as the Canadian Nuclear Association conference
- Step Up for Mental Health 5km run/walk
- Employment opportunities
- Cameco's community investments including a gift of $500,000 to support Northumberland County's new Youth Wellness Hub

- Cameco's Indigenous engagement activities including the signing of a relationship agreement with the Mississaugas of Scugog Island First Nation

In 2024, the Cameco Ontario Facebook page grew by 135 followers (9.6% increase YoY) ending the year with 1,545 followers. Over the course of the year, 183 posts were shared.


In 2024, Cameco's Instagram page has continued to grow, reaching 1,011 followers, and 18.1% increase YoY or 155 followers. Content is similar to that which is posted on Facebook.


Cameco continues to use X (formerly Twitter) to share content about its local operations, safety, environmental and community investments. In 2024, Cameco Ontario's X page grew 21 followers (4.6% YoY) to 453 followers.


## Public Disclosure

CFM made three public disclosures in 2024. Two of the disclosures were a false and suspected false fire alarm. The other disclosure was a reportable spill.

Environment & Safety – Fuel Manufacturing: Port Hope & Cobourg – Fuel Services – Businesses – Cameco

| | |
|---|---|
| **Posting Date** | May 14, 2024 |
| **Incident Date** | May 13, 2024 |
| **Incident** | Reportable Spill |
| **Details** | On May 13, 2024, at 7:30 a.m., an overflow was observed from a groundwater treatment system maintenance hole cover in the CFM Port Hope parking lot. The groundwater flowed to the municipal storm sewer system, which discharges to Gages Creek. It is estimated that 100L of untreated groundwater was discharged.<br><br>There was no health or safety risk posed to the public, workers, or the environment by the discharge of untreated groundwater |
| **Corrective Action** | The pump was shut down, stopping the flow of groundwater. The cause of the leak was found and repaired; the system was then returned to normal operation by 10:30 a.m. Two water samples were collected for evaluation of volatile organic compound (VOC) concentrations – one at the maintenance hole and one from ponded water at the municipal catch basin inlet. Results are pending.<br><br>The Canadian Nuclear Safety Commission, the Spills Action Centre and the Municipality of Port Hope have been notified. |
| **Cameco Environmental Effect Rating** | 1 |

| | |
|---|---|
| **Posting Date** | July 22, 2024 |
| **Incident Date** | July 11, 2024 |
| **Incident** | False Fire Alarm |
| **Details** | A fire alarm was activated due to an automated signal received from the fire suppression system on one of the two pelleting areas of the dust control units. This signal automatically triggers a fire department response. Municipality of Port Hope Fire Services responded, walked the area and confirmed that there was no fire and that this was a false alarm. |
| **Corrective Action** | The Emergency Operations Centre was activated, personnel were evacuated to the muster area and roll call taken. Personnel returned to work after the all clear was given.<br>The issue was related to a faulty notifier module in the CO2 fire suppression system which was replaced the following day. The Canadian Nuclear Safety Commission has been notified. |
| **Cameco Environmental Effect Rating** | 2 |

| | |
|---|---|
| **Posting Date** | September 26, 2024 |
| **Incident Date** | September 26, 2024 |
| **Incident** | False Fire Alarm (suspected) |
| **Details** | A fire alarm was activated in the fuel storage area at Cameco Fuel Manufacturing, automatically triggering a response from the Municipality of Port Hope Fire Services and Port Hope Police. Fire Services personnel inspected the area and confirmed that there was no indication of a fire, and this incident is suspected to be a false alarm.<br><br>The cause of the alarm is under investigation. |
| **Corrective Action** | The Emergency Operations Centre was activated, workers were evacuated to the muster area and roll call taken. Personnel returned to work after all clear was given.<br><br>The Canadian Nuclear Safety Commission has been notified. |
| **Cameco Environmental Effect Rating** | 1 |

Public Disclosures were sent to Curve Lake and Scugog Island First Nations and then discussed during regular meetings.

In April, Cameco received a request to share Public Disclosures going forward with Hiawatha First Nation. No questions were received from members of the public.

