



Notice of Violation to Canadian Forest Products Ltd. (Canfor Pulp Ltd.)

Date of notice: December 21, 2023

AMP number: 2023-AMP-05

Violation committed by:	Amount of penalty:
Canadian Forest Products Ltd. (Canfor Pulp Ltd.)	\$ 2000.00

Violation

Failure to comply with a condition of a licence in violation of Section 48(c) of the Nuclear Safety and Control Act.

Relevant facts

I, Karen Owen-Whitred, Director General of the Directorate of Nuclear Substance Regulation and designated officer authorized by the Canadian Nuclear Safety Commission (CNSC) to issue notices of violations, believe on reasonable grounds that Canadian Forest Products Ltd. (Canfor Pulp Ltd.) committed the above violation. The facts relevant to the violation and the penalty calculation are as follows:

- Canadian Forest Products Ltd. (Canfor Pulp Ltd.) with an address at 5353 Northwood Pulp Mill Road, P.O. Box 9000, Prince George, British Columbia, holds a CNSC licence (13962-3-26.0) authorizing the possession, transfer, import, export, use and storage of fixed nuclear gauges.
- On September 16, 2023, the licensee reported an event to the CNSC duty officer that occurred on September 13, 2023. According to the report, the shift instrument mechanics were called to check the radiation level in the “B” chip bin as there was no tag stating the radiation level inside the vessel at the vessel entry and work had to be done inside. It was noted that the vessel had three (3) radiation devices installed on it: one (1) device was locked-out with the shutter in the closed position and the two (2) others were locked out with the shutter in the open position. Upon discovery, the shutter of two radiation devices were closed and locked out and the RSO entered the confined space to confirm that the dose rate was safe at 0.01 $\mu\text{Sv/h}$. It was also reported that workers already accessed the inside prior to this discovery resulting in seven (7) workers being exposed to radiation. The dose received was estimated at 525 μSv , 500 μSv , 150 μSv , 37 μSv , 37 μSv , 22 μSv , and 15 μSv .
- On October 5, 2023, the licensee submitted a final report (due on October 4, 2023) to the CNSC as required by Paragraph 29(2) of *General Nuclear Safety and Control Regulations*.
- On October 11, 2023, CNSC staff requested additional information as the final report was incomplete – the missing information included drawings showing the location of the gauges and an indication of where the workers who had entered the vessel were standing in relation to the gauges, as well as the length of time each worker spent in the vessel. This information is necessary for the CNSC to validate the licensee’s dose calculation. Guidance to licensees on the type of information to include in event reports is clearly outlined in REGDOC-3.1.3, *Reporting Requirements*



for Waste Nuclear Substance Licensees, Class II Nuclear Facilities and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices.

- On October 17, 2023, the licensee submitted the additional information requested.
- The final report and the additional information provided indicated that vessel entries occurred on September 12, 13 and 15, 2023 and that a total of 9 workers were exposed as opposed to 7 as previously reported – 2 workers entered the vessel on September 12, 6 workers entered the vessel on September 13, and 1 worker entered the vessel on September 15. Note that this last worker measured an elevated dose rate upon entering the vessel and therefore left the vessel immediately, as per the licensee’s procedure. In addition, the final report noted that a total of 4 radiation devices were mounted on the vessel as opposed to 3 as previously reported. It was reported that 3 out of 4 radiation devices had their shutters locked in the open position and only one had the shutter properly closed. The dose for the 9 workers were estimated at 525 µSv, 500 µSv, 301 µSv, 301 µSv, 150 µSv, 37 µSv, 37 µSv, 23 µSv, and 15 µSv¹.
- The company lockout procedure for entering the vessel requires that the shutter on the radiation device be locked in the closed position prior to anyone entering the vessel, as per Licence Condition 2052-3 of licence 13962-3-26.0.
- CNSC staff determined a contravention of Section 48(c) of the *Nuclear Safety and Control Act* – a non-compliance with Licence Condition 2052-3 (Vessel or Hopper Entry) of Canfor pulp’s licence: “The licensee shall ensure that the entry into the vessel or hopper is performed in accordance with written procedures acceptable to the Commission or a person authorized by the Commission; and prior to any entry, every radiation device on or in the vessel or hopper has had the source shielded or otherwise made safe, and, has been verified to be safe for a person to enter the vessel or hopper”

