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**Written submission from the
Canadian Environmental
Law Association**

**Mémoire de l'Association
canadienne du droit de
l'environnement**

**Regulatory Oversight Report on the
Use of Nuclear Substances in
Canada: 2022**

**Rapport de surveillance réglementaire
sur l'utilisation des substances
nucléaires au Canada : 2022**

Commission Meeting

Réunion de la Commission

November 1-2, 2023

1-2 novembre 2023

**SUBMISSION BY THE CANADIAN ENVIRONMENTAL LAW ASSOCIATION
TO THE CANADIAN NUCLEAR SAFETY COMMISSION REGARDING THE
REGULATORY OVERSIGHT REPORT ON THE USE OF NUCLEAR
SUBSTANCES IN CANADA: 2022**

October 2, 2023

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I. INTRODUCTION

This intervention is filed in response to the Canadian Nuclear Safety Commission’s (“CNSC”) Notice of Participation at a Commission Meeting and Participant Funding dated April 4, 2023¹ concerning the presentation of the *Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2022* (herein “ROR”).² A virtual meeting with respect to this matter is scheduled for November 2, 2023.

The Canadian Environmental Law Association (“CELA”) received participant funding to review this ROR. Our review focused on matters related to the Safety and Control Area (“SCA”) of environmental protection, the sufficiency of data and analysis provided by CNSC Staff in support of their conclusions, and the adequacy of public engagement including disclosure of information enabled by the ROR process. Our findings are set out below, accompanied by either requests or recommendations to the Commission and CNSC Staff. A summary of recommendations is included in **Appendix 1**.

Expertise of the Intervenor

The Canadian Environmental Law Association is a non-profit, public interest law organization. For over 50 years, CELA has used legal tools to advance the public interest, through advocacy and law reform, in order to increase environmental protection and safeguard communities across

¹ CNSC, Notice of Participation at a Commission Meeting and Participant Funding (Ref. 2023-M-31) 4 April 2023.

² CNSC, Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2022 (CMD 23-M31) 11 August 2023 [ROR 2022].

Canada. CELA is funded by Legal Aid Ontario as a specialty legal clinic, to provide equitable access to justice to those otherwise unable to afford representation.

CELA has an extensive library of materials related to Canada's nuclear sector which is publicly available on our website.³ CELA has engaged in detailed research and advocacy related to public safety and environmental protection by seeking improvements to the oversight of Canada's nuclear facilities and sites. CELA has previously provided submissions to the Commission on its range of RORs. These prior submissions and other materials related to nuclear oversight and licensing are publicly available on our website.

II. FINDINGS

In response to the 2022 ROR, CELA raises a number of issues relating to the adequacy of CNSC Staff's review and sufficiency of discussion related to environmental protection, radiation exposure and international obligations. CELA's findings draw on previous years' RORs and where applicable, highlight oversight actions which are unfulfilled or in need of a status update. CELA **submits** that the Commission should require CNSC Staff to remedy the deficiencies, outlined below, and draft an addendum to the current ROR.

A. Scope and Depth of Regulatory Oversight Reports

CELA has reviewed the ROR in detail and remains concerned about the efficacy of the CNSC's regulatory oversight review process in general. Following the CNSC's call for public feedback on the regulatory oversight review process in April 2021,⁴ a number of changes were implemented to the RORs, including:

- Plain Language Executive Summaries;
- Greater use of hyperlinks for readily available online content;
- Data to include error bars on graphs, explanation on sampling and analytical techniques, and sources of equations;
- Clarification of rating definitions and removal of 'Fully Satisfactory'; and,
- Acknowledgement of Indigenous Nations and communities.⁵

³ Canadian Environmental Law Association, online: www.cela.ca

⁴ CNSC, "The Canadian Nuclear Safety Commission: Regulatory Oversight Report Review Discussion Paper 21-01" (April 2021), online: https://www.nuclearsafety.gc.ca/eng/pdfs/Discussion-Papers/21-01/Discussion_Paper_DIS-21-01_The_Canadian_Nuclear_Safety_Commission_Regulatory_Oversight_Report_Review.pdf. CELA notes that this discussion paper is no longer publicly available via the CNSC's website.

⁵ CNSC, "Update on the CNSC Staff Review of the Regulatory Oversight Report Process", Staff Presentation to the Commission, CMD-22-M5 (January 27, 2022), online: <https://www.nuclearsafety.gc.ca/eng/the-commission/meetings/cmd/pdf/CMD22/CMD22-M5.pdf>, p. 16.

While CELA commends CNSC staff for being receptive to the recommendations received by intervenors on adding content and data to the RORs, CELA is disappointed that RORs are not undergoing a more robust overhaul following the recent review process. Therefore, CELA continues to provide the following recommendations to ensure that the ROR is being effectively utilized.

First, CELA continues to **recommend** that intervenors who provide comments on an ROR should have an opportunity to present orally before the Commission. New to this year's Commission Meetings for several RORs is the invitation to Intervenors to present orally at Commission meetings which include mid-term reviews of various licensee activities. For example, intervenors are invited to present at the meeting discussing the ROR for Canadian Nuclear Laboratories and the Chalk River mid-term update, as well as the ROR for Nuclear Generating Sites and the Pickering Generating Station's mid-term update. Because the licences associated with the ROR on the Use of Nuclear Substances are not subject to licencing hearings, such an opportunity to orally present during a mid-term update for using nuclear substances likely would not occur at the Commission Meeting for this ROR.

Outside of Commission Meetings discussing mid-term updates, only Indigenous intervenors may present before the Commission, thus preventing many public interest intervenors the opportunity to engage in dialogue with Commissioners and CNSC Staff. This reduction in participatory rights enables the high-level nature of RORs and does not facilitate a public awareness of the interests and considerations weighed by CNSC Staff in reaching the conclusions set out in the report.

Given the small number of intervenors who typically provide comments on this ROR, allowing intervenors the opportunity to present orally before the Commission would not add a substantial amount of time to these meetings. Because the licences covered by this ROR are not subject to licencing hearings, there are not as many opportunities for meaningful public participation with these licenced activities. CELA remains of the view that ROR meetings are not a replacement for licensing hearings and the CNSC must remedy the discrepancy in participation rights among public intervenors and licensees by providing oral presentation opportunities. While the changes to RORs during the ROR modernization project that is currently underway is in the purview of the Registry,⁶ CELA continues to call for oral presentation opportunities at Commission Meetings to become a part of the process for public engagement and participation.

