2024 Fourth Quarter Compliance Monitoring
&
Operational Performance Report

Reporting Period October 1 – December 31, 2024

Cameco Fuel Manufacturing Inc.
Fuel Facility Operating Licence
FFL-3641.00/2043

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Submitted to:
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Executive Summary

Cameco Corporation (Cameco) is committed to the safe, clean, and reliable operations of its facilities and continually strives to improve safety performance and processes to ensure the safety of both its employees, local residents, and the environment. CFM maintains the required programs, plans and procedures as required by the applicable regulations including but not limited to the areas of health and safety, radiation protection, environment, emergency response, fire protection, waste management, and training.

As a result of the programs, plans and procedures, CFM's operations have maintained radiation exposures to workers and the public well below the regulatory dose limits. Environmental emissions are also being controlled to levels that are a fraction of the regulatory limits. During the fourth quarter, there were no exceedances of the action levels in the radiation protection or environmental protection program.

In the fourth quarter there was a planned shutdown of the facility between Christmas and New Year. The planned shutdown provides an opportunity to complete maintenance activities, complete any scheduled facility and equipment upgrades as well as allows operators an opportunity to use vacation time.

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1.0 Fourth Quarter Overview

1.1 Facility Operation

Cameco continues to strive for operational excellence at all of 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 that for Safety, Health, Environment and Quality (SHEQ) provide guidance and direction for all site-based programs and procedures that define the CFM Management System.

In the first quarter of 2023, CFM was granted a twenty-year licence by the Commission (FFL-3641.00/2043) effective March 1, 2023 until February 28, 2043 and the Licence Conditions Handbook (LCH) is dated August 31, 2023.

There were no significant changes to Structure, Systems and Components (SSC) or processes in the fourth quarter.

The LCH for the facility references core CFM documents that form the licensing basis in each safety and control area.

There were one document that were submitted to the CNSC in the fourth quarter of 2024.

- Management Systems Program Manual (CFM-MS), version #7 - update CFM organization roles, revise document hyperlinks, remove reference to CIRS for safety culture assessment actions, modify the competency model and clarify the effectiveness review process.

In the fourth quarter there was a planned shutdown of the facility between Christmas and New Year. The planned shutdown provides an opportunity to complete maintenance activities, complete any scheduled facility and equipment upgrades as well as allows operators an opportunity to use vacation time.

There were no events in the fourth that required reporting to the Commission as detailed in the *Reg. Doc 3.1.2 Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*.

In the fourth quarter there was no exceedances of the radiation protection or environmental protection action levels.

1.2 Physical Design / Facility Modification

Modifications to facility buildings, processes, equipment, procedures, programs, or organizational structure with the potential to impact safety are evaluated through the internal change and design control process from planning through to completion. This process is used to help identify impacts and potential impacts to the licensing basis, the environment as well as to the health and safety of employees and local residents.

In the fourth quarter of 2024, there were no modifications undertaken that required written approval from the Commission or a person authorized by the Commission.

There were also no significant changes to the physical design of equipment, processes, or the facility in the quarter. Work on the third press continued in the fourth quarter with commissioning expected early in 2025.

2.0 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 established action levels pertaining to radiation protection, which are listed in CFM's LCH. A result above an action level is investigated and remedial actions taken if necessary. During the fourth quarter there was no exceedance in the Radiation Protection program.

Whole Body Dose

Table 1 shows the fourth quarter whole body dose for three work groups: employees in the operations group, employees in administration/support roles, and outside contractors/visitors. The highest exposures are from the operations work group, consisting of production, inspection, and maintenance personnel. There were no action level exceedances for whole body dose in the radiation protection program during the quarter. In the fourth quarter, most NEWs received a whole body dose below 1 mSv (98%).

Table 1

Fourth Quarter 2024 Whole Body Dose Results				
Work Group	**Number of Individuals**	**Average (mSv)**	**Minimum (mSv)**	**Maximum (mSv)**
Operations	111	0.24	0.00	1.69
Administration / Support	86	0.01	0.00	0.14
Contractors/Visitors	19	0.02	0.00	0.05
Monthly action level is 1.6 mSv (for NEWs such as production employees). Quarterly action level is 1.0 mSv (for NEWs such as support staff and contractors).				

Table 2 shows the quarterly average, minimum and maximum individual external whole body exposure for all NEWs from the fourth quarter of 2023 to the fourth quarter of 2024 (five monitoring periods). The average whole body dose in the fourth quarter for all NEWs was 0.13 mSv. The average whole body dose is higher than two previous quarters and lower than the other two quarters. The maximum dose was higher than previous quarters with the exception of the second quarter of 2024. Comparison to the fourth quarter of 2023 considers any shutdown times. The fourth quarter of 2024 was higher than the fourth quarter of 2023 for both average and maximum dose. The individual with the highest exposure in the fourth quarter was an operator who was working in the bundle

wash area. This individual normally works in the Assembly area with some coverage in the Pelleting area on the furnaces.

