



# Notice of Violation (Corporation)

**Date of notice: October 13, 2023**

**AMP number: 2023-AMP-04**

|                                    |                           |
|------------------------------------|---------------------------|
| <b>Violation committed by:</b>     | <b>Amount of penalty:</b> |
| Canadian Nuclear Laboratories Ltd. | \$ 14,860                 |

## Violation

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

Specifically, Canadian Nuclear Laboratories Ltd.’s Nuclear Research and Test Establishment Decommissioning Licence, NTREDL-W5-8.00/2024, condition 10.2 states that: “*The licensee shall implement and maintain a fire protection program.*” Section 10.2 of the associated the Licence Condition Handbook NRTEDL-LCH-08.00/2024, provides criteria used to verify that licence condition 10.2 is being met, and provides amongst other criteria, that Canadian Nuclear Laboratories Ltd. comply with CSA 393:13, *Fire protection for facilities that process, handle, or store nuclear substances*.

## Relevant facts

I, Kavita Murthy, Director General of the Nuclear Cycle and Facilities and designated officer authorized by the Canadian Nuclear Safety Commission (CNSC) to issue notices of violations, believe on reasonable grounds that Canadian Nuclear Laboratories Ltd. committed the above violation. The facts relevant to the violation and the penalty calculation are as follows:

- 1 Canadian Nuclear Laboratories Ltd., located at 286 Plant Road Chalk River, Ontario, holds a CNSC issued licence (NTREDL-W5-8.00/2024) to operate and decommission the Whiteshell Laboratories located in Pinawa, Manitoba.
- 2 Condition 10.2 states that: “*The licensee shall implement and maintain a fire protection program.*” Section 10.2 of the associated the Licence Condition Handbook NRTEDL-LCH-08.00/2024, provides criteria used to verify that licence condition 10.2 is being met, and provides amongst other criteria, that Canadian Nuclear Laboratories Ltd. comply with CSA 393:13, *Fire protection for facilities that process, handle, or store nuclear substances*.
  - a. Clause 11.5.5.2 of CSA 393:13 states that “*All fire response team members will receive firefighter training to a level response commiserate with the facilities hazards as*



*determined by the needs analysis, as well as training in site design, including nuclear facility layout, major systems, and nuclear safety features, at levels appropriate for their specific response roles.”*

- b. Clause 11.5.8.3 of CSA 393:13 states that “*All personal protective clothing and equipment shall be maintained in a state of readiness at all times.*”
  - c. Clause 10.11.1 of CSA 393:13 outlines how fire protective equipment is to be inspected, tested, maintained, and operated.
- 3 On April 27, 2023, Canadian Nuclear Laboratories Ltd. reported, in accordance with REGDOC-3.1.2, that Whiteshell Laboratories lacked properly trained and equipped fire response staff, and that this had a direct impact on the ability to maintain minimum complement for the fire brigade at the Whiteshell Laboratories site. Additional deficiencies with the training and equipment of firefighters, as well as the maintenance of fire protective equipment were subsequently identified.
- a. Canadian Nuclear Laboratories Ltd. conducted an assessment of thirty-eight (38) of a total forty-eight (48) shift firefighters which determined that only twenty (20) of these thirty-eight (38) firefighters were adequately qualified.
  - b. Canadian Nuclear Laboratories Ltd. identified bunker gear that were missing pieces or expired, and deficiencies with self contained breathing apparatuses.
  - c. For some building fire protection equipment (e.g., fire extinguishers, detectors, and sprinklers), the required inspection testing and maintenance could not be confirmed by Canadian Nuclear Laboratories Ltd.
- 4 On April 30, 2023, Whiteshell Laboratories received spare equipment from Chalk River Laboratories.
- 5 On May 1, 2023, Canadian Nuclear Laboratories Ltd. sent a rotation of four Chalk River Laboratories firefighters to Whiteshell Laboratories to supplement minimum complement and assume response duties to better enable Whiteshell Laboratories shift staff to continue further assessments and training.
- 6 On May 4, 2023, Canadian Nuclear Laboratories Ltd. determined that Incident Commander training was incomplete for eight (8) Whiteshell Laboratories Emergency Services Organization staff. Chalk River Laboratories firefighters that were complementing the shifts had the required training but had not been assigned the Incident Commander role.
- 7 On May 5, 2023, and May 12, 2023, Canadian Nuclear Laboratories Ltd. conducted training sessions to qualify the necessary number of personnel to perform the role of Incident Commander.
- 8 On May 8, 2023, CNSC staff held a focused technical meeting (virtually) with Canadian Nuclear Laboratories Ltd. to discuss the preliminary event report, Canadian Nuclear Laboratories Ltd.’s immediate measures, any impacts on Chalk River Laboratories’ fire response capabilities as a result of providing support to Whiteshell Laboratories, the next steps and timelines for action completions. This meeting focused on fire response and fire response equipment and did not include any discussion on deficiencies in fire protective equipment (as this was unknown at the time).