Should the CNSC retain the existing ROR procedure and not provide oral intervention opportunities to intervenors, CELA again **recommends** the CNSC reframe its ROR as a "Discussion Paper," whereby the Paper provides information but also poses questions and actively

⁶ CNSC Staff, "Disposition of CELA Comments on the Nuclear Substances ROR 2021, at page 1 [**Disposition of CELA Comments**].

seeks public feedback.⁷ This reframing would more closely align with the public opportunity for comment this process is meant to provide.

Second, when preparing the comments for this ROR, CELA was dismayed to see that CNSC has removed all transcripts from public meetings from the website. Rather than simply being able to download the transcript for the Commission Meeting which occurred on November 1, 2022, this transcript needed to be requested by email to inventions@cnsccsn.gc.ca. While CELA appreciates that the provision of the transcripts occurred in a timely manner, the absence of public meeting transcripts being readily available on the CNSC website is a reduction in transparency with the public. Being able to quickly review the transcript from a previous year's Commission meeting can greatly assist in understanding the context of the ROR's content, as well as comparing the topics of RORs from year to year to better understand trends. CELA **submits** that access to these documents ought to be readily available to the public outside of a work week schedule. CELA **recommends** that the transcript records for Commission meetings, and Commission hearings, be restored to the CNSC's website. For ease of document access, CELA proposes that the CNSC develop a document portal so that the public can easily track down important documents, like transcripts.

Third, this year CELA received a "Disposition of CELA Comments on the Nuclear Substances ROR 2021" from CNSC Staff in advance of the 2022 ROR being released. This year's ROR explains that in addition to CELA, these dispositions were prepared for the other two intervening groups who had commented on last year's ROR:

CNSC staff reached out to three stakeholders who took the opportunity to comment on the ROR through the intervention process: Canadian Environmental Law Association, Nuclear Transparency Project and Canadian Radiation Protection Association. For each intervention, staff created a table of comments and recommendations related to the ROR and staff responded to each one individually. Staff then shared the relevant responses with each intervenor and offered to meet with the stakeholders to discuss the responses if needed.⁸

CELA welcomes the creation and distribution of these dispositions responding to intervenor comments and recommendations, as it reassures that CNSC staff are reading through the ROR comments received and taking them into consideration. Unfortunately, the dispositions are not provided within the ROR, rather they are summarized within Appendix I (Stakeholder engagement

⁷ See for instance, Canada, "Environmental and Regulatory Reviews Discussion Paper" (June 2017), online: <https://www.canada.ca/en/services/environment/conservation/assessments/environmental-reviews/share-your-views/proposed-approach/discussion-paper.html>

⁸ ROR 2022 at page 15.

activities): “Tables 26 and 27 within the 2022 ROR summarize the number of comments responded to and the number of comments by area of interest submitted by the intervenors.”⁹

To fully maximize the value of these dispositions, CELA **recommends** that these dispositions be included within the ROR, even within the Appendix section. The inclusion of the dispositions serves two purposes. First, it allows both the other intervenors as well as members of the public get a better picture of the exact issues and comments being raised by interested parties about the use of nuclear substances in Canada, providing a clearer understanding of the common concerns that arise from the RORs each year. Second, in the event that an intervention’s comments are not specifically referred to during the Commission Meeting, being able to read the dispositions ensures that certain comments are not being missed or ignored by CNSC staff. CELA appreciates the CNSC staff’s efforts to improve lines of communication and transparency with intervenors through developing these dispositions, and CELA would like to see these documents being used to their full potential by being publicly available within the ROR.

Fourth, after reviewing the ROR in detail, CELA continues to express concerns surrounding the trend for the ROR to be significantly more brief than prior RORs on the same topic. Excluding Appendices, the nuclear substance ROR has consisted of the following lengths:

- 2022 ROR (current): 17 pages
- 2021 ROR: 18 pages
- 2020 ROR: 12 pages
- 2019 ROR: 9 pages
- 2018 ROR: 48 pages
- 2017 ROR: 94 pages
- 2016 ROR: 84 pages

While we recognize that much of the information formerly contained in the body of the report is now captured in Appendices, a side-by-side comparison of like sections demonstrates that this year’s ROR lacks the description and context provided in the 2018 ROR and versions prior. CELA is pleased that the description section of each sector covered by the ROR (medical, industrial, academic and research, and commercial) has returned to the ROR this year, however, we are disappointed that this description has been placed within Appendix A, rather than within the main body of the document.

Providing this description section within the body of the document rather than in an appendix would help members of the public have a better grasp of the context of the ROR without requiring hyperlinks to jump around the document right from the start. With this ROR being less than 20 pages in length, CELA **submits** that adding the two-page description of the licenced sectors at the

⁹ ROR 2022 at page 15.

start of the document would not unreasonably lengthen the ROR. When responding to CELA's comments on last year's ROR regarding the need for greater detail within the reports, CNSC staff noted:

In the ROR, CNSC staff reference a technical briefing given to the Commission in October 2018 which describes many of the uses of nuclear substances in Canada. All four sectors are covered in this presentation. This briefing is available on the CNSC website for all those that are interested in further details although, as a reminder, the primary audience for the ROR is the Commission.¹⁰

While CELA recognizes that the primary audience for the ROR is the Commission, CELA **submits** that because the ROR is available to the public and provides one of the few opportunities for the public to engage with these licensees, the inclusion of contextually important information ought to be included in the body of the document to allow anyone reading the ROR—regardless of level of familiarity with the ROR's contents—has a firm grasp of the licenced sectors being discussed by CNSC staff within the document.

As we have noted in our previous ROR submissions, the less supporting information provided in the ROR, the less likely it will be that the public can fully assess the foundation of the CNSC's conclusions in the ROR, and in turn, the less is achieved by making these reports available for consideration by the public. If “transparency is a key element” to building trust in the nuclear regulator, then there needs to be transparency and traceability of the concepts and conclusions which shape the ROR discussion.