Table 2

Whole Body Dose Results by Quarter				
Monitoring Period	**Number of Employees**	**Average Dose (mSv)**	**Minimum Dose (mSv)**	**Maximum Dose (mSv)**
Q4 2023	208	0.11	0.00	1.07
Q1 2024	209	0.13	0.00	1.43
Q2 2024	217	0.15	0.00	2.08
Q3 2024	220	0.10	0.00	0.91
Q4 2024	216	0.13	0.0	1.69

Skin Dose

Table 3 shows the fourth quarter skin dose results for three work groups, employees in operations (monitored monthly), employees in administration and/or support roles and outside contractors/visitors (both monitored on a quarterly basis). The highest exposures are from the operations work group, consisting of production and maintenance personnel. The maximum skin dose for all NEWs was 9.99 mSv in the fourth quarter and the average skin dose for all NEWs was 0.79 mSv. The action levels for skin dose were not exceeded in the quarter. All NEWs received a skin dose in the fourth quarter below 10 mSv (100%).

Table 3

Fourth Quarter 2024 Skin Dose Results				
Work Group	**Number of Individuals**	**Average (mSv)**	**Minimum (mSv)**	**Maximum (mSv)**
Operations	111	1.52	0.00	9.99
Administration / Support	86	0.01	0.00	0.59
Contractors/Visitors	19	0.02	0.00	0.20
Monthly action level is 20.0 mSv (for NEWs such as production employees). Quarterly action level is 5.0 mSv (for NEWs such as support staff and contractors).				

Table 4 shows the employee quarterly average and maximum individual skin exposure from the fourth quarter of 2023 to the fourth quarter of 2024. The average dose was lower than the first two quarters and the maximum dose was lower in the fourth quarter than previous quarters except the third quarter of 2024. The individual who received the

maximum skin dose was a Pelleting area employee but was not the same individual with the maximum whole-body dose.

Table 4

Skin Dose Results by Quarter				
Monitoring Period	**Number of Employees**	**Average Dose (mSv)**	**Minimum Dose (mSv)**	**Maximum Dose (mSv)**
Q4 2023	208	0.77	0.00	11.87
Q1 2024	209	1.01	0.00	18.66
Q2 2024	217	0.95	0.00	11.05
Q3 2024	220	0.62	0.00	7.63
Q4 2024	216	0.79	0.00	9.99

Eye Dose

Table 5 shows the fourth quarter eye dose results for three work groups, employees in operations (monitored monthly), employees in administration and/or support roles and outside contractors/visitors (both monitored on a quarterly basis). The highest exposures are from the operations work group, consisting of production and maintenance personnel. The maximum eye dose for all NEWs was 4.61 mSv in the fourth quarter and the average eye dose for all NEWs was 0.42 mSv. The interim action levels for eye dose were not exceeded in the quarter. The majority of NEWs received an eye dose below 2 mSv (91%).

Table 5

Fourth Quarter 2024 Eye Dose Results				
Work Group	**Number of Individuals**	**Average (mSv)**	**Minimum (mSv)**	**Maximum (mSv)**
Operations	111	0.80	0.00	4.61
Administration / Support	86	0.01	0.00	0.37
Contractors/Visitors	19	0.02	0.00	0.13
*Monthly interim action level is 6.0 mSv *Quarterly interim action level is 12.0 mSv.				

*Interim action levels approved by CNSC July 11, 2022

Table 6 shows the employee quarterly average and maximum individual eye exposure from the fourth quarter of 2023 to the fourth quarter of 2024. The average dose in the fourth quarter of 2024 was lower than previous quarters except the fourth quarter of 2023 which was similar and the third quarter of 2024 which includes shutdown. The maximum dose in the fourth quarter was lower than previous quarters except the third

quarter. The individual who received the maximum eye dose was a Pelleting area employee and was the same individual with the maximum skin dose.

Table 6

Eye Dose Results by Quarter				
Monitoring Period	**Number of Employees**	**Average Dose (mSv)**	**Minimum Dose (mSv)**	**Maximum Dose (mSv)**
Q4 2023	208	0.40	0.00	5.38
Q1 2024	209	0.51	0.00	8.33
Q2 2024	217	0.50	0.00	5.82
Q3 2024	220	0.35	0.00	3.70
Q4 2024	216	0.42	0.00	4.61

Extremity Dose

The action level for extremity dose at CFM is 55 mSv per quarter. The quarterly action level applies to production NEWs who regularly handle product as part of their daily task. In 2021, CFM completed 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 over 50 mSv. It was determined that the extremity dose for NEWs at CFM do not exceed 50 mSv/yr; and therefore, NEWs are not required to wear dosimeters from a licensed dosimetry service provider. Extremity dose can be estimated using historic data.

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 the fourth quarter of 2024, the bundle washing activities began that were required after the fire suppression system discharged in September. Therefore, each employee assigned to the project underwent an ALARA assessment to determine the impact to the individual’s extremity dose. Employees who worked in job tasks that were in higher extremity dose areas were limited time to work on the bundle wash project. Employees were also provided ring dosimeters to wear during the project to assess the potential dose accrued. In the fourth quarter, a total of fourteen employees had assessments performed to determine the time the employee was able to work on the project. The results from the ring dosimeters indicated that all employees received similar extremity dose as their normal work activities and the extremity dose for the year would be well below 50 mSv. Therefore, the extremity dose does not need to be

adjusted for the fourth quarter. The project continued into the first quarter of 2025 with rings continued to be worn by employees working in the area.

