



**2023 Third Quarter Compliance Monitoring
&
Operational Performance Report**

Reporting Period July 1 – September 30, 2023

**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 third quarter, there were no exceedances of the action levels in the radiation protection or environmental protection program.

In the third quarter there was a planned shutdown of the facility for three weeks in July. 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 Third 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. During the third quarter a new Licence Conditions Handbook (LCH) was released on August 31st, 2023 (LCH-FFL-3641.00/2043, prior to the LCH in effect was issued in March of 2022 (LCH-FFL-3641.00/2023).

There were no significant changes to Structure, Systems and Components (SSC) or processes in the third quarter. The LCH for the facility references core CFM documents that form the licensing basis in each safety and control area.

There were no documents that was submitted to the CNSC in the third quarter of 2023.

In the third quarter there was a planned shutdown of the facility for three weeks in July. 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 was one reportable event that required notification of the duty officer as detailed in the *Nuclear Safety and Control Act* during the third quarter.

On July 3, 2023, during normal security site inspection rounds an abnormal condition was noted on the nitrogen evaporator. Security notified plant services and maintenance to investigate and it was determined that liquid nitrogen was dripping from the evaporator. The nitrogen evaporates quickly under atmospheric conditions and did not impact the concrete pad. The leak is considered a reportable spill to the Ministry of Environment, Conservation and Parks (MOECP). The system was shut down and the supplier repaired the system by replacing a gasket on July 05, 2023. There was no impact to the environment resulting from this event, the health and safety of persons was maintained as was the maintenance of national and international security.

During the third quarter there were 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 third quarter of 2023, 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. There were no changes to the equipment in which third party reviews were required in the third quarter.

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 third quarter there was no exceedance in the Radiation Protection program.

Whole Body Dose

Table 1 shows the third 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 third quarter, the majority of NEWs received a whole body dose below 1 mSv (99%).

Table 1

Third Quarter 2023 Whole Body Dose Results				
Work Group	Number of Individuals	Average (mSv)	Minimum (mSv)	Maximum (mSv)
Operations	107	0.24	0.00	1.24
Administration / Support	86	0.01	0.00	0.26
Contractors/Visitors	9	0.01	0.00	0.04
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 third quarter of 2022 to the third quarter of 2023 (five monitoring periods). The average whole body dose in the third quarter for all NEWs was 0.13 mSv. The average whole body dose is lower than previous quarters with the exception of the first and second quarter of 2022. The maximum dose is lower than previous quarters except for the fourth quarter of 2022. It is most accurate to compare the third quarter results in 2023 to the previous third quarter results in 2022 when normalized with production rates. When these two quarters are compared, the average dose was the same and the maximum dose was lower in 2023. The individual with the highest

exposure in the third quarter was an operator who works in the Assembly Area. This is not typical; however, due to the three week shutdown in July as well as the bundle wash project the whole body dose to these workers will be elevated for a short period.

Table 2

Whole Body Dose Results by Quarter				
Monitoring Period	Number of Employees	Average Dose (mSv)	Minimum Dose (mSv)	Maximum Dose (mSv)
Q3 2022	199	0.10	0.00	1.33
Q4 2022	200	0.11	0.00	1.20
Q1 2023	198	0.15	0.00	1.54
Q2 2023	195	0.17	0.00	1.37
Q3 2023	202	0.13	0.00	1.24

Skin Dose

Table 3 shows the third 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 11.44 mSv in the third quarter and the average skin dose for all NEWs was 0.89 mSv. The action levels for skin dose were not exceeded in the quarter. The majority of NEWs received a skin dose in the third quarter below 10 mSv (99%).