In furtherance of the CNCS's mandate to disseminate objective scientific, technical, and regulatory information to the public,¹¹ CELA once again **recommends** greater detail be provided in the body of the report, rather than being tucked away within the appendices, including descriptions of the nature of the regulated sector and its particular use of nuclear substances. Further, as nuclear substances do not undergo public licensing hearing processes, there is an even greater role for the ROR in providing the public with detailed information and context in support of conclusions reached.

Recommendations

1. Intervenors who provide comments on an ROR should have an opportunity to present orally before the Commission.

¹⁰ Disposition of CELA Comments at page 1, *emphasis added*.

¹¹ *Nuclear Safety and Control Act*, s. 9(b).

2. The transcript records for Commission meetings, and Commission hearings, be restored to the CNSC's website. For ease of document access, CELA proposes that the CNSC develop a document portal so that the public can easily track down important documents, like transcripts.
3. These dispositions of Intervenors' comments prepared by CNSC staff should be included within the ROR, even if that is producing them within the Appendices of the document.
4. Greater detail should be provided in the body of the report, rather than being tucked away within the appendices, including descriptions of the nature of the regulated sector and its particular use of nuclear substances.

B. Compliance Performance

The ROR includes information on the overall compliance rate of inspected licensees within four of the fourteen established safety and control areas ("SCAs"), including the Management SCA (98% satisfactory rate), the Operating Performance SCA (85% satisfactory rate), the Radiation Protection SCA (77% satisfactory rate) and the Security SCA (92% satisfactory rate). CELA has previously **recommended** at least including the compliance percentages for the remaining SCAs to allow the public to gain better insight into the overall performance of licensees.¹²

According to this year's ROR: "CNSC staff acknowledge that all SCAs are important; however, the ROR focuses on those that are most effective in providing an overall indication of the safety performance of the licensees, namely, the management system, operating performance, radiation protection, and security SCAs."¹³ Additionally, when addressing CELA's recommendation from last year about including all compliance percentages, CNSC staff have noted that, "The SCAs used in the ROR are selected because they are the most indicative of overall safety; presenting all SCAs would significantly increase the size of the ROR, which risks making it less accessible."¹⁴

CELA is disappointed that the CNSC has chosen to continue omitting other SCA compliance statistics for the sake of streamlining an already streamlined report. With the other SCAs being excluded from the ROR, it is difficult to see whether these SCAs are being met with consistent compliance by licensees each year. While the ROR directs readers to the CNSC website for a general summary of the Safety and Control Area Framework,¹⁵ this link does not elaborate on compliance trends for any SCAs. Therefore, CELA once again **recommends** that the CNSC revisit

¹² See for instance, Submission by the Canadian Environmental Law Association to the Canadian on the CNSC's Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2020; Submission by the Canadian Environmental Law Association to the Canadian on the CNSC's Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2021.

¹³ ROR 2022 at page 7.

¹⁴ Disposition of CELA Comments at page 2.

¹⁵ ROR 2022 at page 7, see hyperlink: <https://nuclearsafety.gc.ca/eng/resources/publications/reports/powerindustry/safety-and-control-areas.cfm>

the inclusion of compliance percentages for all SCAs to provide better insight into the overall performance of licensees. To balance the CNSC's interest in maintaining a streamlined ROR, CELA proposes that these percentages be produced as an appendix, to allow those interested in seeing trends in compliance across all SCAs can view this information.

Recommendations

5. Compliance percentages for all Safety and Control Areas should be included in the ROR to allow the public to gain better insight into the overall performance of licensees. To maintain accessibility of the ROR's contents, the compliance percentages for all SCAs could be summarized or presented within an appendix rather than the main body of the document.

C. Environmental Protection

One of CELA's ongoing recommendations for the *ROR on the Use of Nuclear Substances in Canada* is to include the Environmental Protection SCA for all sectors, and not just for waste nuclear substance licences ("WNSL"). This year's ROR links to section 3.7 of last year's report to provide the rationale for excluding the Environmental Protection SCA. The CNSC's justification for excluding this SCA for all sectors is that nuclear substance licensees have "minimal to no interactions with the environment."¹⁶

However, for sectors using unsealed sources, the potential for environmental interaction is not zero:

For unsealed sources (e.g., radioisotopes used in the medical sector), there is a higher chance of interaction with the environment. This could involve, for example, releases from the stacks of isotope processing facilities or the disposal of small amounts of medical isotopes to the landfill or the sewer. For these licensees, CNSC staff apply the requirements in REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* in a graded manner.¹⁷

When addressing CELA's recommendations in last year's ROR submission at the Commission Meeting on November 1, 2022, Eric Lemoine, the Director of Transport Licensing and Strategic Support Division, noted:

With respect to disclosing environmental data, it should be noted that many facilities with unsealed sources of radionuclides are not required to report the releases to the CNSC

¹⁶ ROR 2021 at page 12.

¹⁷ ROR 2021 at page 12.

because their activities are considered low-risk and any potential releases are well below the conditional clearance levels as outlined in their CNSC licence.¹⁸

CELA notes that due to the higher chance for unsealed sources to interact with the environment, any facility with unsealed source of radionuclides should be required to report releases to the CNSC. Not requiring the reporting of all unsealed source releases results in an underestimation of Environmental SCA compliance, and does not reveal how environmental protection is being prioritized by all licensees using nuclear substances. CELA **submits** that the establishment of a requirement for all facilities with unsealed sources of radionuclides to report releases to the CNSC should be a topic of discussion at the upcoming Commission Meeting.

In response to CELA's recommendation that the Environmental Protection SCA should be included in the ROR for all sectors, and all hazardous substances and effects on the environment should be considered, CNSC staff responded by stating that due to the "little to no releases" and "little to no impact on the environment", the Environmental Protection SCA was not selected for emphasis in the last year's ROR. Additionally, it was noted that the Environmental Protection SCA is "...closely monitored and assessed during CNSC staff's compliance verification activities when applicable. If there are any significant non-compliances or events, they will be discussed in the ROR."¹⁹

Based on prior discussions of the Environmental Protection SCA, it does not appear that there are many applicable cases for this SCA to be monitored and assessed by CNSC Staff. Despite the pushback on the recommendation to include this SCA within the ROR, CELA continues to recommend its inclusion in the report. CELA continues to **submit** that the ROR does not contain sufficient information to allow the report to conclude that licensees made acceptable provision to protect the environment. While it is possible that licensees may be in compliance, the ROR contains insufficient information for the public to determine on what basis this is the case. As we have previously expressed, CELA strongly **urges** incorporating reasonably detailed information regarding environmental protection in next iterations of the ROR. If there is 100% compliance with this SCA, the CNSC should be expressing that within the ROR, so that there is a public record of the trends on meeting environmental protection requirements across all sectors using nuclear substances.