Supporting facts

- The CNSC has been proactive in providing fixed nuclear gauge licensees with the precautions to take when locking out nuclear gauges and entering vessels or hoppers to which such gauges have been attached. Entry into a vessel/hopper mounted with a fixed nuclear gauge is associated with significant radiation dose risk to workers if a fixed nuclear gauge is not made safe prior to entry. This represents an occasion in which a worker could be inadvertently exposed to an unshielded radiation source.
 - On August 15, 2014, the CNSC issued a safety notice via email to all fixed nuclear gauge licensees notifying them of a change to Licence Condition 2052 following an event involving exposure to a number of workers while working inside a vessel where radiation devices were not locked in the shielding position. This updated licence condition added specific requirements for vessel entry such as: Every radiation device on or in the vessel or hopper has been identified, has had the source shielded or otherwise made safe, and has been verified to be safe for a person prior to entering the vessel or hopper. These requirements were updated to assist licensees in formulating appropriate procedures to protect worker safety.
 - In October 2014 the CNSC sent a reminder to Canfor pulp to update and submit their procedures in accordance with the amended licence condition for review and to request an amendment to their licence to update the LC condition and reference the modified procedures.
 - On February 11, 2015, the licence in effect for the fixed nuclear gauges at the Canfor Pulp Ltd. (13962-1-16.5) was amended to add the updated Licence Condition 2052 and to reference Canfor Pulp Ltd.’s updated procedures for confined space entry.
 - On March 3, 2017, an information bulletin related to vessel/hopper entry was published and posted on the CNSC website.

¹ As per [Section 13 of the Radiation Protection Regulations](#), the annual effective dose limit for a person who is not a nuclear energy worker is 1 mSv, or 1,000 µSv.



<http://nuclearsafety.gc.ca/eng/pdfs/nuclear-substances/vessel-entry-march-2017-ENG.pdf>

- In May 2019 the CNSC published a newsletter (DNSR Newsletter – Spring 2019) regarding lessons learned from a confined-space event and reminded licensees of the importance of ensuring that their workers carefully follow their vessel entry procedures. Licensees that perform these entries were requested to consider radiation exposure along with all other hazards involved with confined space entry.
 - https://www.nuclearsafety.gc.ca/pubs_catalogue/uploads/DNSR-Newsletter-spring-2019-eng.pdf In September 2021 the CNSC sent an email to fixed gauge licensees (including Canfor Pulp Ltd.) regarding concerns over the number of non-compliances related to vessel entry and provided a checklist that was developed by CNSC staff to assist licensees in ensuring that workers could safely enter vessels or hoppers mounted with radiation devices.
 - In September 2023, the checklist provided to licensees by email in September 2021 to assist licensees in ensuring that workers could safely enter vessels or hoppers mounted with radiation devices was posted on the CNSC Website.
 - <https://www.nuclearsafety.gc.ca/eng/pdfs/vessel-hopper-entry-compliance-checklist-eng.pdf>
- Canfor Pulp Ltd. has a history of non-compliance related to vessel entry:
 - On August 15, 2011, the CNSC performed an inspection at Canadian Forest Products Ltd. The licensee was cited that gauge isolations were not always recorded in the logbook. Also, record of intensities before and after isolation was not always being recorded. Finally, the licensee was unable to provide records of training on internal policies and procedures.
 - On June 28, 2017, the CNSC performed an inspection at Canadian Forest Products Ltd. The licensee was cited on Licence Condition 2052 as the permits for vessel entry did not include estimated duration of entry or total doses received and the forms used (dose rate reading) were incomplete or unclear.
 - Although the licensee reported vessel entries on 3 separate days, the CNSC considers the violation to comprise only the first 2 days – September 12 and 13. On the third day, September 15, the worker followed procedure in noting an elevated dose rate in the vessel and departing immediately. This is relevant for the calculation of the penalty amount.