- 9 On May 15, 2023, a CNSC Designated Officer issued a request under subsection 12(2) of the *General Nuclear Safety and Control Regulations* for Canadian Nuclear Laboratories Ltd. to take specific actions to identify and address the cause of the programmatic failure of the fire protection program at Whiteshell Laboratories.
- 10 On May 19, 2023, Canadian Nuclear Laboratories Ltd. provided a detailed event report. The detailed event report identified deficiencies with facility fire protective systems. This was inconsistent with statements in the preliminary event report that these fire protective systems “...have been verified through a records check to be functioning correctly or are up-to-date.”
- 11 On May 30, 2023, CNSC staff conducted a visit to the Whiteshell Laboratories site. During the site visit:
  - a. Canadian Nuclear Laboratories Ltd. stated that annual servicing and hydrostatic testing of fire extinguishers were not performed. As a result, Canadian Nuclear Laboratories Ltd. replaced all fire extinguishers on site. This was confirmed by CNSC staff during the site walkdown.
  - b. Canadian Nuclear Laboratories Ltd. stated that the fire pumps that supply the water for the fire hydrants did not meet the National Fire Protection Association (NFPA) requirements. Also, seven (7) fire hydrants were out of service. CNSC staff observed that Canadian Nuclear Laboratories Ltd. had pre-deployed 4” Hi Volume fire hoses from operable hydrants to non-functional ones as a compensatory measure.
  - c. A number of emergency lights were out of service, as they were not tested as per the NFPA standards. CNSC staff observed that signs were posted indicating this non-compliance and flashlights were on hand for staff to use upon entry.
  - d. The fixed suppression system for the hot cell facility was also out of service.
  - e. CNSC staff confirmed the implementation of newly acquired bunker gear and associated personal protective equipment for the fire fighters.
  - f. In order to demonstrate the qualification of the fire fighters at Whiteshell Laboratories, Canadian Nuclear Laboratories Ltd. was requested to provide training records. Upon review of the records, CNSC observed that several of these records were not dated, had incorrect dates, or had incomplete information. Following the site visit Canadian Nuclear Laboratories Ltd. provided training records with these corrections.
- 12 On August 21, 2023, while preparing for a CNSC inspection, Canadian Nuclear Laboratories Ltd. determined it did not have records of a pre-employment medical assessment for ten (10) firefighters hired between July 17, 2023 and August 21, 2023.
- 13 On August 22, 2023, CNSC staff conducted a reactive inspection of Whiteshell Laboratories.
- 14 On August 23, 2023 while preparing to submit all firefighter annual medical assessment records as requested by CNSC staff during the inspection, it was discovered that eight (8) annual medical assessments for existing Whiteshell Laboratories firefighters had lapsed during the months of July and August.



- 15 On August 24, CNSC staff issued a preliminary facts and findings report for the reactive inspection of Whiteshell Laboratories. In addition to the deficiencies with firefighter medical assessments, this report identified inappropriate storage of combustibles, incorrect colour-coding of a fire hydrant, improper maintenance and identification of fire separations, and out-of-date pre-fire plans.

Whereas it is understood that the complete implementation of the corrective actions require time, the non-compliances identified in August 2023 indicate that Canadian Nuclear Laboratories Ltd.'s oversight of its fire safety program continues to be deficient and Canadian Nuclear Laboratories Ltd. is not complying with the requirements in its management system. 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: Assessed score = 1

Deficiencies in the fire safety program, including the issue of training and qualifying staff, and maintaining complete records was identified in April 2023. For staff hired as recently as July 2023, likely as a result of the previously identified deficiencies, it is reasonable to expect that Canadian Nuclear Laboratories Ltd. would have ensured that all records were up to date and current. It is also expected that annual qualifications of existing firefighters would not be permitted to lapse given the current focus on these requirements.

2. Intention or negligence: Assessed score = 2

Negligence was demonstrated in Canadian Nuclear Laboratories Ltd.'s failure to adequately maintain records of these qualifications. At this point there is no information which would indicate an explicit intention to commit this violation.

3. Actual or potential harm: Assessed score = 1

This non-compliance with implementation of a fire protection program could have had a potential impact on the health and safety of persons or on the environment as Canadian Nuclear Laboratories Ltd. was not able to sustain an effective fire response capability at Whiteshell Laboratories. Regulatory dose and release limits are expected to be met for postulated fire scenarios without crediting manual suppression activities. However, manual intervention is credited to meet the goals of CSA 393:13 to mitigate, recover and terminate a fire event, thus minimizing risk to persons, the environment, and conservation of radioactive material. Medical examination records indicate fitness to perform duty and not having these records could have resulted in an unfit person being responsible for fire safety.

4. Competitive or economic benefit: Assessed score = 0

There was no competitive or economic benefit to Canadian Nuclear Laboratories Ltd. as a result of its non-compliance.