Recommendations

6. The establishment of a requirement for all facilities with unsealed sources of radionuclides to report releases to the CNSC should be a topic of discussion at the upcoming Commission Meeting.

¹⁸ CNSC, Transcript of November 1, 2022 Commission Meeting at pages 74-75 [**Transcript**].

¹⁹ Disposition of CELA Comments at page 2, *emphasis added*.

7. The Environmental Protection SCA should be included in the ROR for all sectors, and all hazardous substances and effects on the environment should be considered.

D. Waste Nuclear Substance Licenses

The *ROR on the Use of Nuclear Substances in Canada* covers the five waste nuclear substance licenses (“WNSL”) that are not captured in any other CNSC ROR. The ROR briefly discusses the Conventional Health and Safety SCA for WNSLs (Section 3.5) and the Environmental Protection SCA for WNSLs (Section 3.6). According to the ROR, waste nuclear substance licensees reported three events which potentially could have impacted the environment in 2022:

- Event ID WNSL-3 [equipment malfunction]: The tritium effluent monitoring was not performed for a period of approximately 3 days due to a timer malfunction. When the system activated the timers did not reset. These events have had no measurable effect on health and safety of staff or the public. Given the low release levels, dose to the public from the release is considered negligible.
- Event ID WNSL-7 [release]: Personnel performed the required weekly filter change-out and discovered the particulate pump had malfunctioned resulting in a particulate release to the environment. The release was below the weekly administrative and action levels. The impact to the public and personnel were assessed as negligible.
- Event ID WNSL-8 [release]: A tank meant to be on the 'recirculate' setting instead was set to 'pump-out'. By the time the error was noticed the tank was emptied of ~10,000 litres. The estimated radiological parameters were well below action levels. The pH value in the sample was below the acceptable municipal range, and the PCB value in the sample exceeded the Municipal Code limit. All other non-radiological parameters met the criteria specified in the Municipal Code. There were likely no adverse effects on the environment or health and safety of persons resulting from the situation.²⁰

The CNSC concluded that for these three reported events, “all radiological releases were kept well below regulatory limits, and there was no impact on the health and safety of persons and the environment.”²¹

With regards to Event ID WNSL-3, the summary from Table 23 states that there were low release levels, and so the dose release to the public is considered negligible. There is no mention of how much tritium effluent was released during this 3 day period, and how that was determined while the monitoring malfunction occurred. CELA **recommends** that when an event involves a potential release to the environment, the ROR should include data such as how much effluent was released, or in the case of a monitoring malfunction, an estimation of the release level. Additionally, CELA

²⁰ ROR 2022 at Appendix G, Table 23.

²¹ ROR 2022 at page 11.

requests information on what is being done to ensure monitoring measures are in place in the event that a timer malfunctions.

CELA **requests** more information on the WNSL-7 release event. What was the particulate that was released into the environment, and what is being done to prevent particulate pump malfunctions in the future? For instance, is there a routine inspection/maintenance of equipment at this licensee's facility, and is equipment being replaced in a timely manner when it reaches its end of life cycle?

As for the WNSL-8 release event, CELA has several concerns regarding this release. *First*, the ROR does not indicate that timeline of this event. It is unclear of how long the tank was set to 'pump-out' instead of 'recirculate' before the error was corrected. How long did it take for the tank to be emptied of the ~10,000 litres before the error was rectified? *Second*, was this event the result of human error, or equipment/system malfunction, and what is being done to prevent this event from reoccurring in the future? *Third*, the ROR notes that the PCB value in the sample exceeded the Municipal Code limit. What efforts of the licensee have been made to clean up this release, including the PCB particulate?

CELA continues to have concerns about the sufficiency of information provided within the ROR concerning WNSLs. Appendix D within the 2022 ROR provides data at the sector and subsector level for each of the 4 mentioned SCAs within the ROR. Within this Appendix, the ROR states, "given the small number of WNSLs, specific data related to the environmental protection and conventional SCAs are not included in this section."²² As CELA has mentioned in previous submissions to the CNSC, the small number of WNSLs is not a sufficient reason to omit data on these two types of SCAs. Without specific data related to either SCA, the public has no context of the trends in terms of compliance.

In response to CELA's recommendation last year that the ROR should be updated to include specific data related to the Environmental Protection SCA and the Conventional Health and Safety SCA, CNSC Staff noted: "all five WNSL had satisfactory ratings in the EP and health and safety SCAs. It is not clear what specific data the intervenor would like to see for these five licensees."²³ To reflect the trends of compliance with these SCAs, CELA would like to see the ROR include data that shows compliance levels over a 5 year period. Even if all 5 licensees have maintained satisfactory ratings for these SCAs every year, CELA **submits** providing this data would be a digestible format for the public to keep track of SCA compliance in this sector on an annual basis.

²² ROR 2022 at page 35.

²³ Disposition of CELA Comments at page 4.

Recommendations

8. When an event involves a potential release to the environment, the ROR should include data such as how much effluent was released, or in the case of a monitoring malfunction, an estimation of the release level.
9. The CNSC should provide an update on WNSL-3 at the upcoming Commission Meeting and discuss what is being done to ensure monitoring measures are in place in the event that a timer malfunctions.
10. More information is required surrounding the WNSL-7 release event: what was the particulate that was released into the environment, and what is being done to prevent particulate pump malfunctions in the future? For instance, is there a routine inspection/maintenance of equipment at this licensee's facility, and is equipment being replaced in a timely manner when it reaches its end of life cycle?
11. More information is required surrounding the WNSL-8 release event: *first*, the ROR does not indicate that timeline of this event. It is unclear of how long the tank was set to 'pump-out' instead of 'recirculate' before the error was corrected. How long did it take for the tank to be emptied of the ~10,000 litres before the error was rectified? *Second*, was this event the result of human error, or equipment/system malfunction, and what is being done to prevent this event from reoccurring in the future? *Third*, the ROR notes that the PCB value in the sample exceeded the Municipal Code limit. What efforts of the licensee have been made to clean up this release, including the PCB particulate?
12. The ROR should include data revealing WNSL compliance levels for the Environmental Protection SCA and the Health and Safety SCA over a 5 year period.