Community Investment

In 2024, Cameco provided support and sponsorship through grant opportunities to 61 not-for-profit, charitable and community organizations including:

- Northumberland Hills Hospital Foundation
- Big Brothers Big Sisters Northumberland

- Rebound Child & Youth Services
- YMCA Northumberland
- Cornerstone Family Violence and Prevention Centre
- Northumberland Humane Society
- Northumberland Diverse People's Coalition
- Northumberland Diversity Festival
- United Way Northumberland
- The Help & Legal Centre
- Community Care Northumberland

This does not include the organizations that were supported through the Cameco Fund for Mental Health.

**Youth Wellness Hub Northumberland**

On May 3, Cameco's president and CEO announced a $500,000 gift to Northumberland County's first Youth Wellness Hub located in Port Hope, Ontario. This gift is to support the renovation and improvements of the new Port Hope space.

A news release was issued to local media, posted to Cameco Fuel Services Division website and on Cameco Ontario social media platforms.

## Cameco Fund for Mental Health

Surpassing last year's record-setting numbers, the Cameco Fund for Mental Health raised over $118,000 to support mental health initiatives in Northumberland County and area. There were two events held in support of the Cameco Fund for Mental Health – the Step Up for Mental Health 5k event, which raised over $78,000 with the support of 700 runners and walkers, with every dollar collected from registration fees being matched by Cameco. In June, Cameco held its 13th annual Cameco Charity Golf Tournament, raising more than $21,000 with a sold-out tournament at Dalewood Golf and Country Club.

Adjudication for the Cameco Fund for Mental Health took place in November and involved Cameco representatives and local mental health experts. In Northumberland County, 12 organizations received a mental health grant. Recipients were notified and a news release was issued.

## Employee Volunteers in the Community

### Day of Caring

Approximately 29 CFM employees took part in the 25th annual United Way Day of Caring on June 7, helping to complete 40 projects around the community.

### Habitat Build Days

In the fall, 8 CFM employees participated in three Habitat for Humanity build days at the Baltimore location. This engagement opportunity was a part of Cameco's multi-year gift made in late 2023.

**Other activities**

Cameco employees also volunteered for other community initiatives included Big Brothers Big Sisters Bowl for Kids' Sake, McDonald's McHappy Day and Tim Horton's smile cookie campaign**.**

Industry

Cameco attended the Canadian Nuclear Association conference in Ottawa from February 27 to March 1, 2024. Cameco was a bronze sponsor of the conference and staffed a booth.

Earned Media

Cameco received media coverage throughout the year covering a range of activities. Media coverage was overall positive:

- Cameco Recognized for Its Ongoing Support of Student Nutrition | Today's Northumberland
    - Cameco Recognized for Its Ongoing Support of Student Nutrition Programs in Northumberland - Today's Northumberland - Your Source For What's Happening Locally and Beyond (todaysnorthumberland.ca)
- Cameco Makes $4,500 donation to Northumberland student nutrition program | Northumberland News
    - Northumberland student nutrition program receives donation (northumberlandnews.com)

- Cameco Makes $4,500 donation to Northumberland student nutrition program | InQuinte.ca
    - InQuinte.ca | Northumberland Food For Thought receives $4,500 donation from Cameco
- Cameco Makes $4,500 donation to Northumberland student nutrition program | GoNorthumberland.ca
    - Cameco are fueling students with a $4,500 grant to Northumberland Food for Thought | 93.3 myFM (gonorthumberland.ca)
- Ontario government supports new youth wellness hub in Port Hope | Global News
    - Ontario government supports new youth wellness hub in Port Hope | Global News
- Cameco supports new Youth Wellness Hub with half-a-million-dollar donation | GoNorthumberland.ca
    - Cameco supports new Youth Wellness Hub with half-a-million dollar donation | 93.3 MyFM (gonorthumberland.ca)
- COMMUNITY SPOTLIGHT: Hey Northumberland, are you ready to Step Up for Mental Health? Northumberland News
    - COMMUNITY SPOTLIGHT: Hey Northumberland, are you ready to Step Up for Mental Health? | 93.3 MyFM (gonorthumberland.ca)
- Next week we'll be showcasing Local Manufacturers, fueled by the support of Cameco – Northumberland News
    - Next week we'll be showcasing Local Manufacturers, fueled by the support of Cameco | 93.3 myFM (gonorthumberland.ca)

Advertising

In 2024, advertising was conducted through social media platforms, local news websites and local radio.