Table 7 shows the average, minimum, and maximum extremity dose for NEWs over the period from the fourth quarter of 2023 to the fourth quarter of 2024. If the second quarter dose from 2021 was used as the basis for the fourth quarter of 2024 the average dose is estimated at 1.90 mSv and the maximum dose is estimated to be 10.50 mSv.

Table 7

Extremity Dose Results by Quarter				
Monitoring Period	**Number of Employees**	**Average Dose (mSv)**	**Minimum Dose (mSv)**	**Maximum Dose (mSv)**
Q4 2023	-	1.90*	0.00	10.50*
Q1 2024	-	1.90*	0.00	10.50*
Q2 2024	-	1.90*	0.00	10.50*
Q3 2024	-	1.25+	0.00	7.87+
Q4 2024	-	1.90*	0.00	10.50*

*estimation based on Q2 2021 data
+ estimation based on Q3 2021 data

Urine Analysis

The action level for a single routine urine sample is 10 µg/L of uranium concentration. During the quarter there was no exceedance of the urine analysis action level. Routine urine samples results analyzed during the fourth quarter are provided in Table 8 below.

Table 8

Fourth Quarter Routine Urine Analysis Results				
Work Group	**Number of Samples**	**Average (µg/L)**	**Minimum* (µg/L)**	**Maximum (µg/L)**
Operations	427	0.22	<0.20	1.60
Routine urine sample action level is 10 µg/L				

*detection limit of equipment is 0.2 µg/L therefore reported as <0.20 µg/L

Internal Dose

Routine urine analysis samples are collected on a biweekly basis for trending purposes; if an acute uptake is noted it is verified using lung counting and dose assigned if required.

In the fourth quarter of 2024, there were no routine urine sample results that were above the internal administrative level of 4.0 µgU/L.

During the fourth quarter, routine lung counts were conducted. In total 57 employees attended a lung count in the fourth quarter. The next campaign is scheduled for June of 2025.

Contamination Control

CFM has other programs to ensure radiation exposure levels remain low. An extensive contamination control program at CFM is zone control. 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.

The administrative limits are provided in Table 9 as well as the routine contamination monitoring results for the fourth quarter. Of the 692 samples taken none exceeded the internal administrative control limits (ACL).

Table 9

Fourth Quarter Alpha Contamination Monitoring Results			
Area	**# of Samples Taken**	**Administrative Limits (Bq/cm^2)**	**# of Samples Above Limits**
Zone 1	120	0.4	0
Zone 2	195	4.0	0
Zone 3	41	4.0	0
Zone 4	336	40	0

In-Plant Air

Routine air sampling is conducted at workstations throughout the plant continuously during operations to monitor airborne uranium dioxide in the work environment. The results for the fourth quarter of 2024 taken in each area, including the CAM heads in the PP2 area, dry Waste Treatment area and the Furnace Hall are shown in Table 10 below. There were no results above the 80-hour ACL or the 2000 hour ACL in the fourth quarter. In December of 2024, the in-plant air sampling was reduced to three locations at the manual grinders 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 in the next year.

Table 10

Fourth Quarter 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 Lab	18	1	2	0	0
Compaction Room	36	2	6	0	0
Load Room	72	3	9	0	0
Pangborn Room	113	4	38	0	0
Pelleting Area	108	2	9	0	0
UO_2 Grinders	226	2	13	0	0
Waste Treatment	18	4	14	0	0
PP2 Area	460	1	14	0	0
Dry Waste Treatment	552	1	5	0	0
Furnace Hall	736	1	7	0	0
TOTAL	**2339**	**1**	**38**	**0**	**0**
2000-hour Administrative Control Limit = 52 µg/m³					
80-hour Administrative Control Limit = 595 µg/m³					

Gamma Surveys

An ongoing ALARA initiative involves posting OSLD's around the facility to determine areas of elevated gamma radiation. The result for each location in the fourth quarter is summarized in Table 10. The results illustrate that the Fuel Storage Area had the highest gamma fields (6.3 µSv/hr), which is expected due to the amount of product stored in the area. The area is posted instructing workers to limit the time spent in this area. The next highest reading (5.5 µSv/hr) was in the PP2 Receiving area. This is also expected due to the amount of raw material stored in this area. Employees limit their time in this area as well.

Table 11

Fourth Quarter 2024 Gamma Survey Results						
Location #	**Area**	**Result (µSv/hr)**		**Location #**	**Area**	**Result (µSv/hr)**
13	Kitting	0.3		37	PP2 Powder Rec. N.	1.3
14	S Stacking	1.3		38	Powder Receipt	0.2
15	Stacking	0.2		39	U_3O_8 Add-back	1.0
16	Pelleting Entry	0.6		40	S End Cap	0.3
17	Pelleting Lab	0.1		41	End Cap	0.4
18	S Grinding	1.0		42	N End Cap	0.2
19	Grinding	1.0		43	E Offices	0.0
20	N Grinding	0.8		44	S End Plate	0.0
21	S Wall	0.0		45	End Plate	0.1
22	S Furnace	0.6		46	N End Plate	0.1
23	Furnace	1.0		47	W Offices	0.0
24	N Furnace	0.2		48	S Inspection	0.1
25	SE Wall	0.2		49	Inspection	0.1
26	E Wall Furnace	0.4		50	N Inspection	1.3
27	NE Wall	0.4		51	W Inspection	0.0
28	N Corridor	0.2		52	Strapping Bay	0.4
29	Ceramics Lab	0.1		53	Packing	0.4
30	R7#1 East Wall	2.3		54	Fuel Storage Area	6.3
31	PP2 West Wall	1.0		55	Graphite East	0.3
32	S Pressing	0.9		56	BMS Loading	1.2
33	N Pressing	0.6		57	PP2 Receiving	5.5
34	Pangborn	0.7		58	PP2 Press R53-1	1.5
35	S. Waste Treat	1.5		59	PP2 East Wall	0.6
36	N. Waste Treat	0.5				