Table 3

Third Quarter 2023 Skin Dose Results				
Work Group	Number of Individuals	Average (mSv)	Minimum (mSv)	Maximum (mSv)
Operations	107	1.65	0.00	11.44
Administration / Support	86	0.02	0.00	0.80
Contractors/Visitors	9	0.01	0.00	0.05
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 third quarter of 2022 to the third quarter of 2023. It is most accurate to compare the third quarter results in 2023 to the previous third quarter results in 2022 due to production rates. When these two quarters are compared the average dose was higher

and the maximum dose was lower in 2023. The individual who received the maximum skin dose was a Pelleting area employee and 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)
Q3 2022	199	0.60	0.00	8.65
Q4 2022	200	0.82	0.00	12.95
Q1 2023	198	0.97	0.00	12.95
Q2 2023	195	1.14	0.00	12.37
Q3 2023	202	0.89	0.00	11.44

Eye Dose

Table 5 shows the third 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 5.36 mSv in the third quarter and the average eye dose for all NEWs was 0.47 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

Third Quarter 2023 Eye Dose Results				
Work Group	Number of Individuals	Average (mSv)	Minimum (mSv)	Maximum (mSv)
Operations	107	0.86	0.00	5.36
Administration / Support	86	0.02	0.00	0.53
Contractors/Visitors	9	0.01	0.00	0.05
*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 third quarter of 2022 to the third quarter of 2023. The average dose in the third quarter of 2023 was lower than the previous two quarters. The maximum eye dose in the third quarter was lower than the previous quarters with the exception of the third quarter

of 2022. When production quantity is considered for the quarters, the average eye dose in 2023 was the higher than the average in 2022. The maximum dose in the third quarter of 2023 was lower than the third quarter of 2022. The individual who received the maximum eye dose was a Pelleting area employee who 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)
Q3 2022	199	0.32	0.00	4.31
Q4 2022	200	0.42	0.00	5.92
Q1 2022	198	0.51	0.00	6.05
Q2 2023	195	0.59	0.00	5.55
Q3 2023	202	0.47	0.00	5.36

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 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 third quarter of 2023, there was one project initiated where bundles needed to be inspected to determine if the bundles needed to be washed and then repacked. An assessment of the impact to extremity dose was completed for each employee assigned to this project. Employees who worked job tasks that were in higher extremity dose areas were limited in the 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 September three employees worked in this area and received extremity dose within typical exposures in their normal work activities.

Therefore, the extremity dose does not need to be adjusted for the third quarter. The assessments will continue until the project has completed.

Table 7 shows the average, minimum, and maximum extremity dose for NEWs over the period from the third quarter of 2022 to the third quarter of 2023. The dose for the third quarter of 2023 would be similar to the third quarter of 2021 as the most representative. If the third quarter dose from 2021 was used as the basis for the third quarter of 2023 the average dose is estimated at 1.25 mSv and the maximum dose is estimated to be 7.87 mSv.

Table 7

Extremity Dose Results by Quarter				
Monitoring Period	Number of Employees	Average Dose (mSv)	Minimum Dose (mSv)	Maximum Dose (mSv)
Q3 2022	-	1.25 ⁺	0.00	7.87 ⁺
Q4 2022	-	1.90*	0.00	10.50*
Q1 2023	-	1.90*	0.00	10.50*
Q2 2023	-	1.90*	0.00	10.50*
Q3 2023	-	1.25 ⁺	0.00	7.87 ⁺

*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 third quarter are provided in Table 8 below.

Table 8

Third Quarter Routine Urine Analysis Results				
Work Group	Number of Samples	Average (µg/L)	Minimum* (µg/L)	Maximum (µg/L)
Operations	410	0.24	<0.20	1.80
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 third quarter of 2023, there were no routine urine sample results that were above the internal administrative level of 4.0 µgU/L.

During the third quarter there was no routine lung counts conducted. The next campaign is scheduled for November/December 2023.

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 third quarter. Of the 585 samples taken none exceeded the internal administrative control limits (ACL).

Table 9

Third Quarter Alpha Contamination Monitoring Results			
Area	# of Samples Taken	Administrative Limits (Bq/cm²)	# of Samples Above Limits
Zone 1	115	0.4	0
Zone 2	157	4.0	0
Zone 3	34	4.0	0
Zone 4	279	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 third quarter of 2023 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 third quarter.