Based on my review of this matter, I am of the opinion that an administrative monetary penalty will deter recurrence of the above violation and promote future compliance with CNSC regulatory requirements. In consideration of the seven factors in section 5 of the Administrative Monetary Penalties Regulations (Canadian Nuclear Safety Commission), the amount of the penalty was determined based on the following relevant facts:

1. Compliance history: RECOMMENDED SCORE = +2

A +2 has been assigned given that there is a previous history of non-compliance regarding vessel entry and that corrective actions implemented based on past inspections were insufficient to prevent recurrence.

The licensee was cited in previous inspections for not following their vessel entry procedure. Also of relevance, the CNSC has provided repeated, targeted guidance to fixed gauge licensees to support their compliance with vessel entry requirements.



2. Intention or negligence: RECOMMENDED SCORE = +1

A +1 has been assigned because a small degree of negligence can be demonstrated.

The licensee has demonstrated negligence with respect to worker safety over the 2 dates (September 12, 2023 and September 13, 2023) identified in their event report dated October 5, 2023. These events demonstrate that the licensee failed to have effective processes in place that would have identified unsafe working conditions with respect to vessel entries. As reported by the licensee, the most recent unsafe situation was discovered when a worker noticed that no tag was displayed at the vessel entry to confirm that the vessel was tested for safe radiation levels.

3. Actual or potential harm: RECOMMENDED SCORE = +2

A +2 has been assigned since there was both real and potential harm to persons, and the incident footprint was contained within the immediate area of the nuclear gauge.

If a similar event had occurred where workers had performed work in closer proximity to an unsafe nuclear gauge the dose to workers could have been significantly higher. Such a circumstance could have exceeded the regulatory dose limits for the workers in question. The potential for harm was not to one individual but to multiple workers. For example, according to licensee calculations, the maximum estimated dose for a worker was 0.525 mSv and the sources involved in this event were less than half of their original activity. If these sources had been new, the dose would have exceeded the regulatory limit of 1 mSv.

4. Competitive or economic benefit: RECOMMENDED SCORE = 0

A 0 has been assigned as the licensee does not appear to have derived any competitive or economic benefit due to the violation.

5. Efforts to mitigate or reverse effects: RECOMMENDED SCORE = -2

A -2 has been assigned as the licensee took successful mitigation actions immediately after the event.

Upon becoming aware of the violation, the licensee ensured that gauges were properly locked out prior to future entries. Following this most recent event, the licensee performed the required actions to investigate and mitigate further occurrence of the issue once the unsafe situation was identified.

6. Assistance to Commission: RECOMMENDED SCORE = -1

A -1 was assigned since the licensee provided all requested information after a reminder.

The original submission of the final event report was missing some key pieces of information, which the licensee provided upon CNSC request. In addition, the licensee responded in a timely way to follow-up questions from the CNSC.

7. Attention of Commission: RECOMMENDED SCORE = -2

A -2 was assigned since the event was reported as per event reporting requirements.

The licensee submitted an initial and final report to the CNSC as required by Paragraph 29(1)(b) of the *General Nuclear Safety and Control Regulations* (possible overexposure) and Paragraph 38(1)(b) of the *Nuclear Substances and Radiation Devices Regulations*.