Cameco conducts advertising to support various activities in the local community. In 2024, much of the advertising was conducted through social media platforms, local news websites and local radio.

The three local social and radio media campaigns ran at various times through the year:

- Cameco's Step up for Mental Health 5K
- Port Hope Cameco Charity Golf Tournament
- Port Hope Community BBQ

Online ads were placed with Today's Northumberland and Go Northumberland.

Cameco also continued the monthly community partner advertising program with the local radio station. With this program, a one-month radio advertising package is donated to a local charity or community organization each month. Recipients included Community Counselling and Resource Centre, Cornerstone Family Violence Prevention Centre, Northumberland Fare Share Food Bank and Northumberland's Diversity Festival.

Cameco placed print ads in the Northumberland Hills Hospital Gala booklet, Handbags for Hospice and advertised on the Port Hope Police reusable shopping bag which was given out at community events by the Port Hope police. Cameco also sponsors boards at the Cobourg Community Centre and Jack Burger Complex in Port Hope.

Government Stakeholders

Government relations (GR) involves building strong relationships and positive interactions with local elected officials. Cameco engages in GR activities at the municipal, provincial, and federal levels. The majority of federal engagements take place through Cameco's GR experts located in Ottawa and Saskatoon. Locally, the focus is primarily on municipal and provincial officials.

The VP of Fuel Services Division, the general managers of CFM and PHCF and the director of government and public affairs met with the Port Hope CAO on February 14. The presentation introduced Cameco's local operations and activities.

On November 26, VP of Fuel Services Division presented to Port Hope municipal council to provide Cameco's annual update on local operations.

Tours

Providing facility tours is a valuable component of CFM's engagement and outreach activities.

The following tours were held in 2024 at CFM facilities:

| Date | Group |
|---|---|
| March 8, 2024 | Guests from NAYGN, OPG and Ontario Tech students |
| March 18, 2024 | Loyalist College Radiation Safety Program |
| April 5, 2024 | Loyalist College Radiation Safety Program |
| November 26, 2024 | Loyalist College Radiation Protection Program |
| December 5, 2024 | World Nuclear University |

Website

Cameco has a dedicated website for its Ontario operations: Home - Cameco Fuel Services.

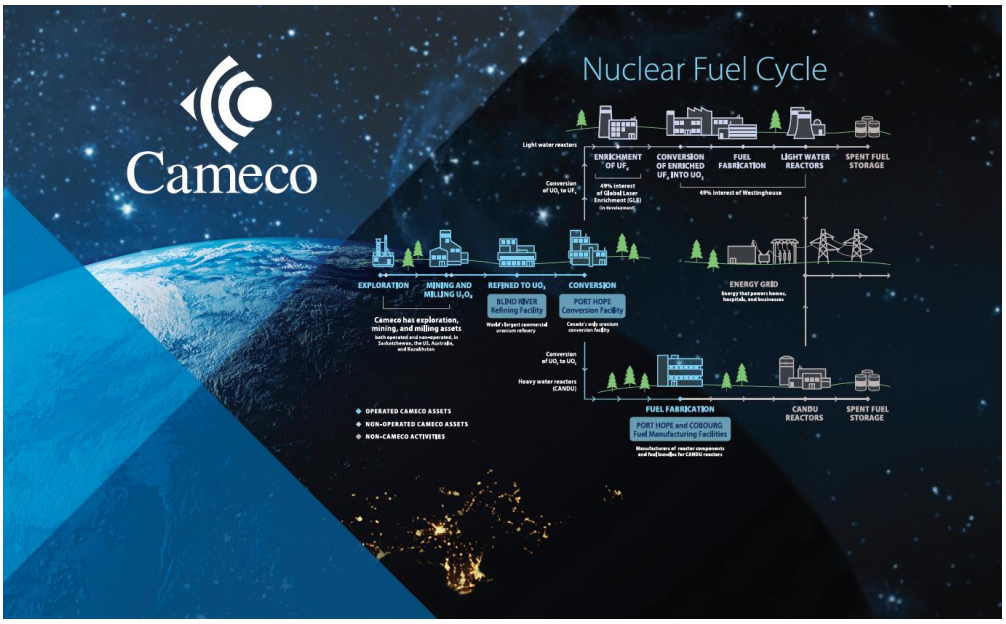
Cameco updated its website with information throughout 2024 including:

- Three Public Disclosures related to CFM
- Three Energize newsletters
- Port Hope 2024 Polling results
- Cameco Step Up for Mental Health activities including news releases
- News release celebrating Cameco and Mississaugas of Scugog Island First Nation formalize their working relationship
- News releases announcing community investments
- Quarterly and annual CNSC reports
- Annual Sustainability Report
- Community notices regarding site activities

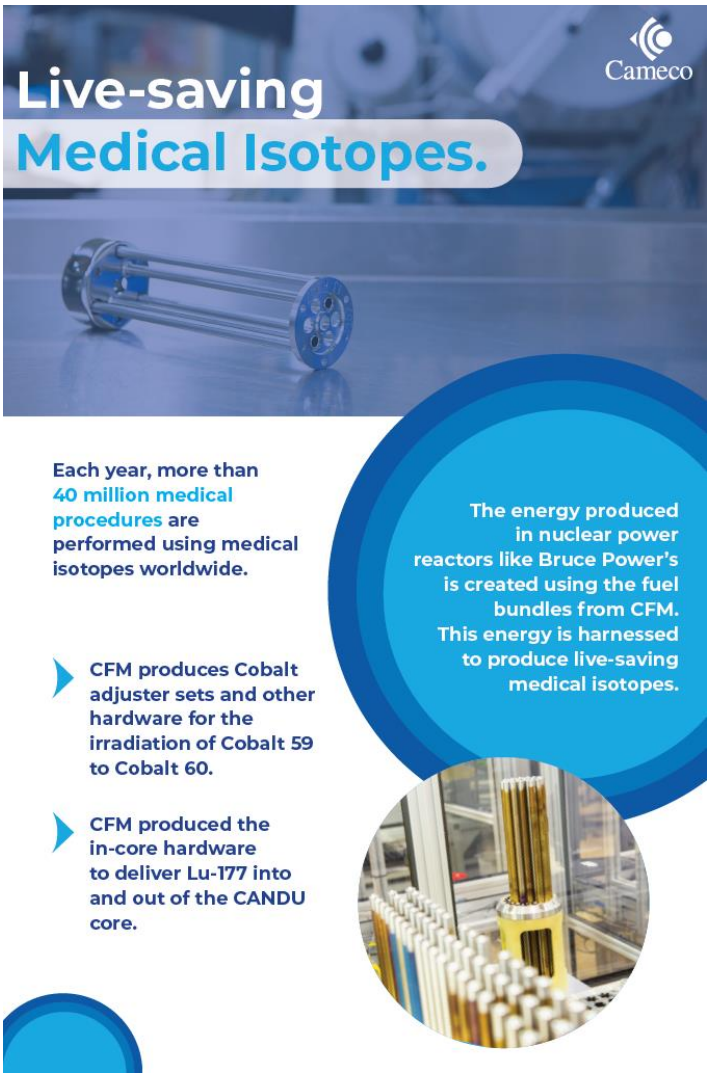
Communications Products

Cameco strives to provide accurate and timely information to stakeholders and other interested parties. Information products are developed to support various communications and engagement vehicles and activities.

- Three issues of Energize – two mailed to all Port Hope addresses (third prevented due to Canada Post strike). All issues were posted online
- Leveraging social media to link to Energize and other key updates for the public
- Invitation to the community barbeque, shared online and in the mail
- Advertising on local media
- Printed information boards at the community barbeque and Port Hope Fall Fair
- Door hanger campaign to notify facility neighbours of on-site work


Cameco
Nuclear Fuel Cycle
Light water reactors
ENRICHMENT OF UF6
CONVERSION OF ENRICHED UF6 INTO UO2
FUEL FABRICATION
LIGHT WATER REACTORS
SPENT FUEL STORAGE
Conversion of UO3 to UF6
49% interest of Global Laser Enrichment (GLE) (in development)
49% interest of Westinghouse
EXPLORATION
MINING AND MILLING U3O8
REFINED TO UO3
CONVERSION
BLIND RIVER Refining Facility
PORT HOPE Conversion Facility
Cameco has exploration, mining, and milling assets
ENERGY GRID
Energy that powers homes, hospitals, and businesses
Conversion of UO3 to UO2
Heavy water reactors (CANDU)
FUEL FABRICATION
PORT HOPE and COBOURG Fuel Manufacturing Facilities
CANDU REACTORS
SPENT FUEL STORAGE
OPERATED CAMECO ASSETS
NON-OPERATED CAMECO ASSETS
NON-CAMECO ACTIVITIES