E. Inspections

Inspections and other compliance verification activities are an important tool in ensuring protection of the environment. Thus, in response to this year's ROR and findings made during last year's nuclear substance ROR meeting, CELA raises the following matters for the Commission's consideration.

In previous ROR submissions, CELA has expressed concerns surrounding the decrease in inspections on an annual basis. According to the 2022 report, staff conducted 656 inspections, with 561 of these inspections occurring in person (approximately 86% of inspections), 16 being hybrid, and 79 being remote.²⁴ CELA is pleased that the number of total inspections has increased from

²⁴ ROR 2022 at page 5.

2021, in which there were 583 total inspections (233 in-person, 9 hybrid, and 341 remote).²⁵ With many COVID-19 restrictions being lifted, and the CNSC hiring new inspectors,²⁶ the drastic increase in-person inspections in the last year is a key improvement to ensure adequate compliance and enforcement is being upheld across the various sectors captured within the ROR. The ROR notes that staff were able to complete approximately 86% of the planned inspections for 2022 (656 of 762), and CELA looks forward to an continued effort to restore inspection levels to that of previous years (e.g., 1568 inspections in 2015).

In last year's submission, CELA requested that the CNSC provide a timeline for restoring baseline inspection frequency, as well as define the baseline inspection frequency. CNSC Staff provided a very insightful response to this request within their disposition document responding to CELA's comments:

Nuclear Substances and Radiation Devices

In early 2020, DNSR revised its Risk Informed Regulatory Program to incorporate factors such as licensee performance into its baseline inspection frequencies for licensees of nuclear substances and radiation devices. As a result, baseline inspection frequencies are now based on how often we should see a particular licensee of a particular use type given their individual performance and complexity rather than requiring every licensee of the same use type to be inspected at the same frequency. Doing so better reflects how often we should inspect each licensee, which introduces efficiencies in the compliance verification program.

Based on our current planning, the baseline inspection frequency for these licensees should be restored within 3-4 years.

Class II

The baseline frequency for performing inspections of Class II licensees is typically one Type I inspection and one Type II inspection over the course of 5 years for each licensee. However, inspection frequency may be expedited in instances when the licensee has high risk factor(s) such as repeat non-compliances or multiple events for example. To help address the backlog of inspections from the pandemic we have also developed inspection priorities.

Based on our current planning, it will take at least 5 years for the baseline inspection frequency to be restored for these licensees.

²⁵ ROR 2021 at page 4.

²⁶ Transcript at pages 89-91.

WNSL

Using DNCFR's Risk Ranking Criteria, a WNSL is assigned a risk category. The risk ranking criteria include the types of hazards that exist, the consequences of failure on workers, the public and the environment as well as the complexity of the operations. The five WNSLs covered under this report have been risked ranked as low based on these criteria. Rolling ten-year baseline and facility-specific inspection plans were developed for DNCFR licensees, including the WNSLs included in the ROR. A minimum baseline compliance inspection frequency of 3 inspections over a 10-year period was established based on the low-risk ranking of these WNSLs. These ten-year plans are reviewed on an annual basis at which point other inspections may be added. Some factors that are considered during planning include the past performance of the licensee, planned activities, etc. Furthermore, inspections are not the only way CNSC staff verify compliance. CNSC staff review annual reports, and other technical documents as required. The baseline inspection frequency for these licensees was met.²⁷

CELA **recommends** that the CNSC include this information within the ROR. While CELA recognizes that the ROR is not intended to cover the CNSC's internal program management,²⁸ including a discussion of restoring the baseline inspection frequency is valuable for assessing trends in compliance and enforcement, and how it ties to an increase in the inspection frequency. By including this discussion in RORs moving forward, it becomes more accessible for both the public and the Commission to keep track of the CNSC's timeframe for restoring the inspection frequency baseline, and whether adjustments need to be made to focus on compliance within different sectors.

One of CELA's recommendations from last year's submission was for the ROR to provide the number (and percentage) of inspections that arose from whistleblower instances and events. In response to this request, CNSC Staff noted that they may consider this for future RORs, however, "...the number of inspections in response to whistleblower/events are negligible compared to regular planned inspections. In 2021, 7 inspections or on-site activities were performed due to concerns raised by the public or whistleblowers/external complaints."²⁹

CELA is disappointed that this year's ROR does not include any information regarding the number of inspections performed due to concerns raised by the public or whistleblowers/external complaints. Even if the number of these types of inspections are negligible in number compared to the number of planned inspections, including information about whistleblower instances and events is important in maintaining transparency in the inspection process. Additionally, by making this information publicly available, it may encourage individuals to report an incident or event that they would not have otherwise, because the data shows that inspectors will act on these reports.

²⁷ Disposition of CELA Comments at pages 8-9.

²⁸ Disposition of CELA Comments at page 4.

²⁹ Disposition of CELA Comments at page 5.

CELA therefore continues to **recommend** that the ROR should provide the number (and percentage) of inspections that arose from whistleblower instances and events.

Recommendations

13. The CNSC should include the information provided to CELA regarding the timeline for restoring the baseline inspection frequency within the ROR.
14. The ROR should provide the number (and percentage) of inspections that arose from whistleblower instances and events.

F. International Obligations

In response to CELA’s previous recommendation that the ROR should reference all relevant international standards that apply to the licensees covered in the report, this year’s ROR sees an improvement to the section discussing International regulations and other commitments. This section goes into more detail than last year’s ROR, and provides hyperlinks to various International Atomic Energy Agency (“IAEA”) codes, standards, and guidance documents to which Canada is committed.³⁰ It remains unclear if this section provides an exhaustive list of international obligations, or if the referenced documents are just a sample of what is relevant to the licenced sectors within this report.

To further improve the ROR’s discussion of Canada’s international obligations, CELA **recommends** that the ROR provides a thorough list of *all* international obligations that impact the licensees covered in the report. A useful way to provide this information would be to have hyperlinks in “Appendix K: Relevant Documents” which would provide an uncluttered method of including all international codes, standards and guidance documents.