Table 10

Third Quarter 2023 Uranium In-plant Air Sampling Results					
Plant Area	# of Samples	Average ($\mu\text{g U/m}^3$)	Maximum ($\mu\text{g U/m}^3$)	# Samples > ACL^{2000 hr}	# Samples > ACL^{80 hr}
Ceramics Lab	46	1	2	0	0
Compaction Room	91	2	8	0	0
Load Room	183	2	11	0	0
Pangborn Room	91	3	13	0	0
Pelleting Area	274	2	11	0	0
UO ₂ Grinders	182	4	17	0	0
Waste Treatment	46	3	19	0	0
PP2 Area	732	2	13	0	0
Dry Waste Treatment	552	2	13	0	0
Furnace Hall	460	2	13	0	0
TOTAL	2657	2	19	0	0
2000-hour Administrative Control Limit = 52 $\mu\text{g/m}^3$					
80-hour Administrative Control Limit = 595 $\mu\text{g/m}^3$					

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 third quarter is summarized in Table 10. The results illustrate that the Fuel Storage Area had the highest gamma fields (7.0 $\mu\text{Sv/hr}$), 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 (5.7 $\mu\text{Sv/hr}$) 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. The dose rate result for the fuel storage area (6.1 $\mu\text{Sv/hr}$) and the PP2 area (4.7 $\mu\text{Sv/hr}$) was higher than the previous quarter.

Table 11

Third Quarter 2023 Gamma Survey Results						
Location #	Area	Result (µSv/hr)		Location #	Area	Result (µSv/hr)
13	Kitting	0.2		37	PP2 Powder Rec. N.	1.2
14	S Stacking	1.0		38	Powder Receipt	0.3
15	Stacking	0.2		39	U ₃ O ₈ Add-back	1.5
16	Pelleting Entry	0.5		40	S End Cap	0.2
17	Pelleting Lab	0.1		41	End Cap	0.3
18	S Grinding	1.0		42	N End Cap	0.1
19	Grinding	0.9		43	E Offices	0.0
20	N Grinding	0.7		44	S End Plate	0.0
21	S Wall	0.0		45	End Plate	0.0
22	S Furnace	0.3		46	N End Plate	0.0
23	Furnace	0.6		47	W Offices	0.0
24	N Furnace	0.1		48	S Inspection	0.1
25	SE Wall	0.4		49	Inspection	0.2
26	E Wall Furnace	0.5		50	N Inspection	0.7
27	NE Wall	0.4		51	W Inspection	0.0
28	N Corridor	0.2		52	Strapping Bay	0.2
29	Ceramics Lab	0.3		53	Packing	0.1
30	R7#1 East Wall	1.6		54	Fuel Storage Area	7.0
31	PP2 West Wall	0.7		55	Graphite East	0.5
32	S Pressing	1.1		56	BMS Loading	1.0
33	N Pressing	0.6		57	PP2 Receiving	5.7
34	Pangborn	0.9		58	PP2 Press R53-1	1.4
35	S. Waste Treat	1.3		59	PP2 East Wall	0.5
36	N. Waste Treat	0.9				

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

2023 Safety Statistics					
Year / Parameter	Q1	Q2	Q3	Q4	YTD
First Aid Injuries	1	5	8		
Medical Diagnostic Injuries	0	0	0		
Medical Treatment Injuries	0	0	0		
Lost Time Injuries	0	0	0		
Lost Time Injury Frequency	0.0	0.0	0.0		
Lost Time Injury Severity	0.0	0.0	0.0		

There were no lost time incidents that occurred in the third quarter. The Total Recordable Injury Rate (TRIR) for July through September 2023 is 0.0 for the Port Hope facility.

Health and Safety Activities

- Communications:** The third quarter safety meetings were held each month with a different topic including Return to Work, WHIMIS, Spill Awareness, Containment Aspects and Impacts, Fall Arrest, and Hoist and Rigging. 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 third quarter, the training team was fully staffed and trained. The two new training specialists underwent training on SAT analysis, design, development, and implementation. Work began to update the SAT package for the Bundle Manufacturing System (BMS), starting with a review of the analysis. The SAT package for PP2, which was previously on hold while the team was hired and trained, also commenced. This involved a review of the SAT documents and draft work instructions. SAT work on fire safety began and the development of training materials for the Millwright position resumed. By the end of the third quarter, overall compliance was at 96.8%. Safety critical “No Go” training at 98.3%. Both numbers remained ahead of the benchmark target and an increase from the second quarter results.
- Safety Awareness Activities:** In the third quarter the JHSC held a ‘Donut Forget About Safety’ with donut treats. The focus was on hand safety. The annual Kids Safety Calendar was also launched. Kids are encouraged to submit a safety related poster depicting what

safety means to them. Winning entries receive a prize and will be displayed in the CFM calendar.