Cameco
Cameco
Fuel Manufacturing.
Cameco's fuel manufacturing consists of two facilities:
A metal fabrication facility in Cobourg, which produces fuel bundle and reactor components.
A fuel manufacturing facility in Port Hope, where natural uranium dioxide ($UO_2$) powder is pressed into pellets, fitted into zirconium tubes and assembled into CANDU reactor fuel bundles.
Uranium dioxide
$UO_2$
Uranium dioxide ($UO_2$) is used in the fuel for CANDU reactors.
1 This process involves pressing $UO_2$ powder into cylinders and baking them at high temperature.
2 The pellets of natural uranium are loaded into half-metre-long tubes made of zirconium alloy, which are then formed into a fuel bundle.
3 These bundles are loaded into fuel channels which become part of the core, or calandria, of a CANDU reactor.
4 A 790-megawatt CANDU reactor will require 5,760 fuel bundles – over five million fuel pellets in total.
Cameco has safely manufactured over 1.5 million fuel bundles.


Cameco
Live-saving
Medical Isotopes.
Each year, more than 40 million medical procedures are performed using medical isotopes worldwide.
CFM produces Cobalt adjuster sets and other hardware for the irradiation of Cobalt 59 to Cobalt 60.
CFM produced the in-core hardware to deliver Lu-177 into and out of the CANDU core.
The energy produced in nuclear power reactors like Bruce Power's is created using the fuel bundles from CFM. This energy is harnessed to produce live-saving medical isotopes.

## Visit us at the Port Hope Agricultural Fair

From September 13 - 15, 2024, join Cameco leadership and subject matter experts at the annual Port Hope Agricultural Fair to learn more about Cameco's operations in Port Hope.

You will learn about Cameco sites, our environmental monitoring processes, the beneficial role of nuclear power, and how local operations contribute to the nuclear fuel cycle.


*(L-R): Doug Jensen, general manager, Cameco Fuel Manufacturing and Sarah Phillips, administrator, Health and Safety.*

## SAVE THE DATE:
## Cameco-sponsored days in Port Hope

**December 27**

**Free Public Skate**

December 27, 2024
1 - 2:30 p.m.
Jack Burger Sports Complex

**January 2**

**Free Public Swim**

January 2, 2025
2:45 - 4:15 p.m.
Jack Burger Sports Complex

**January 3**

**Free Family Gym Drop In**

January 3, 2025
4 - 8 p.m.
Town Park Rec. Centre

*Cut this out and place it on your fridge.*

## 4. INDIGENOUS ENGAGEMENT

Cameco continued regular meetings with Curve Lake First Nation (CLFN) and Mississaugas of Scugog Island First Nation (MSIFN) in 2024.

Public disclosures were emailed to Curve Lake and Scugog Island throughout the year, and these were discussed at regular scheduled meetings. On April 24, Cameco received a request from Hiawatha First Nation to share Public Disclosures moving forward.

Quarterly compliance reports and copies of the Energize newsletters were sent to Curve Lake, Hiawatha, Alderville, Scugog Island, Rama and the Mohawks of the Bay of Quinte throughout the year.

On April 1, an email was sent to Curve Lake, Alderville, Hiawatha, Mississaugas of Scugog Island, Mohawks of the Bay of Quinte and Chippewas of Rama First Nations with details of Cameco's Step-Up for Mental Health 5k walk/run with information regarding the event and registration details. Members from CLFN attended and participated in this event.

On April 30, select Cameco staff attended the First Peoples House of Learning at Trent University and participated in the Two-Spirit History training.

From June 19-21, Cameco hosted representatives from CLFN in Saskatchewan. The visit combined an educational tour of Cameco's Cigar Lake mine with a cultural immersion experience in the northern community of Pinehouse. The visit aimed to enhance CLFN's understanding of the nuclear fuel cycle and its safety measures, while also fostering community connections through participation in local traditions and community events.