3.0 Conventional Health and Safety

This safety and control area covers the implementation of a program to manage non-radiological workplace safety hazards and to protect personnel and equipment. Table 12 shows the safety statistics for the Port Hope facility.

Table 12

2024 Safety Statistics					
Year / Parameter	**Q1**	**Q2**	**Q3**	**Q4**	**YTD**
First Aid Injuries	3	3*	6*	2	12
Medical Diagnostic Injuries	0	3*	1	0	4
Medical Treatment Injuries	0	0	1	0	1
Lost Time Injuries	0	0	0	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

*reclassification caused numbers to be adjusted for previous quarters

There were no lost time incidents that occurred in the fourth quarter. The Total Recordable Injury Rate (TRIR) for October through December 2024 is 0.0 for the Port Hope facility. The year to date is 0.76.

Health and Safety Activities

- **Communications**: The fourth quarter safety meetings were held each month with a different topic including Fire Safety, Winter Safety, and Mental Health. Each month an update is also included for the previous month on 4 topics: Safe, healthy, and rewarding workplace, clean environment, supportive communities, and outstanding financial performance. Safety statistics as well as the status on quality and production targets are also included in the update on these topics.
- **Education and Training:** During the fourth quarter work continued on the SAT packages for PP2, BMS, and Waste Treatment operators as well as Radiation Technicians. The analysis phase is near completion for the Radiation Technicians, Waste Treatment and PP2 operators. BMS SAT Development is approximately at 85%. The SAT package for Fall Protection has also been completed. By the end of the fourth quarter, overall compliance results for training were at 93.9% complete. Safety critical “No Go” training was at 98.6% complete.
- **Safety Awareness Activities**: In the fourth quarter the JHSC continued to promote a STAR mindset a STAR Search contest. The purpose of the contest was

to familiarize the employees with the STAR methodology and get in the habit of regularly performing Self Checks. Employees completed a STAR Self Check entry form and once validated by the JHSC they were given a ballot to enter a draw for different prizes.

- **JHSC:** In the fourth quarter the JHSC participated in the review of ergonomic recommendations for press tooling changes provided by Pro Ergonomics, promoted the use of STAR (Stop Think Act Review) through a site wide contest, and reviewed 2024 objectives and planned for 2025 objectives.
- **Safety & Industrial Hygiene:** In the fourth quarter safety initiatives included promotion of winter safety by discussing proper footwear and walk like a penguin, participation in the new hire orientation process by providing tours to new employees and providing PPE, and revision of the heat stress procedure for 2025.

4.0 Environmental Protection

This safety and control area covers the 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.

Public Dose

Public dose is calculated by summing the total amount of uranium dioxide released to air in process stacks, building ventilation as well as liquid emissions, and is added to the gamma dose to the critical receptor (represented by location #12). This is demonstrated in the following formula:

$$\text{Public Dose} = \text{Dose}_{\text{Air (stacks)}} + \text{Dose}_{\text{Air (building ventilation)}} + \text{Dose}_{\text{Water}} + \text{Dose}_{\text{Gamma}}$$

The estimated public dose, along with each component, for the fourth quarter of 2023 to the fourth quarter of 2024 is provided in Table 13. In the second quarter of 2024 the public dose reported was adjusted to consider the annual release limit versus a quarterly fraction of the release limit for air and liquid emissions. This represents a more accurate calculation of public dose. The data provided in Table 13 has been adjusted to reflect the change in the calculation for trending purposes. The total dose to the member of the public from air, liquid emissions and gamma levels for the quarter is calculated to be 0.014 mSv, which is lower than previous quarters. Late in the third quarter of 2024, there was another discharge of the fire suppression system in the Fuel Storage Building. As a result, all fuel was removed from the building in the fourth quarter which lowered the gamma levels to the critical receptor during that time. Additionally, a shield wall began construction at the end of the fourth quarter. This was constructed to reduce the gamma levels to the critical receptor when the bundles are returned to the building.

Table 13

Public Dose by Quarter (mSv/quarter)					
DRL Component	**Q4 2023**	**Q1 2024**	**Q2 2024**	**Q3 2024**	**Q4 2024**
Air (stacks)	0.000	0.000	0.000	0.000	0.000
Air (building ventilation)	0.007	0.006	0.007	0.008	0.006
Liquid	0.000	0.000	0.000	0.000	0.000
Gamma (Location 12)	0.059	0.063	0.055	0.087	0.007
Total dose to Critical Receptor (location #12)	0.066	0.069	0.062	0.095	0.014

Gamma Monitoring

The perimeter gamma derived release limit for the critical receptor at location #12 is 1.35 µSv/hr and the action level is 1.0 µSv/hr. 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 with the action level of 0.2 µSv/hr for both locations. There were no exceedances of the DRL's or the action levels during the fourth quarter.