- **JH&SC:** The JHSC continues to meet twice per month. The meetings have expanded to include guests to give updates on radiation protection, engineering projects, and training. Committee members are still actively participating in workplace inspections as well as incident investigations and corrective action follow-ups. The fourth quarter will have a focus on CFM's STAR (Self Check) initiative with JHSC involvement in promoting STAR through a workplace activity.
- **Safety & Industrial Hygiene:** In the third quarter CFM completed a transport emergency tabletop drill, developed action plans to address recommendations from the Ergonomic Risk Assessments and performed a review of the flammable cabinet inventories.

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

With the update to the Derived Release Limit (DRL) report, the calculated public dose was revised to include potential dose from all pathways at the CFM facility. 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 was added to the gamma dose to the critical receptor (now represented by location #12). This is demonstrated in the following formula:

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

The estimated public dose, along with each component, for the third quarter of 2022 to the third quarter of 2023 is provided in Table 13.

The total dose to the member of the public from air, liquid emissions and gamma levels for the quarter is calculated to be 0.052 mSv, which is lower than previous quarters. The lower dose is attributed to the removal of fuel bundles from the Fuel Storage Building after fire suppression material was inadvertently discharged and a clean up of the building was required. The lower dose will continue into the fourth quarter.

Table 13

Public Dose by Quarter (mSv/quarter)					
DRL Component	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
Air (stacks)	0.000	0.000	0.000	0.000	0.000
Air (building ventilation)	0.021	0.028	0.026	0.027	0.021
Liquid	0.001	0.001	0.001	0.002	0.001
Gamma (Location 12)	0.067	0.069	0.067	0.061	0.030
Total dose to Critical Receptor (location #12)	0.089	0.098	0.093	0.089	0.052

Gamma Monitoring

The perimeter gamma derived release limit for the critical receptor at location #12 is 1.35 $\mu\text{Sv/hr}$ and the action level is 1.0 $\mu\text{Sv/hr}$. The other DRL's listed for gamma monitoring are for location #1 and location #2 at 4.96 $\mu\text{Sv/hr}$ and 0.46 $\mu\text{Sv/hr}$ respectively with the action level of 0.2 $\mu\text{Sv/hr}$ for both locations. There were no exceedances of the DRL's or the action levels during the third quarter.

Table 14 provides the quarterly gamma levels in $\mu\text{Sv/hr}$ for all fence line monitoring locations (i.e., 1-12) for the quarter.

Table 14

Third Quarter 2023 Gamma Monitoring Results ($\mu\text{Sv/hr}$)		
Location	Action Level	Quarterly Dose Rate
1	0.2	0.00
2	0.2	0.02
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	0.07
10	1.0	0.00
11	1.0	0.10
12	1.0	0.16

The monitoring results for location 12 (closest location to the critical receptor) from the third quarter in 2022 to the third quarter of 2023 are provided in Table 15. Results have been corrected to consider background gamma levels by subtracting 0.08 $\mu\text{Sv/hr}$. The dose rate for the third quarter of 2023 at location 12 is lower than the dose rates in previous quarters due to the relocation of bundles in the third and fourth quarters to facilitate cleaning of the Fuel Storage Building.

Table 15

Gamma Monitoring Results at Critical Receptor by Quarter (µSv/hr)			
Period	Regulatory Limit (DRL)	Action Level	DRL Contribution
Q3 2022	1.35	1.0	0.36
Q4 2022	1.35	1.0	0.37
Q1 2023	1.35	1.0	0.36
Q2 2023	1.35	1.0	0.33
Q3 2023	1.32	1.0	0.16

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 provide the average and maximum uranium concentration for all stacks in µg/m³ from the third quarter of 2022 to the third quarter of 2023. The average and maximum concentrations measured in stack emissions in the third quarter were lower or equal to the concentrations in previous quarters.