An invitation to Port Hope's annual community barbeque was sent to Curve Lake, Alderville, Mississaugas of Scugog Island and Hiawatha First Nations on June 24.

On June 26, the First Peoples House of Learning Two-Spirit training was brought to PHCF where it was attended in-person and offered virtually across all Canadian Cameco sites.

On July 10, Cameco attended the Harvest meeting at CLFN. Cameco set up a booth and provided information about Cameco's operations to community members.

On July 29, Cameco's vice-president of Cameco Fuel Services Division met with MSIFN's Chief, members of Council and consultation committee for the official signing of an agreement that formalized the relationship between MSIFN and Cameco. Cameco and MSIFN issued a joint news release announcing the formalization of their relationship. The news release was sent to local media, posted on camecofuel.com and shared on social media.

On August 7, Cameco met with Hiawatha First Nation for an introductory meeting.

Cameco attended the Alderville First Nation Job Fair in October and the CLFN Alternative Routes Fair in November, highlighting information about Cameco's operations and career opportunities.

The Cameco Fund for Mental Health news release with information on how to apply to the Fund was sent via email to Hiawatha, Alderville, Curve Lake, Mississaugas of Scugog Island and Mississauga First Nation in October. Mississaugas of Scugog Island First Nation's 'Emergency Discretionary Fund' was a Cameco Fund for Mental Health recipient. This initiative will provide community support to members without regular access to benefits and services within the community.

On October 29, CLFN hosted representatives of Cameco's Fuel Services Division for a community visit and tour. The visit included a boat tour where CLFN representatives provided information on the rich history and traditions on the waterway. On land, the visit showcased community growth and development.

Cameco was a sponsor for the MSIFN Pow Wow in July and the CLFN Pow Wow in September. In December, Cameco sponsored CLFN's Invasive Phragmites Study and MSIFN's Member Home Support Program.

Below is a summary of the meetings and topics covered in 2024:

| Indigenous Community | Date of Meeting | Topics |
|---|---|---|
| Curve Lake First Nation | March 6 | Environmental Working Group Meeting.<br>Cameco provided information on:<br>Operations<br>Vision In Motion<br>Closed Loop Cooling Water System<br>Public disclosures<br>Q4 Report Overview<br>Cameco and CLFN discussed community events and sponsorship opportunities, as well as the opportunity for CLFN to visit and tour a northern mine site in SK. |
| | August 21 | Environmental Working Group and Oversight Committee Meeting. Cameco provided information on:<br>Operations<br>Vision In Motion<br>Public disclosures |

| | | |
|---|---|---|
| | | Cameco facilitated tours of PHCF and CFM-PH. The group discussed a CLFN community visit and began workplans for 2025 deliverables. |
| | November 14 | Cameco provided information on:<br>Operations<br>Vision In Motion<br>Public disclosures<br>Cameco and CLFN discussed the framework for a food study and a scholarship program and implementation of both initiatives in 2025. |
| Mississaugas of Scugog Island | July 29 | Meeting at MSIFN with Chief LaRocca and MSIFN representatives, and Cameco to recognize the formalizing of the relationship.<br>General discussion about future initiatives and opportunities. |
| | September 16 | Presentation on Cameco's operations and activities as a recap for meeting attendees who are new.<br>MSIFN shared information about their community and both Cameco and MSIFN outlined future work plans for 2025. |
| | October 10 | Business meeting and tour of PHCF. Discussion included Vision in Motion and potential future work opportunities for MSIFN. |
| | December 13 | Presentation on Cameco's operations and activities as a recap for meeting attendees who are new to the committee apart from past meetings.<br>Cameco presented on:<br>Operations<br>Vision in Motion<br>Public disclosures<br>Cameco and MSIFN discussed the framework for a food study and a scholarship program and implementation of both initiatives in 2025. |

## 5. SITE-SPECIFIC

CFM's Ceramics lab has the capability and equipment to produce small quantities of special material fuel containing enriched uranium. These fuel types are manufactured in a similar manner but on a smaller scale than natural uranium manufacturing. As CFM has the ability to handle enriched $UO_2$ in batch processes and in solid form, nuclear criticality safety is achieved by employing engineered and administrative controls over batch size (Smallest Critical Mass) in processing and storage areas. CFM has a *Nuclear Criticality Safety Program Manual* (CFM-NC) to address the handling and processing of enriched uranium. The CFM-NC has been developed to guide generation and implementation of CFM's criticality prevention practices as they pertain to licensing and criticality prevention issues. This safety program meets the CNSC regulatory document *REGDOC - 2.4.3 CNSC Regulatory Document Safety Analysis Nuclear Criticality Safety v1.1*.