Table 14 provides the quarterly gamma levels in µSv/hr for all fence line monitoring locations (i.e., 1-12) for the quarter.

Table 14

Fourth Quarter 2023 Gamma Monitoring Results (µSv/hr)		
Location	**Action Level**	**Dose Rate**
1	0.2	0.00
2	0.2	0.06
3	1.0	0.00
4	1.0	0.00
5	1.0	0.00
6	1.0	0.00
7	1.0	0.00
8	1.0	0.00
9	1.0	0.00
10	1.0	0.00
11	1.0	0.06
12	1.0	0.04

The monitoring results for location 12 (closest location to the critical receptor) from the fourth quarter in 2023 to the fourth quarter of 2024 are provided in Table 15. Results have been corrected to consider background gamma levels by subtracting 0.08 µSv/hr. The dose rate for the fourth quarter of 2024 at location 12 is lower than previous quarters. The dose rate in that quarter was lower due to the removal of bundles from the Fuel Storage Building.

Table 15

Gamma Monitoring Results at Critical Receptor by Quarter (µSv/hr)			
Period	**Regulatory Limit (DRL)**	**Action Level**	**DRL Contribution**
Q4 2023	1.35	1.0	0.32
Q1 2024	1.35	1.0	0.34
Q2 2024	1.35	1.0	0.30
Q3 2024	1.35	1.0	0.47
Q4 2024	1.32	1.0	0.04

Stack Emissions

The total amount of uranium dioxide released to the environment during the quarter in gaseous effluent from stacks was 0.001 kg. The action level for stack emissions is 2.0 µg/m³ uranium concentration for a daily stack reading. There were no exceedances of the action levels with respect to air emissions during the quarter. Table 16 provides the average and maximum uranium concentration for all stacks in µg/m³ from the fourth quarter of 2023 to the fourth quarter of 2024. The overall average concentrations in µg/m³ measured in stack emissions in the fourth quarter were similar to the concentrations in previous quarters.

In the second quarter of 2024, a new database for calculating environmental data was commissioned. One of the improvements was the ability to calculate and report the stack data in grams/hour (g/hr). After collecting data for stack emissions in this format in the new database, CFM is in the process of setting an action level in g/hr units. Table 17 provides the average and maximum uranium results for all stacks in g/hr from the second quarter of 2024 to the fourth quarter of 2024. The results reported in g/hr show that stack emissions with the Mist Collector were the highest emitter which is similar to the second and third quarter results.

Table 16

Daily Stack Emissions by Quarter (µg/m³)							
Source	**Action Level**	**Avg. / Max.**	**Q4 2023**	**Q1 2024**	**Q2 2024**	**Q3 2024**	**Q4 2024**
PP2 West	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.0	0.0	0.0	0.0	0.1
PP2 East	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.0	0.0	0.0	0.0	0.1
Waste Treatment Area Absolute	2.0	Avg.	0.1	0.1	0.0	0.0	0.0
		Max.	0.3	0.4	0.1	0.1	0.1
BMS Extraction	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.1	0.1	0.0	0.3	0.4
Hoffman Vacuum	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.0	0.0	0.0	0.0	0.1
Pangborn North Dust Collector	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.2	0.1	0.2	0.3	0.4
Pangborn South Dust Collector	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.1	0.0	0.0	0.1	0.1
DeVilbiss Mist Collector	2.0	Avg.	0.0	0.0	0.0	0.1	0.1
		Max.	0.1	0.1	0.2	0.2	0.2
Furnace Burn-off	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.0	0.0	0.0	0.0	0.1
Overall	**2.0**	**Avg.**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
		Max.	**0.3**	**0.4**	**0.2**	**0.3**	**0.4**

Table 17

Daily Stack Emissions by Quarter (g/hr)							
Source	**Release Limit**	**Avg. / Max.**	**Q4 2023**	**Q1 2024**	**Q2 2024**	**Q3 2024**	**Q4 2024**
PP2 West	1.2	Avg.	-	-	0.0000	0.0000	0.0000
		Max.	-	-	0.0001	0.0001	0.0007
PP2 East	1.2	Avg.	-	-	0.0000	0.0000	0.0000
		Max.	-	-	0.0001	0.0001	0.0005
Waste Treatment Area Absolute	1.2	Avg.	-	-	0.0000	0.0000	0.0001
		Max.	-	-	0.0004	0.0002	0.0003
BMS Extraction	1.2	Avg.	-	-	0.0000	0.0000	0.0000
		Max.	-	-	0.0001	0.0003	0.0004
Hoffman Vacuum	1.2	Avg.	-	-	0.0000	0.0000	0.0000
		Max.	-	-	0.0000	0.0000	0.0000
Pangborn North Dust Collector	1.2	Avg.	-	-	0.0001	0.0001	0.0001
		Max.	-	-	0.0005	0.0008	0.0011
Pangborn South Dust Collector	1.2	Avg.	-	-	0.0001	0.0001	0.0001
		Max.	-	-	0.0003	0.0005	0.0005
DeVilbiss Mist Collector	1.2	Avg.	-	-	0.0003	0.0005	0.0006
		Max.	-	-	0.0014	0.0010	0.0012
Furnace Burn-off	1.2	Avg.	-	-	0.0000	0.0000	0.0001
		Max.	-	-	0.0002	0.0003	0.0009
Overall	**1.2**	**Avg.**	-	-	**0.0001**	**0.0001**	**0.0001**
		Max.	-	-	**0.0014**	**0.0010**	**0.0012**

Building Ventilation Emissions

The action level for building ventilation is 1.0 g/hr and is monitored daily for the Pelleting Area and 0.4 g/hr for the PP2 area. There were no exceedances of either action level in the fourth quarter.

