Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 22-M32.2

Date: 2022-09-30
File / dossier : 6.02.04
Edocs pdf : 6882264

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: 2021

Rapport de surveillance réglementaire sur l'utilisation des substances nucléaires au Canada : 2021

Commission Meeting

Réunion de la Commission

November 1st, 2022

Le 1er novembre 2022

Canada

Canadian Environmental Law Association
EQUITY. JUSTICE. HEALTH.

CELEBRATING 50 Years 1970 - 2020 OF ENVIRONMENTAL PROTECTION

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: 2021

September 30, 2022

Prepared by
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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, 2022[1] concerning the presentation of the *Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2021* (herein "ROR").[2] A virtual meeting with respect to this matter is scheduled for November 2-3, 2022.

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 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

[1] CNSC, Notice of Participation at a Commission Meeting and Participant Funding (Ref. 2022-M-01) 4 April 2022.
[2] CNSC, Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2021 (CMD 22-M32) 16 August 2022 **[ROR 2021]**.
[3] Canadian Environmental Law Association, online: www.cela.ca

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 2021 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. In April 2021, the CNSC sought public feedback on the regulatory oversight review process via a discussion paper "regarding the audience, purpose and frequency of the RORs."[4] During the public consultation period from April to June 2021, CELA wrote to the CNSC requesting that our years of ROR interventions, and procedural comments therein, be accounted for in the review process.

According to a presentation on this topic during a CNSC Meeting on January 27, 2022, the following changes have been implemented:

- Plain Language Executive Summaries;
- Greater use of hyperlinks for readily available online content;
- Data to include error bans 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]

CELA is disappointed that RORs are not undergoing a more robust overhaul following this review process. Therefore, CELA continues to provide the following recommendations to ensure that the

[4] CNSC, Transcript of November 23, 2021 Commission Meeting, pp. 42-43; See also: 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

[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.

ROR is being effectively utilized. These recommendations are based on the 2021 ROR's recognition that:

> The CNSC's annual regulatory oversight reports continue to evolve over time in response to feedback received from the Commission and from intervenors…[T]his demonstration of responsiveness and transparency is a key element of our commitment to building trust in the nuclear regulator.[6]

First, CELA **submits** that intervenors who provide comments on an ROR should have an opportunity to present orally before the Commission. Currently, 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.

At last year's Commission meeting, Karen Owen-Whitred, the Director-General of the Directorate of Nuclear Substances Regulation, commented that "So as you've noted we can see that if CELA is raising the same concerns and CNSC Staff are providing the same answers, clearly there's a disconnect or perhaps a miscommunication, which is why we do want to follow up more directly and have more of a discussion so that we can understand those positions."[7] If intervenors, such as CELA, were afforded the opportunity to present orally before the Commission, the aforementioned disconnect or miscommunication could be avoided through open and active discussion.

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 seeks public feedback.[8] This reframing would more closely align with the public opportunity for comment this process is meant to provide.

Second, CELA has reviewed the ROR in detail and finds there is a continuing 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:

- 2021 ROR (current): 18 pages
- 2020 ROR: 12 pages
- 2019 ROR: 9 pages

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[6] 2021 ROR, p. 1.
[7] CNCS, Transcript of November 23, 2021Commission Meeting, pp. 70-71.
[8] *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

- 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. For instance, while each sector (e.g., medical, industrial, academic and research, and commercial) was formerly described in the body of the report,[9] this year's report omits this context and only provides tables tracking inspection ratings and doses to workers by sector.[10]

CELA has made the same comments in previous years,[11] and these comments remain unaddressed. Our concerns persist — namely that there is a lack of data and analysis in support of CNSC Staff's conclusions throughout the report. Additional information was provided in past versions of the ROR because it was deemed relevant and necessary to the deliberations of the Commission and to allow the public a reasonable opportunity to review oversight activities related to the use of nuclear substances. It would seem that the CNSC has since changed its view on what information should be included in the ROR.

As we noted in response to last year's ROR, 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,[12] CELA once again **recommends** greater detail be provided in the body of the report, 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.

Third, in CELA's submission last year , we noted that the 2020 ROR no longer addressed Class IB Accelerators in Canada, despite this being a section within the 2019 ROR. We noted that this

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[9] CNSC, "Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2018" (September 4, 2019), online: http://nuclearsafety.gc.ca/eng/resources/publications/reports/use-of-nuclear-substances/2018/index.cfm#wb-main, Section 4 [**ROR 2018**].

[10] ROR 2021, Appendix B.5, pp. 30-36.

[11] *See for instance*, Submission by the Canadian Environmental Law Association to the Canadian on the CNSC's Regulator Oversight Report on the Use of Nuclear Substances in Canada: 2019; Submission by the Canadian Environmental Law Association to the Canadian on the CNSC's Regulator Oversight Report on the Use of Nuclear Substances in Canada: 2020.

[12] Nuclear Safety and Control Act, s. 9(b).

lack of consistency makes it difficult for the public to follow and understand the purpose of the ROR, and that it also makes it challenging for the public to know what the trends are and how to compare the data from year to year.

This concern was briefly addressed at last year's Commission meeting. Eric Lemoine, the Director of Transport, Licensing and Strategic Support Division explained the two Class IB accelerators are typically included in the ROR on nuclear substances every two to three years, which is why it was featured in the 2019 ROR but not the 2020 ROR.[13] On this topic, one Commission Member raised the following question: "if there was a notable event related to Class IB, although you don't have a full report on them, would those notable reports be in this report, or would they not be?"[14] Ms. Owen-Whitred explained that any kind of notable event related to the two Class IB facilities would be reported immediately through the Event Initial Report Process, which would be the case for any of the licensees within this ROR, and then the less frequent ROR covering the Class IB facilities would be used "…as a summary to put them all together and present them to the Commission at a later date."[15]

CELA is concerned with the infrequency of reporting on Class IB facilities within the ROR for nuclear substances and the lack of procedure prescribing when Class IB Accelerators are included in the ROR. . CELA **submits** that the ad hoc inclusion of Class 1B Accelerators every two or three years must be remedied. Any notable events should be included within the most recent ROR, even if the Class IB is not a scheduled topic for that year's ROR.