Processing of any amount of enriched material at CFM is governed by a criticality control committee (CCC) as described in the CFM-NC.

There were no processing activities of enriched material conducted on site in 2024.

Cameco maintains the required nuclear liability insurance for CFM as required under the Canadian *Nuclear Liability Act*.

CFM has a CNSC approved Preliminary Decommissioning Plan (PDP), which was updated in 2021 in accordance with the CNSC guidance documents *G-219, Decommissioning Planning for Licensed Activities*, and *G-206, Financial Guarantees for the Decommissioning of Licensed Activities*. With the update of CFM's Preliminary Decommissioning Plan in 2021, this reduced liability allowed for a reduction of financial guarantee required by the G-206.

CFM met all site-specific reporting requirements in 2024.

# 6. IMPROVEMENT PLAN AND FUTURE OUTLOOK

Some of the improvement plans and the future outlook at CFM for 2025 include:

- Continue to reduce workplace hazards.
- Continue to improve ergonomics through ergonomics assessments.
- Continue to support the plan to remove legacy waste from the site.
- Complete shield wall to lower public dose at critical receptor location.
- Continued groundwater treatment system upgrades.
- Maintain compliance to regulatory, industry and corporate standards.
- Implement the planned changes to continual improvement systems. Document the program in an update to MSP 24-02, Continual Improvement of Processes and Products.
- Removal of contaminated soils from beneath the Port Hope facility paved area.
- Support nuclear safety through continual product quality improvement.

Improvements will include continued work to clarify expectations through improved procedures and training material, continued responsiveness to employee identified and data driven SHEQ improvements, increased supervisor oversight for procedural compliance, and continuing to stabilize equipment reliability.

## 7. SAFETY PERFORMANCE OBJECTIVES FOR FOLLOWING YEAR

CFM remains committed to continual improvement and will continue to look for opportunities to make the site operate more efficiently, while minimizing risk to employees, the public, and the environment.

The following is a summary of the projected facility operations, changes to equipment, procedures, production capacity, organization, and licensing documents that are planned for 2025:

- Submit updated Radiation Protection Program manual.
- Submit updated Environmental Program manual.
- Submit updated Emergency Response Plan.
- FSD Safety Analysis Program will be developed in 2025.
- Installation of a third press and takeoff in the PP2 area for the production of 37M pellets on a separate press from the current fleet to avoids changeovers which have historically been ergonomically problematic.
- Commissioning of additional extraction that was installed in the powder receiving area to assist with reducing airborne contamination while re-packing drum liners for return to PHCF was not successful due to air balancing issues.

CFM is not planning any other major changes in 2025 that may require approval from the Commission.

# 8. CONCLUDING REMARKS

Cameco is committed to the safe, clean, and reliable operation of all of its facilities and continually strives to improve safety performance and processes to ensure the safety of both its employees and the local residents.

CFM management systems continue to be effective in providing an appropriate level of management direction to CFM. Opportunities for continual improvement continue to be identified and acted upon. As such, CFM is positioned to effectively manage operational risks and needs while continuing to improve.

Improvements will include continued work to clarify expectations through improved procedures and training material, continued responsiveness to employee identified and data driven SHEQ improvements, and continuing to stabilize equipment reliability, particularly of those processes that have been recently installed.

Overall, it was determined during the management review that the CFM Management Systems, adhering to the N286, N299.1 and N285.0 standards, and the CFM License Conditions (LCH) are suitable, adequate, and effective.

As a result of the effective programs, plans and procedures in place, CFM was able to maintain individual radiation exposures well below regulatory dose limits. In addition, environmental emissions and public radiation exposures continued to be controlled to levels that are a fraction of the regulatory limits. In 2024, there were no action level exceedances in the radiological or environmental monitoring program.

CFM remains committed to continual improvement and will continue to engage all employees in the identification and implementation of activities that reduce injury risks, increase environmental protection, improve product quality and efficiency in 2025.