Beginning in the second quarter of 2024, the emissions for the Pelleting Area are calculated using the continuous air sampling system (CAM heads) instead of the fixed air sampling system which was used prior to this change. CAM heads continuously monitor air in the area 24 hours a day, 7 days a week for the presence of airborne radioactive particulate contamination and signal an alarm when an airborne release occurs at specified levels.

The estimated release of uranium dioxide in exhaust ventilation from both areas during the quarter was 0.25 kg (0.22 kg from the Pelleting Area and 0.02 kg from the PP2 area).

Table 18 provides the average and maximum uranium concentration emitted through the building ventilation system in g/hr from the fourth quarter of 2023 to the fourth quarter of 2024.

The table demonstrates that the PP2 area has much lower emissions through building ventilation than the Pelleting Area and the results are consistent between the quarters.

Table 18

Building Ventilation Rates by Quarter (g/hr)							
Parameter	**Action Level**	**Measure**	**Q4* 2023**	**Q1* 2024**	**Q2 2024**	**Q3 2024**	**Q4 2024**
Uranium Emissions from Pelleting Area	1.0	Average	0.19	0.15	0.11	0.14	0.10
		Maximum	0.39	0.45	0.33	0.53	0.48
		Minimum	0.09	0.09	0.04	0.03	0.03
Uranium Emissions from PP2 Area	0.4	Average	0.01	0.01	0.01	0.01	0.01
		Maximum	0.06	0.05	0.05	0.05	0.04
		Minimum	0.00	0.00	0.00	0.00	0.00

* Results reported using in plant air samplers

Liquid Emissions

The action level for liquid effluent released to the sewer is 0.10 mg/L. In the fourth quarter there was no exceedance of the action level.

Table 19 provides the average and maximum uranium concentration for a single composite sample from the fourth quarter of 2023 to the fourth quarter of 2024. Also provided in the table is the minimum and maximum pH measured in the samples. The discharge in the fourth quarter is lower than or equal to previous quarters.

Table 19

Sanitary Sewer Emissions by Quarter							
Parameter	**Action Level (mg/L)**	**Measure**	**Q4 2023**	**Q1 2024**	**Q2 2024**	**Q3 2024**	**Q4 2024**
Uranium (mg/L)	0.1	Average	0.01	0.02	0.01	0.01	0.01
		Maximum	0.02	0.03	0.02	0.02	0.02
pH (pH units)	6.5	Minimum	7.1	7.1	7.5	7.4	7.4
	9.0	Maximum	8.1	7.6	8.0	8.2	8.0
Volume of water	-	(m^3)	3058	5377	5142	5197	4111
Estimated Discharge	-	(kg)	0.04	0.09	0.07	0.05	0.04

Ambient Air Monitoring

High volume air samples are collected in the four corners of the CFM property. Table 20 shows the quarterly average and maximum results for all four locations from the fourth quarter of 2023 to the fourth quarter of 2024. In October all four locations were elevated due to an upset condition at Port Hope Conversion Facility.

Table 20

Overall Uranium-in-Air Concentration at Hi-Vol Stations by Quarter (µg/m^3)					
Parameter	**Q4 2023**	**Q1 2024**	**Q2 2024**	**Q3 2024**	**Q4 2024**
Average	0.0004	0.0002	0.0003	0.0002	0.0004
Maximum	0.0012	0.0004	0.0005	0.0006	0.0054

Table 21 provides the quarterly average and maximum uranium-in-air concentrations for all locations from the fourth quarter of 2023 to the fourth quarter of 2024.

Table 21

Uranium-in-Air Concentration at Hi-Vol Stations by Quarter (µg/m³)					
Quarter	**Result**	**East**	**North**	**Northwest**	**Southwest**
Q4 2023	Average	0.0003	0.0004	0.0004	0.0004
	Maximum	0.0007	0.0012	0.0012	0.0010
Q1 2024	Average	0.0001	0.0002	0.0002	0.0002
	Maximum	0.0002	0.0003	0.0003	0.0004
Q2 2024	Average	0.0002	0.0003	0.0003	0.0003
	Maximum	0.0005	0.0005	0.0004	0.0005
Q3 2024	Average	0.0002	0.0003	0.0003	0.0002
	Maximum	0.0003	0.0005	0.0006	0.0005
Q4 2024	Average	0.0003	0.0007	0.0003	0.0004
	Maximum	0.0023	0.0054	0.0023	0.0033

Legacy Waste Management

CFM continues the project to review 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 the fourth quarter, CFM processed the contents of a trailer which contained old equipment for disposal in the United States. Processing and shipments will continue in 2025.