Table 16

Daily Stack Emissions by Quarter (µg/m ³)							
Source	Action Level	Avg. / Max.	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
PP2 West	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.1	0.1	0.0	0.0	0.0
PP2 East	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.1	0.1	0.0	0.0	0.0
Waste Treatment Area Absolute	2.0	Avg.	0.2	0.1	0.1	0.1	0.1
		Max.	0.3	0.4	0.3	0.3	0.3
BMS Extraction	2.0	Avg.	0.1	0.1	0.1	0.1	0.0
		Max.	0.3	0.2	0.2	0.2	0.2
Hoffman Vacuum	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.0	0.0	0.0	0.2	0.1
Pangborn North Dust Collector	2.0	Avg.	0.1	0.1	0.0	0.1	0.0
		Max.	0.2	0.2	0.1	0.3	0.2
Pangborn South Dust Collector	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.1	0.1	0.0	0.1	0.1
DeVilbiss Mist Collector	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.1	0.1	0.0	0.1	0.1
Furnace Burn-off	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.1	0.1	0.0	0.1	0.0
Overall	2.0	Avg.	0.0	0.0	0.0	0.0	0.0
		Max.	0.3	0.4	0.3	0.3	0.3

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 third quarter. The estimated release of uranium dioxide in exhaust ventilation from both areas during the quarter was 0.21 kg (0.18 kg from the Pelleting Area and 0.04 kg from the PP2 area).

Table 17 provides the average and maximum uranium concentration emitted through the building ventilation system in g/hr from the third quarter of 2022 to the third quarter of 2023.

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. In

the third quarter of 2023 the building ventilation average and maximum emission rates for both areas were lower than or comparable to previous quarters.

Table 17

Building Ventilation Rates by Quarter (g/hr)							
Parameter	Action Level	Measure	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
Uranium Emissions from Pelleting Area	1.0	Average	0.15	0.19	0.16	0.16	0.16
		Maximum	0.25	0.33	0.25	0.30	0.25
		Minimum	0.06	0.09	0.09	0.10	0.08
Uranium Emissions from PP2 Area	0.4	Average	0.02	0.02	0.01	0.02	0.02
		Maximum	0.11	0.08	0.05	0.07	0.07
		Minimum	0.00	0.00	0.00	0.01	0.00

Liquid Emissions

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

Table 18 provides the average and maximum uranium concentration for a single composite sample from the third quarter of 2022 to the third quarter of 2023. Also provided in the table is the minimum and maximum pH measured in the samples. The average concentration of uranium in the third quarter resulted in a lower estimated discharge.

Table 18

Sanitary Sewer Emissions by Quarter							
Parameter	Action Level (mg/L)	Measure	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
Uranium (mg/L)	0.1	Average	0.01	0.02	0.02	0.02	0.01
		Maximum	0.02	0.06	0.03	0.03	0.02
pH (pH units)	6.5	Minimum	6.8	6.9	7.2	7.3	7.3
	9.0	Maximum	7.6	7.6	7.9	7.9	7.9
Volume of water	-	(m ³)	3770	2718	3715	6704	5547
Estimated Discharge	-	(kg)	0.05	0.05	0.06	0.12	0.06

Ambient Air Monitoring

High volume air samples are collected in the four corners of the CFM property. Table 19 shows the quarterly average and maximum results for all four locations from the third quarter of 2022 to the third quarter of 2023.

Table 19

Overall Uranium-in-Air Concentration at Hi-Vol Stations by Quarter (µg/m³)					
Parameter	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
Average	0.0003	0.0002	0.0002	0.0004	0.0004
Maximum	0.0006	0.0005	0.0005	0.0010	0.0021

Table 20 provides the quarterly average and maximum uranium-in-air concentrations for all locations from the third quarter of 2022 to the third quarter of 2023. The average result is elevated when compared to previous quarters with the exception of the second quarter. The seasonal changes effect the hi vol results as rain and snow suppress the amount of dust generated.