Last year’s ROR mentioned that the IAEA performed three inspections and four complementary accesses at nuclear substances licensees to confirm licensees’ declarations on the possession and use of nuclear material.³¹ In this year’s ROR, there is no mention of IAEA inspections. CELA is requesting clarification on whether any inspections occurred in 2022 (or are scheduled to occur after the ROR was released), and how frequently do these inspections occur?

The 2021 ROR had also mentioned: “While the IAEA reported that the results from these inspections were satisfactory and that their inspectors were able to carry out all planned activities for the complementary accesses, they have identified follow-up actions for the licensees and/or the CNSC. The CNSC is coordinating the resolution of these items with the licensees.”³² CELA had

³⁰ ROR 2022 at pages 16-17.

³¹ ROR 2021 at page 17.

³² ROR 2021 at page 17.

requested that the CNSC should highlight the types of follow-up actions identified by the IAEA, and how the CNSC intends to resolve these action items. The disposition of CELA's comments addressed this recommendation by stating the following:

The International Atomic Energy Agency or (IAEA) identified two follow-up actions: 1) the follow-up actions for the inspection at Simon Fraser University were associated to an IAEA request to submit corrected listings and material balance reports due to discrepancies in nuclear material weight and number of items. This action was completed by the licensee to the satisfaction of the CNSC.

2) the IAEA requested that Canada report small quantities of nuclear material possessed by the University of Guelph, University of Saskatchewan and Dalhousie University and to establish the licensees as 'Locations Outside Facilities (LOF)'. Locations Outside Facilities are defined in the CNSC's Regulatory Document REGDOC- 2.13.1, *Safeguards and Nuclear Material Accountancy*. The CNSC is addressing this request on a prioritized basis; the CNSC has recently created a new LOF at the University of British Columbia endowment lands (BWXT-Medical), Dalhousie University is nearing the point of becoming a new LOF while the other universities and sites have made progress on this matter.³³

CELA is **requesting** that an update on the progress for the second item be discussed at the Commission meeting.

CELA also **recommends** that when these follow-up actions arise following an IAEA inspection, the action items should be summarized within the ROR, along with the CNSC's progress on addressing the action items.

Recommendations

15. The ROR should provide a thorough list of *all* international obligations that impact the licensees covered in the report. A useful way to provide this information would be to have hyperlinks in "Appendix K: Relevant Documents" which would provide an uncluttered method of including all international codes, standards and guidance documents.
16. More information regarding IAEA inspections is requested: whether any inspections occurred in 2022 (or are scheduled to occur after the ROR was released), and how frequently do these inspections occur?

³³ Disposition of CELA Comments at pages 10-11.

17. An update on the progress of the second IAEA action item from the 2021 ROR should be provided at the upcoming Commission Meeting.
18. When follow-up actions arise following an IAEA inspection, the action items should be summarized within the ROR, along with the CNSC's progress on addressing the action items.

G. Radiation Exposure to Workers

CELA has reviewed the sector-by-sector comparison of annual effective doses to Nuclear Energy Workers (“NEWS”) and non-Nuclear Energy Workers (“non-NEWS”). In 2022, there were three reported doses greater than the regulatory limit of 1 mSv/year to non-NEWS workers. All three reported doses were reported in the medical sector:

- One licensee reported that 2 clerks in the nuclear medicine subsector were reported to have doses greater than 1 mSv (1.09 mSv and 1.62 mSv respectively) which was deemed unlikely due to the nature of the work performed. CNSC staff could not rule out that the doses were real.
- One licensee reported a single dose above 1 mSv/year limit (1.9 mSv). This dose was likely due to how the TLD was stored while the worker in question was on holidays, however the storage conditions were not able to be reproduced and therefore it could not be ascertained what part of the dose may be attributed to how the TLD was stored.³⁴

Although the ROR notes that none of the reported instances to non-NEWS were believed to be a true dose to the worker, these events are worth keeping in mind when taking into consideration how the medical sector is performing in the context of the Radiation Protection SCA. When discussing the Radiation Protection SCA, the ROR states:

Both the medical sector and the industrial sector showed declining performance when compared to the 5-year average. In the medical sector, 68% of inspected licensees achieved satisfactory ratings in this SCA in 2022 compared to 75% averaged over the last 5 years. In particular, in the nuclear medicine subsector, only 63% of the 91 inspections performed resulted in satisfactory ratings.... The poor performance of the nuclear medicine subsector in the radiation protection SCA has been highlighted in the past few RORs.³⁵

This poor performance in the medical sector was a topic of discussion at last year's Commission Meeting, and when asked about whether the underperformance in the medical sector for the last 5 years was a result of work culture, Mark Broeders, the Director of the Management Systems

³⁴ ROR 2022 at page 12.

³⁵ ROR 2022 at pages 9-10.

Division, explained that the medical sector tends to be focused on the safety of the patient and they sometimes lose sight of the safety of their staff, and it is commonly found that licensees often are unaware of where they are non-compliant.³⁶ It was further explained that to remedy these shortfalls, part of CNSC's staff's initiative has been to, which is more on the promotion side than the enforcement side, to address what we perceive as weaknesses in safety culture in some areas of the medical sector.³⁷ These promotion side initiatives include: "a multi-step process to try to address that through townhalls, through promotion of safety culture self-assessments, through introducing some tools to help licensees to be more self-aware of where the issues lie."³⁸

With the state of compliance in the Radiation Protection SCA not improving in 2022 within the medical sector, this year's ROR notes that CNSC staff conducted a more detailed analysis of the compliance data for this SCA, and staff found that there is a lingering impact from the anticipated transition period following the publication of the revised *Radiation Protection Regulations* in late 2020.³⁹ This analysis further revealed that "...approximately 18% of inspected licensees received notices of non-compliances in this SCA related to the amended regulations, most commonly related to new requirements surrounding extremity dosimetry and radiation detection and measurement instrumentation."⁴⁰

With all three reportable events of radiation exposure to non-NEWs in 2022 being in the medical sector (even though the ROR claims that none of the events resulted in true doses to the workers), CELA has concerns about how seriously the medical sector is taking radiation protection for workers, and what measures are in place to improve compliance with this important SCA. CELA **requests** clarification on how long the transition period for adapting to the *Radiation Protection Regulations* revisions is anticipated to take. Additionally, with Director Broeders discussing the CNSC's promotion-side initiatives for compliance, CELA is **requesting** further details on the enforcement-side initiatives for compliance with the Radiation Protection SCA within the medical sector. With the trend of compliance in the medical sector not improving since the last Commission Meeting on this ROR, CELA **recommends** that this issue be a topic of discussion at the upcoming Commission Meeting, to ensure that corrective action in the medical sector is improved in the immediate future.