5.0 Public Information Program

During the fourth quarter of 2024, CFM continued to meet the requirements of CNSC RD/GD 3.2.1, *Public Information and Disclosure programs*.

Public Engagement

On October 1, 2024, Cameco opened the application for its Cameco Fund for Mental Health, allowing not-for-profit, charitable and community groups in the Port Hope area to apply for a one-time grant to support mental health programs and initiatives.

In early October, Cameco employees participated in two Habitat for Humanity build days at the Baltimore location as part of Cameco's donation to the first local net-zero build.

In early November, Cameco representatives sponsored and attended the Northumberland Hills Hospital Galalicious event and the Port Hope & District Chamber of Commerce's annual Business Awards in which Cameco presented the award for Healthy Workplace.

On November 8, CFM notified neighbours within close proximity to CFM Port Hope's facilities regarding upcoming construction on the west shield wall.

From mid-November to late December, Cameco participated in the Capitol Theatre's Festival of Lights and Trees, donating a decorated tree to help raise funds for the Capitol Theatre.

On November 26, 2024, CFM Port Hope welcomed students from Loyalist College's Radiation Protection Program. Later that evening, Cameco provided its annual update to Port Hope municipal council on its local operations.

At the end of November, Cameco staff participated in the Port Hope Santa Claus Parade driving Cameco's two new fire trucks along the parade route.

On December 5, 2024, Cameco hosted representatives from the World Nuclear University for a tour of PHCF and CFM.

In early December, the Winter 2024 issue of Energize was released. Due to the ongoing Canada Post strike, this edition was unable to be delivered to Port Hope households. For this reason, Cameco increased online promotion using social media and its website. Cameco published individual posts for each story in the issue, including Fuel Service Division's climate action success, results for Cameco's 2024 Port Hope polling and Cameco-sponsored days at Port Hope recreation centre. An ad was also included for career opportunities.

On December 14, 2024, Cameco sponsored and attended the White Rose Dinner organized by the Victoria Hall volunteers.

In mid-December, Cameco announced 12 successful applicants to receive support through its Cameco Fund for Mental Health. Funding decisions were made in late November by a group of Cameco representatives and volunteer mental health professionals.

Over the holiday season, Cameco sponsored free recreation at Port Hope's local recreation centres.

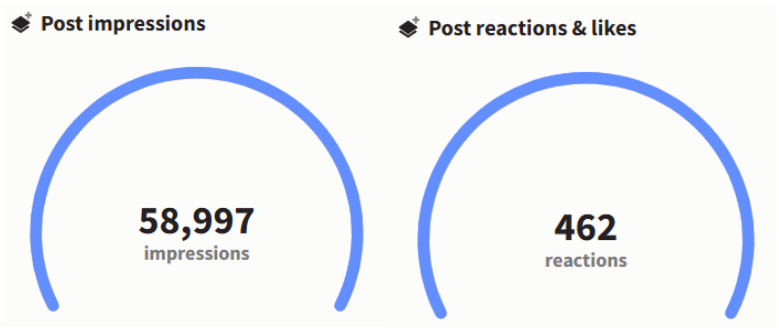
Cameco provided free advertising to local charitable organizations with its sponsorship of MyFM's Community Partner Program. Through the quarter, United Way Northumberland, Community Counselling & Resource Centre, and Northumberland Fare Share Food Bank benefitted from this sponsorship by received free advertising spots.

Public Disclosure

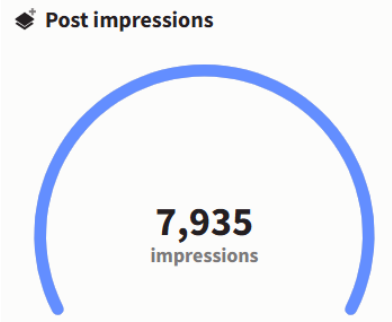
There was one public disclosure during the fourth quarter: Environment & Safety | Cameco

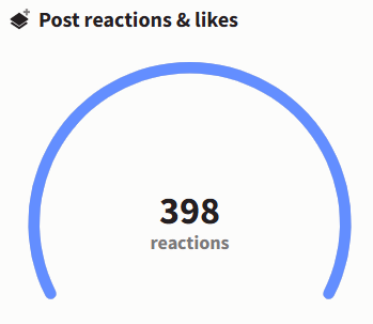
Posting Date	September 26, 2024
Incident Date	September 26, 2024
Incident	False Fire Alarm (suspected)
Details	A fire alarm was activated in the fuel storage area at Cameco Fuel Manufacturing, automatically triggering a response from the Municipality of Port Hope Fire Services and Port Hope Police. Fire 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. 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. The Canadian Nuclear Safety Commission has been notified.
Cameco Environmental Effect Rating	1