Penalty calculation:

(See *Administrative Monetary Penalties Regulations (Canadian Nuclear Safety Commission)* SOR/2013-139)

(a) <u>Category of violation</u>							
Category A <input type="checkbox"/>	Category B <input type="checkbox"/>	Category C <input checked="" type="checkbox"/>					
(b) <u>Penalty range</u>							
Category	Minimum	Maximum	Maximum – minimum				
A	\$1,000	\$12,000	\$11,000				
B	\$1,000	\$40,000	\$39,000				
C	\$1,000	\$100,000	\$99,000				
(c) <u>Determining factors</u>							
Factors	Scale of regulatory significance			Assessed score			
1. Compliance history	0 <input type="checkbox"/>	+1 <input type="checkbox"/>	+2 <input type="checkbox"/>	+3 <input type="checkbox"/>	+4 <input type="checkbox"/>	+5 <input type="checkbox"/>	+2
2. Intention or negligence	0 <input type="checkbox"/>	+1 <input type="checkbox"/>	+2 <input type="checkbox"/>	+3 <input type="checkbox"/>	+4 <input type="checkbox"/>	+5 <input type="checkbox"/>	+1
3. Actual or potential harm	0 <input type="checkbox"/>	+1 <input type="checkbox"/>	+2 <input type="checkbox"/>	+3 <input type="checkbox"/>	+4 <input type="checkbox"/>	+5 <input type="checkbox"/>	+2
4. Competitive or economic benefit	0 <input type="checkbox"/>	+1 <input type="checkbox"/>	+2 <input type="checkbox"/>	+3 <input type="checkbox"/>	+4 <input type="checkbox"/>	+5 <input type="checkbox"/>	0
5. Efforts to mitigate or reverse effects	-2 <input type="checkbox"/>	-1 <input type="checkbox"/>	0 <input type="checkbox"/>	+1 <input type="checkbox"/>	+2 <input type="checkbox"/>	+3 <input type="checkbox"/>	-2
6. Assistance to Commission	-2 <input type="checkbox"/>	-1 <input type="checkbox"/>	0 <input type="checkbox"/>	+1 <input type="checkbox"/>	+2 <input type="checkbox"/>	+3 <input type="checkbox"/>	-1
7. Attention of Commission	-2 <input type="checkbox"/>	-1 <input type="checkbox"/>	0 <input type="checkbox"/>	+1 <input type="checkbox"/>	+2 <input type="checkbox"/>	+3 <input type="checkbox"/>	-2
Total							0
÷ 29 ⁽¹⁾ [rounded to 2 decimal points]=							0.00
X [difference between category minimum and maximum]							99,000
[total] =							1,000
Multiplied by Daily Penalty (number of days of continuing violation) =							2
+ \$ 1000 [minimum for the category] =							\$2,000

⁽¹⁾29 being the maximum value of regulatory significance



To request a review

As a person subject to an administrative monetary penalty, you have the right to request a review of the amount of the penalty or the facts of the violation, or both. Your request must be made in writing indicating the reasons why you are requesting a review and providing supporting information.

If you choose to request a review, you must do so in writing by January 20, 2024 to:

Canadian Nuclear Safety Commission
c/o Malaika Bacon-Dussault
Commission Secretary
P.O. Box 1046, Station B
Ottawa, ON K1P 5S9

Fax: (613) 995-5086
Telephone: (613) 282-9357
Email: registry-greffe@cnsccsn.gc.ca

Payment

You may pay this administrative monetary penalty by sending a cheque to:

Receiver General for Canada
c/o Canadian Nuclear Safety Commission
Finance Division
P.O. Box 1046, Station B
Ottawa, ON K1P 5S9

For other payment methods and further instructions, please refer to the attached notice of payment due.

Should you neither pay the penalty nor exercise your right to a review, you will be considered as having committed the violation and will be liable to the penalty set out herein.



Issued by

OwenWhitred,
Karen



Digitally signed by OwenWhitred, Karen
DN: C=CA, O=GC, OU=CNSC-CCSN, CN="OwenWhitred, Karen"
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Karen Owen-Whitred

Date

Designated Officer

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