Table 20

Uranium-in-Air Concentration at Hi-Vol Stations by Quarter (µg/m³)					
Quarter	Result	East	North	Northwest	Southwest
Q3 2022	Average	0.0002	0.0003	0.0002	0.0003
	Maximum	0.0003	0.0005	0.0005	0.0006
Q4 2022	Average	0.0002	0.0002	0.0002	0.0002
	Maximum	0.0003	0.0005	0.0003	0.0004
Q1 2023	Average	0.0002	0.0002	0.0002	0.0003
	Maximum	0.0003	0.0004	0.0005	0.0005
Q2 2023	Average	0.0003	0.0004	0.0004	0.0004
	Maximum	0.0006	0.0010	0.0007	0.0008
Q3 2023	Average	0.0003	0.0006	0.0003	0.0004
	Maximum	0.0008	0.0021	0.0008	0.0013

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. One shipment was made to the facility in the United States in the third quarter.

5.0 Public Information Program

During the third quarter of 2023, CFM continued to meet the requirements of CNSC RD/GD 3.2.1, *Public Information and Disclosure programs*.

Public Engagement

Cameco entered a float in the Port Hope Canada Day parade on July 1. Cameco sponsored the Northumberland Father Daughter Ball on July 7 and the United Way Northumberland's Backpack for Kids program in the summer.

The summer issue of Energize was mailed out to residents of Port Hope in July. A digital version was also posted on the Cameco website on July 27. Stories in this issue included a message from the vice-president of Fuel Services Division, Vision in Motion update and various community activities such as Step Up for Mental Health. The newsletter is also promoted on Cameco's social media channels.

On August 8, students from Loyalist College's Radiation Protection program toured CFM Port Hope.

On August 28, Cameco representatives attended a Port Hope Business Chamber of Commerce breakfast event with Minister Smith and Minister Piccini.

Cameco sponsored and participated in the Port Hope Business Chamber of Commerce golf tournament on September 14.

Cameco participated in the Port Hope Fall Fair on September 15, 16 and 17. Cameco leaders and subject matter experts staffed a booth where they could speak to members of the public and answer questions. Approximately 215 people visit Cameco's booth which featured the How It's Made video and various information boards about its operations in Port Hope such as PHCF, CFM and Vision in Motion.

On September 28th, Cameco celebrated its 35th anniversary with a \$100,000 donation to Habitat for Humanity Northumberland. Cameco leaders participated in a team build day at the site in the afternoon. A news release was issued to local media and posted to the website.

Cameco provided free advertising to local charitable organizations with its sponsorship of MyFM's Community Partner Program. Through the quarter, Cultivate, Capitol Theatre, Cornerstone Family Violence Prevention Centre benefitted from this sponsorship by receiving advertising.

Advertising on local radio was used to support the Step Up for Mental Health 5K and the charity golf tournament. Cameco provided free advertising to local charitable organizations with its sponsorship of MyFM's Community Partner Program. Through the

quarter, Habitat for Humanity, Rebound Child and Youth Services and the Northumberland Diversity Festival benefitted from this sponsorship by receiving advertising.

Public Disclosure

CFM made one public disclosures during the third quarter: [Environment & Safety - Conversion: Port Hope - Fuel Services - Businesses - Cameco](#)

Posting Date	July 4, 2023
Incident Date	July 3, 2023
Incident	Reportable Spill
Details	<p>During normal security inspection rounds, liquid nitrogen was found to be dripping from the nitrogen evaporator at a rate of approximately two (2) drops per second.</p> <p>There was no health or safety risk posed to the public, workers or the environment.</p>
Corrective Action	<p>The nitrogen evaporator sits on a concrete pad. Nitrogen immediately evaporates and does not impact the soil. The supplier is scheduled to perform a repair to the system on July 5, 2023.</p> <p>Cameco notified the Canadian Nuclear Safety Commission and the Ministry of Environment, Conservation and Parks.</p>
Cameco Environmental Effect Rating	1