5. Efforts to mitigate or reverse effects: Assessed score = 0



Canadian Nuclear Laboratories has made reasonable effort to mitigate the effects of the non-compliance by arranging medical assessments for the Whiteshell Laboratories firefighters that were lacking them.

6. Assistance to Commission: Assessed score = 0

Canadian Nuclear Laboratories Ltd. provided all reasonable assistance to the CNSC throughout this issue.

7. Attention of Commission: Assessed score = 0

Canadian Nuclear Laboratories Ltd. identified the initial non-compliance and initiated mitigating measures prior to involvement of the CNSC. However, the ongoing non-compliances regarding medical assessments of firefighters were only identified as a result of a CNSC inspection.



## Penalty calculation:

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

| <b>(a) Category of violation</b>                   |                                       |  |  |                             |                             |                             |               |
|--|---------------------------------------|--|--|-----------------------------|-----------------------------|-----------------------------|---------------|
| Category A <input type="checkbox"/>                | Category B <input type="checkbox"/>   | Category C <input checked="" type="checkbox"/> |  |                             |                             |                             |               |
| <b>(b) Penalty range</b>                           |                                       |  |  |                             |                             |                             |               |
| Category   | Minimum                               | Maximum  | Maximum – minimum                      |                             |                             |                             |               |
| A  | \$1,000                               | \$12,000                                       | \$11,000                               |                             |                             |                             |               |
| B  | \$1,000                               | \$40,000                                       | \$39,000                               |                             |                             |                             |               |
| <b>C</b>   | <b>\$1,000</b>                        | <b>\$100,000</b>                               | <b>\$99,000</b>                        |                             |                             |                             |               |
| <b>(c) Determining factors</b>                     |                                       |  |  |                             |                             |                             |               |
| Factors  | Scale of regulatory significance      |  |  | Assessed score              |                             |                             |               |
| 1. Compliance history                              | 0 <input type="checkbox"/>            | +1 <input checked="" type="checkbox"/>         | +2 <input type="checkbox"/>            | +3 <input type="checkbox"/> | +4 <input type="checkbox"/> | +5 <input type="checkbox"/> | 1             |
| 2. Intention or negligence                         | 0 <input type="checkbox"/>            | +1 <input type="checkbox"/>                    | +2 <input checked="" type="checkbox"/> | +3 <input type="checkbox"/> | +4 <input type="checkbox"/> | +5 <input type="checkbox"/> | 2             |
| 3. Actual or potential harm                        | 0 <input type="checkbox"/>            | +1 <input checked="" type="checkbox"/>         | +2 <input type="checkbox"/>            | +3 <input type="checkbox"/> | +4 <input type="checkbox"/> | +5 <input type="checkbox"/> | 1             |
| 4. Competitive or economic benefit                 | 0 <input checked="" 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 checked="" type="checkbox"/>  | +1 <input type="checkbox"/> | +2 <input type="checkbox"/> | +3 <input type="checkbox"/> | 0             |
| 6. Assistance to Commission                        | -2 <input type="checkbox"/>           | -1 <input type="checkbox"/>                    | 0 <input checked="" type="checkbox"/>  | +1 <input type="checkbox"/> | +2 <input type="checkbox"/> | +3 <input type="checkbox"/> | 0             |
| 7. Attention of Commission                         | -2 <input type="checkbox"/>           | -1 <input type="checkbox"/>                    | 0 <input checked="" type="checkbox"/>  | +1 <input type="checkbox"/> | +2 <input type="checkbox"/> | +3 <input type="checkbox"/> | 0             |
| <b>Total</b>                                       |                                       |  |  |                             |                             |                             | <b>4</b>      |
| ÷ 29 <sup>(1)</sup> [rounded to 2 decimal points]= |                                       |  |  |                             |                             |                             | <b>0.14</b>   |
| x 99000  |                                       |  |  |                             |                             |                             |               |
| [total] =  |                                       |  |  |                             |                             |                             | <b>13,860</b> |
| + \$ 1000 [minimum for the category] =             |                                       |  |  |                             |                             |                             | <b>14860</b>  |

<sup>(1)</sup>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 November 15, 2023 to:

Canadian Nuclear Safety Commission  
c/o Denis Saumure  
Commission Registrar  
P.O. Box 1046, Station B  
Ottawa, ON K1P 5S9

Fax: (613) 995-5086  
Telephone: (613) 282-9537  
Email: [registry.greffe@ccsn-ccsn.gc.ca](mailto:registry.greffe@ccsn-ccsn.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

  
Digitally signed by Murthy, Kavita  
DN: c=CA, o=GC, ou=CNSC-CCSN,  
cn="Murthy, Kavita"  
Reason: I am approving this document  
Location: Ottawa, Ontario, Canada  
Date: 2023.10.18 16:06:24-04'00'  
Foxit PDF Editor Version: 12.1.2

2023-10-18

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Kavita Murthy

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Date

Designated Officer

Director General of the Directorate for Nuclear Cycle and Facilities Regulation

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