Recommendations

19. Clarification is requested on how long the transition period for adapting to the *Radiation Protection Regulations* revisions from 2020 is anticipated to take, especially in the context of the medical sector's non-compliance legacy for the last five years.

³⁶ Transcript at page 87.

³⁷ Transcript at page 88.

³⁸ Transcript at page 87.

³⁹ ROR 2022 at pages 9-10.

⁴⁰ ROR 2022 at pages 9-10.

20. Further details are requested concerning the enforcement-side initiatives for compliance with the Radiation Protection SCA within the medical sector.
21. With the trend of compliance with the Radiation Protection SCA in the medical sector not improving since the last Commission Meeting on this ROR, this issue be a topic of discussion at the upcoming Commission Meeting, to ensure that corrective action in the medical sector is improved in the immediate future.

H. Reportable Events

The 2022 ROR provides that 167 events were assessed by CNSC Staff in 2022. According to the International Nuclear and Radiological Event Scale (“INES”), it was determined that 164 of the events were rated as INES level 0 (no safety significance) and 3 were rated as INES level 1 (an anomaly that may have an impact on defence in depth).⁴¹ According to INES, an anomaly is generally described as incidents like: overexposure of a member of the public in excess of statutory annual limits; minor problems with safety components with significant defence-in-depth remaining; or low activity lost or stolen radioactive source, device or transport package.⁴²

Appendix G provides additional data on the reportable events for 2022, with all reportable events being summarized in Table 23. In 2022, of the 31 reportable events in the medical sector, 7 reports involved “lost, stolen, found, or abandoned nuclear substances” (4 reports in nuclear medicine subsector, and 3 in the radiation therapy sector).⁴³ These 7 reported events are summarized below:

- Event ID 5488 (February 15): During a pathology protocol, a sealed source of iodine-125 was lost. The licensee searched the premises but could not recover the source and suspects that it was disposed of with other biomedical waste.
- Event ID 5524 (March 29): An iodine-125 seed was lost. After using a number of seeds for treatment, there was one seed less than expected remaining. The licensee searched the premises but could not recover the sealed source.
- Event ID 5722 (October 5): During a pathology protocol, a sealed source of iodine-125 was lost. The licensee searched the premises but could not recover the source and suspects that it was disposed of with other biomedical waste. The licensee implemented actions to prevent recurrence.
- Event ID 5733 (October 21): During a manual brachytherapy treatment, an iodine-125 sealed source was lost. The seed was inadvertently disposed of in the regular waste. The licensee implemented actions to prevent recurrence.

⁴¹ ROR 2022 at page. 13.

⁴² International Atomic Energy Agency, “IAEA International Nuclear and Radiation Events Scale (INES)”, brochure, online: <https://www.iaea.org/sites/default/files/ines.pdf>, at page 4.

⁴³ ROR 2022 at page 54, Table 19.

- Event ID 5746 (November 2): An iodine-125 seed was lost when being implanted in a patient. The licensee surveyed the room but could not recover the source. The licensee implemented actions to prevent recurrence.
- Event ID 5763 (November 16): Two iodine-125 seeds were lost following two separate surgical procedures. The licensee suspects they were thrown away with the disposable linens. The licensee implemented actions to prevent recurrence.
- Event ID 5784 (December 12): A cobalt-57 sealed source (Category 5) that was in decay storage went missing. The licensee believes that the source was accidentally disposed of with regular waste. The source is likely still in its shielded case and the licensee has not been contacted by the landfill.

The ROR indicates that all of these events received an INES rating of 0, despite all of these events resulting from a low activity radioactive source/device being lost (and in the case of Event ID 5784, a shielded source that was in decay storage was potentially disposed of with regular waste bound for the landfill). Because the CNSC is responsible for assessing and providing provisional and final INES ratings to the IAEA,⁴⁴ CELA **requests** clarification on why these events were all classified as INES level 0 events, when the loss of radioactive materials should be noted as INES level 1 events.

Furthermore, with the previously mentioned declining performance of the medical sector in the Radioactive Protection SCA (only a 68% compliance satisfactory rating in 2022), CELA has concerns about what is being done to ensure that the improper disposal of radioactive materials in medical settings is prevented in the future. While a number of the events reported indicated that the licensees have implemented actions to prevent reoccurrence, this is not mentioned for Event IDs 5488, 5524, and 5784. CELA **recommends** that the CNSC explain what measures are being implemented to ensure all licensees are carefully keeping track of radioactive sources and their appropriate disposal. CELA is particularly concerned about the lost sealed source which was in a state of decay that does not appear to have been recovered. CELA **requests** an update on Event ID 5784 at the upcoming Commission Meeting.

Recommendations

22. The CNSC should provide clarification on why reported events involving lost radioactive materials/sources within the medical sector were given INES rating of level 0 rather than an INES rating of level 1.

⁴⁴ CNSC, “International Nuclear and Radiological Event Scale”, online: <http://nuclearsafety.gc.ca/eng/resources/emergency-management-and-safety/ines-classification.cfm#:~:text=to%20emergency%20exercises%3F-What%20is%20INES%3F,Canada%2C%20to%20classify%20nuclear%20accidents>.

23. The CNSC should explain what measures are being implemented to ensure all licensees are carefully keeping track of radioactive sources and their appropriate disposal.
24. The CNSC should provide an update on Event ID 5784 (a cobalt-57 sealed source (Category 5) in decay storage that went missing) at the upcoming Commission Meeting.