Social Media

Cameco Ontario's Facebook community grew by 6 new page fans (1,107 total) and had a total of 1,115 page likes at the end of the quarter. Cameco Ontario's 25 posts covered information such as:

- Cameco recognized Canada Day on July 1 on social media and participated in the Port Hope Canada Day parade
- Shared various career opportunities
- Shared the Cameco ESG report
- The summer issue of Energize was released on July 28, 2023
- Promotion for our community partners, including Cultivate Festival, the Capitol Theatre, and Cornerstone
- Various community events sponsored by Cameco, including the Northumberland Father Daughter Ball, K9ine Community Outreach, All Hands on Deck Food Drive, and Port Hope Movies in the Park.
- Cameco recognized National Day of Truth & Reconciliation on September 30
- Cameco's participation in the Port Hope Fall Fair on September 15, 16 & 17
- Cameco's announcement of a \$100,000 gift to Habitat for Humanity Northumberland

By the end of the quarter the Instagram account had grown by 21 new followers for a total of 828 followers. Photos and information featured were similar to the Cameco Facebook page.

Website

A news release announcing a \$100,000 gift to Habitat for Humanity was posted to the website:

- [Cameco Celebrates 35th Anniversary with \\$100,000 Gift for Habitat for Humanity Northumberland - News Archive - Media - Cameco Fuel Services](#)

Cameco posted its 2022 ESG Report to the website:

- [Cameco Releases 2022 ESG Report - News Archive - Media - Cameco Fuel Services](#)

The Summer 2023 edition of Energize was posted:

- [Energize - Summer 2023 - Making a Difference - Community - Cameco Fuel Services](#)

The Q2 Compliance Report was posted to the website:

- [Media Library - Media - Cameco Fuel Services](#)

One public disclosure was posted to the website:

- [Environment & Safety - Conversion: Port Hope - Fuel Services - Businesses - Cameco](#)

Media Analysis

Cameco receive media coverage about Cameco's donation to Habitat for Humanity in celebration of its 35th anniversary:

- **Cameco donates \$100,000 to Habitat for Humanity** – September 28, 2023 – Northumberland 89.7 FM
 - [Cameco donates \\$100,000 to Habitat for Humanity Northumberland — Northumberland 89.7 FM \(northumberland897.ca\)](#)

Communication Products

The Summer 2023 edition of Energize was mailed to all addresses in Port Hope and posted online and social media.

- [Energize - Summer 2023 - Making a Difference - Community - Cameco Fuel Services](#)

A news release announcing a \$100,000 gift to Habitat for Humanity was posted to the website:

- [Cameco Celebrates 35th Anniversary with \\$100,000 Gift for Habitat for Humanity Northumberland - News Archive - Media - Cameco Fuel Services](#)

6.0 Indigenous Engagement

On July 15, Cameco sponsored the Scugog Island annual Pow Wow.

Cameco and Scugog Island participated in a meeting on August 14.

Cameco emailed the PHCF and CFM Quarterly Compliance Reports and the summer 2023 issue of Energize on September 13, to Curve Lake, Scugog Island, Alderville, Hiawatha and Rama First Nations and the Mohawks of the Bay of Quinte.

Cameco and Alderville First Nation were scheduled for an introductory meeting on August 15, however Alderville requested to reschedule the meeting.

On August 31, Cameco and Curve Lake met to establish representatives for joint Oversight Committee and the Environmental Working Group meetings. The first, in-person Oversight Committee meeting is scheduled to take place in Q4 at Cameco.

Cameco sponsored and attended the Curve Lake Pow Wow on September 17. Cameco also attended a Harvester's Meeting at Curve Lake on September 20. Representatives from Cameco staffed a booth and provided general information about Cameco operations to attendees.

Public disclosures are emailed to Curve Lake and Scugog Island First Nations as they occur, and then discussed at the next scheduled meeting.

7.0 OTHER MATTERS OF REGULATORY INTEREST

There were no processing activities of enriched material conducted on site in the third quarter of 2023 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 third quarter of 2023, 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.