Social Media

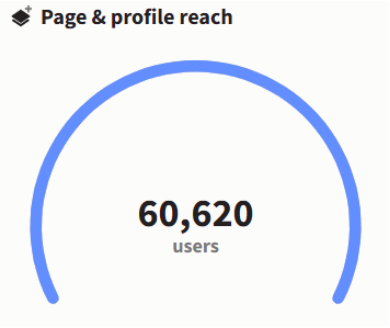


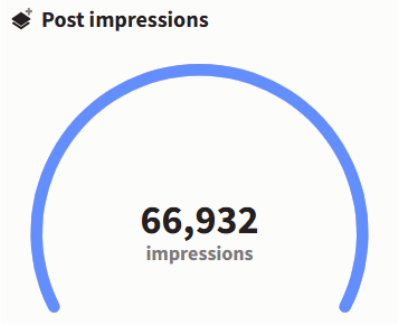
Other platforms (Instagram, X & YouTube): *October 1 to December 31, 2024*





All Platforms: *October 1 to December 31, 2024*





Top Performing Posts

Summary

Cameco Ontario's 101 posts (combined across Facebook, Instagram, X and YouTube):

- Facebook: 35 posts
- Instagram: 34 posts
- X: 32 posts

These posts covered information such as:

- Indigenous engagement activities including:
  - Participation in Alderville First Nation's job fair
  - Cameco employees participating in a community visit of Curve Lake First Nation

- Community engagement activities, including:
  - Annual presentation to Port Hope municipal Council on Cameco's local operations
  - Cameco sponsorship of family days at local Port Hope recreation centres over the holiday season
- Community investment activities, including:
  - Employee participation in three Habitat for Humanity build days
  - Cameco Fund for Mental Health, including a call for applications and announcement of successful grant recipients in Northumberland County and Blind River
  - Cameco's employee giving program
- Industry involvement, including:
  - Participation in a panel discussion on workforce development at the Nuclear Innovation Institute's Clean Energy Frontier conference
  - Participation in the World Nuclear University's LEAD 24 program
- Cameco's Fall 2024 Energize issue and key stories
- Key findings from Cameco's 2023 Sustainability Report
- Career opportunities

Website

Fall issue of Energize

- Energize - Fall 2024 | Cameco Fuel Services

The Q3 2024 Compliance Report:

- CFM-2024-Q3-compliance-report_0.pdf

One public disclosure:

- CFM: Environment & Safety | Cameco

News release announcing Cameco Fund for Mental Health application open:

- Cameco's Fund for Mental Health Opens 2024 Application with $118,000 Available for Local Mental Health Programming | Cameco Fuel Services

News release announcing Cameco Fund for Mental Health grant recipients:

- Cameco Fund for Mental Health awards 2024 grants to 12 Northumberland County organizations | Cameco Fuel Services

Media Analysis

Cameco received no media coverage during the fourth quarter of 2024.

Communication Products

Fall issue of Energize

- Energize - Fall 2024 | Cameco Fuel Services

News release announcing Cameco Fund for Mental Health application open:

- Cameco's Fund for Mental Health Opens 2024 Application with $118,000 Available for Local Mental Health Programming | Cameco Fuel Services

News release announcing Cameco Fund for Mental Health grant recipients:

- Cameco Fund for Mental Health awards 2024 grants to 12 Northumberland County organizations | Cameco Fuel Services

6.0 Indigenous Engagement

Cameco continues regular engagement with Curve Lake First Nation (CLFN) and the Mississaugas of Scugog Island First Nation (MSIFN).

On October 8, email communication was sent to Alderville, Curve Lake, Mississaugas of Scugog Island and Hiawatha First Nations with information regarding Cameco's Fund for Mental Health and how to apply.

On October 24, Cameco attended the Alderville Career Fair providing information to attendees regarding Cameco's facilities and career opportunities.

On October 10, Cameco hosted MSIFN to tour the PHCF and to exchange information about the respective businesses.

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.

On November 14, Cameco and CLFN met in-person and began early planning and next steps for 2025 initiatives.

On November 20, Cameco attended the CLFN Alternative Roots Job Fair providing information to attendees regarding Cameco's facilities and career opportunities.

On December 9 the fall edition of Energize was shared with Alderville, Curve Lake, Mississaugas of Scugog Island, Hiawatha, Mohawks of the Bay of Quinte and Rama First Nations.

On December 12 Cameco met with MSIFN for a virtual kick-off meeting to discuss objectives for 2025.

In December, Cameco sponsored CLFN's Invasive Phragmites Study and MSIFN's Member Home Support Program.

On December 13, MSIFN received a grant from Cameco's Fund for Mental Health to support their Emergency Discretionary Health Fund, an initiative that provides community support to members without access to benefits.

Public disclosures were shared with Curve Lake, Mississaugas of Scugog Island, and Hiawatha First Nations.

The second quarter compliance report for CFM was sent to Curve Lake, Alderville, Hiawatha, Mississaugas of Scugog Island, Mohawks of the Bay of Quinte and Chippewas of Rama First Nations on October 16.

7.0 OTHER MATTERS OF REGULATORY INTEREST

There were no processing activities of enriched material conducted on site in the fourth quarter of 2024 and CFM met all site-specific reporting requirements.

8.0 CONCLUDING REMARKS

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

During the fourth quarter of 2024, CFM did not exceed any CNSC regulatory limits. CFM maintained environmental emissions and public radiation exposures to levels that are a fraction of the regulatory limits.

Cameco's relationship with residents remains strong and we are committed to maintaining the strong support and trust we have developed over the past several years.