I. Public and Stakeholder Engagement

One of CELA's comments on last year's ROR included the recommendation that the CNSC expand formal outreach activities for WNSLs, as nuclear waste is a topic of great interest to members of the public. For instance, CELA has a rich variety of publicly available resources on our website which address issues of nuclear waste.⁴⁵

CELA is disappointed that this recommendation has not adopted, on the grounds that "no formal outreach activities are conducted for WNSLs as they are a small subsector, so information is best disseminated to specific licenses on an individual basis."⁴⁶ In terms of specifically public outreach, CNSC Staff further noted:

While CNSC staff have not conducted formal public outreach for the WNSLs in this ROR, there are other mechanisms to engage with staff. Historically staff have not received much interest in these files. Nevertheless, if interest is expressed from members of the public, Indigenous Nations and communities or ENGOs, CNSC staff will work to engage with the interested parties in a way that is meaningful to them.⁴⁷

CELA **submits** that the size of the WNSL subsector should not be a factor when determining the need for formal outreach, as this sector plays a vital role in the management of nuclear substances. CELA further **submits** that because of the small size of these subsector, this affords for opportunity to have very in depth and engaging outreach opportunities, especially with the public, as there are not as many licensees to work through in discussions. The existing opportunities for the public to engage with WNSLs is limited [such as this ROR which does not primarily focus on WNSLs, webinars or other outreach and engagement activities⁴⁸], providing WNSL-specific public engagement opportunities would greatly improve transparency on the workings of this subsector. Therefore, CELA continues to **recommend** that the CNSC should reconsider expanding providing formal outreach activities for WNSLs, especially activities geared towards the public.

⁴⁵ See for instance, <https://cela.ca/?s=nuclear+waste>.

⁴⁶ Disposition of CELA Comments at page14.

⁴⁷ Disposition of CELA Comments at pages 14-15.

⁴⁸ Disposition of CELA Comments at page 14.

Recommendations

25. The CNSC should reconsider expanding providing formal outreach activities for WNSLs, especially activities geared towards the public.

III. CONCLUSION

We respectfully provide these comments to the Commission to assist in its review of the *Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2022*.

Sincerely,
CANADIAN ENVIRONMENTAL LAW ASSOCIATION



Sara Libman, Legal Counsel

Appendix 1

Summary of Recommendations

1. Intervenors who provide comments on an ROR should have an opportunity to present orally before the Commission.
2. The transcript records for Commission meetings, and Commission hearings, be restored to the CNSC's website. For ease of document access, CELA proposes that the CNSC develop a document portal so that the public can easily track down important documents, like transcripts.
3. These dispositions of Intervenors' comments prepared by CNSC staff should be included within the ROR, even if that is producing them within the Appendices of the document.
4. Greater detail should be provided in the body of the report, rather than being tucked away within the appendices, including descriptions of the nature of the regulated sector and its particular use of nuclear substances.
5. Compliance percentages for all Safety and Control Areas should be included in the ROR to allow the public to gain better insight into the overall performance of licensees. To maintain accessibility of the ROR's contents, the compliance percentages for all SCAs could be summarized or presented within an appendix rather than the main body of the document.
6. The establishment of a requirement for all facilities with unsealed sources of radionuclides to report releases to the CNSC should be a topic of discussion at the upcoming Commission Meeting.
7. The Environmental Protection SCA should be included in the ROR for all sectors, and all hazardous substances and effects on the environment should be considered.
8. When an event involves a potential release to the environment, the ROR should include data such as how much effluent was released, or in the case of a monitoring malfunction, an estimation of the release level.
9. The CNSC should provide an update on WNSL-3 at the upcoming Commission Meeting and discuss what is being done to ensure monitoring measures are in place in the event that a timer malfunctions.
10. More information is required surrounding the WNSL-7 release event: what was the particulate that was released into the environment, and what is being done to prevent particulate pump malfunctions in the future? For instance, is there a routine inspection/maintenance of

equipment at this licensee's facility, and is equipment being replaced in a timely manner when it reaches its end of life cycle?

11. More information is required surrounding the WNSL-8 release event: *first*, the ROR does not indicate that timeline of this event. It is unclear of how long the tank was set to 'pump-out' instead of 'recirculate' before the error was corrected. How long did it take for the tank to be emptied of the ~10,000 litres before the error was rectified? *Second*, was this event the result of human error, or equipment/system malfunction, and what is being done to prevent this event from reoccurring in the future? *Third*, the ROR notes that the PCB value in the sample exceeded the Municipal Code limit. What efforts of the licensee have been made to clean up this release, including the PCB particulate?
12. The ROR should include data revealing WNSL compliance levels for the Environmental Protection SCA and the Health and Safety SCA over a 5 year period.
13. The CNSC should include the information provided to CELA regarding the timeline for restoring the baseline inspection frequency within the ROR.
14. The ROR should provide the number (and percentage) of inspections that arose from whistleblower instances and events.
15. The ROR should provide a thorough list of *all* international obligations that impact the licensees covered in the report. A useful way to provide this information would be to have hyperlinks in "Appendix K: Relevant Documents" which would provide an uncluttered method of including all international codes, standards and guidance documents.
16. More information regarding IAEA inspections is requested: whether any inspections occurred in 2022 (or are scheduled to occur after the ROR was released), and how frequently do these inspections occur?
17. An update on the progress of the second IAEA action item from the 2021 ROR should be provided at the upcoming Commission Meeting.
18. When follow-up actions arise following an IAEA inspection, the action items should be summarized within the ROR, along with the CNSC's progress on addressing the action items.
19. Clarification is requested on how long the transition period for adapting to the *Radiation Protection Regulations* revisions from 2020 is anticipated to take, especially in the context of the medical sector's non-compliance legacy for the last five years.

20. Further details are requested concerning the enforcement-side initiatives for compliance with the Radiation Protection SCA within the medical sector.
21. With the trend of compliance with the Radiation Protection SCA in the medical sector not improving since the last Commission Meeting on this ROR, this issue be a topic of discussion at the upcoming Commission Meeting, to ensure that corrective action in the medical sector is improved in the immediate future.
22. The CNSC should provide clarification on why reported events involving lost radioactive materials/sources within the medical sector were given INES rating of level 0 rather than an INES rating of level 1.
23. The CNSC should explain what measures are being implemented to ensure all licensees are carefully keeping track of radioactive sources and their appropriate disposal.
24. The CNSC should provide an update on Event ID 5784 (a cobalt-57 sealed source (Category 5) in decay storage that went missing) at the upcoming Commission Meeting.
25. The CNSC should reconsider expanding providing formal outreach activities for WNSLs, especially activities geared towards the public.