We encourage the CNSC to keep in mind that RORs are a tool utilized by the public and intervenors like CELA to maintain an updated view on the landscape of nuclear substances regulation. CELA **recommends** that "Class IB Accelerators in Canada" be re-introduced to the ROR, to permit scheduled and timely updates If there are no updates on either accelerator facility, it would be sufficient to state in that section there are no updates on these facilities at this time, or that there are no incidents to report. The current ROR has already been pared down to 18 pages (excluding Appendices), so including even a small section on Class IB Accelerators would not be creating a large, unreadable document.

Recommendations

1. 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.

[13] CNCS, Transcript of November 23, 2021 Commission Meeting, p. 13.
[14] Ibid., p. 50.
[15] Ibid., pp. 50-51.

2. Greater detail, including the nature of the regulated sector and its particular use of nuclear substances, should be provided in the body of the report. As nuclear substances do not undergo public licensing hearing processes, the ROR is an opportunity to provide the public with information specific to nuclear substance licensees, and the CNSC's oversight actions and findings.

3. The section on Class IB Accelerators in Canada should be re-introduced to the ROR and updated on an annual basis, especially in instances when a notable event occurred during the calendar year.

B. Compliance Performance

First, 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 (97% satisfactory rate), the operating performance SCA (87% satisfactory rate), the radiation protection SCA (83% satisfactory rate) and the security SCA (91% satisfactory rate). Last year, CELA **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.

At last year's Commission meeting, it was explained that the four SCAs mentioned above were "…selected for ease of communication, as presenting all SCAs would require additional time and every SCA is not necessarily applicable to all licensees, depending on the licensed activity."[16] Additionally, the 2021 ROR states: "CNSC staff acknowledge that all SCAs are important, regardless of whether they're included in the ROR."[17] The ROR also notes that (within the context of packaging and transport subsections): "comparing data for these different subsectors becomes difficult as the activities performed are varied and it would be challenging to present performance data in a meaningful way in the ROR."[18]

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,[19] this link does not elaborate on compliance trends for any SCAs. Therefore, CELA once again **recommends** that the CNSC revisit the inclusion of compliance percentages for all SCAs to provide better insight into the overall performance of licensees.

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[16] CNSC, Transcript of November 23, 2021 Commission Meeting, p. 28.
[17] ROR 2021, p. 7.
[18] ROR 2021, p. 7.
[19] ROR 2021, p. 6, *see hyperlink*: https://nuclearsafety.gc.ca/eng/resources/publications/reports/powerindustry/safety-and-control-areas.cfm#P1

Recommendations

4. 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.

C. Environmental Protection

CELA has previously recommended that the ROR on the Use of Nuclear Substances in Canada should include the Environmental Protection SCA for all sectors, as the ROR only looks at the Environmental Protection SCA within the context of waste nuclear substance licenses ("WNSL"). When Member Lacroix asked about the impacts of adding the Environmental Protection SCA for all sectors during last year's Commission Meeting, Ms. Owen-Whitred explained that, in terms of additional effort required to provide this information within the ROR, the effort "…would be non-zero, if I can put it that way. It would not be extensive, but it would be non-zero."[20] It was also explained that the CNSC does not see the added value of providing this information within the ROR because most licensees are working with either sealed sources or pieces of equipment that do not make any kind of release into the environment.[21] Mark Broeders, the Director of the Accelerators and Class II Facilities Division, further explained at the meeting that:

> RegDoc 2.9.2, *Controlling Releases to the Environment*, describes scenarios whereby some licensees may not require site-specific ERA because we've taken a class approach and done a predetermination for similar licensed activities. As long as they stay within certain parameters, we can conclude that the risk to the environment is negligible, so a site-specific ERA does not provide incremental value in that context.
>
> For example, Ms. Owen-Whitred referenced sealed sources. There are other expectations of licensees that would mitigate that risk, for example, sealed source leak testing. So we know that if the sealed source is intact, the risk to the environment is negligible, so by extension a site-specific ERA would not add much value. So for most licensees, that the case. RegDoc 2.9.2, Appendix A, does outline the scenarios where that's not the case, And if they fall outside those pre-determined parameters in site-specific ERA, it would be required and does add value and is warranted.[22]

CELA disagrees with this discussion suggesting that the there is no added value with including the Environmental Protection SCA for all sectors within the ROR. The examples above note that, as long as there is compliance, risk to the environment is negligible. When compliance is not met, that places the environment at risk, and the public should be able to easily access information about

[20] CNSC, Transcript of November 23, 2021 Commission Meeting, p. 56.
[21] Ibid.
[22] ROR 2021, pp. 57-58.

the adequacy of environmental protection across different sectors. Therefore, discussion of compliance measures by sector would be useful in the ROR. Additionally, if there are exceedances of the parameters set out in RegDoc 2.9.2, then the ROR should have a dedicated section to discuss such events. CELA once again **recommends** that the Environmental Protection SCA be included in the ROR for all sectors.

Rather than fulfilling CELA's repeated recommendations to include environmental protection SCA information for all sectors, the 2021 ROR includes a new section: "3.7 Environmental Protection for Other Nuclear Substance Licensees", which explains why the CNSC has decided to exclude this SCA from the report.[23]

Section 3.7 reiterates that the majority of licensees use sealed sources and therefore reporting on the SCA would not be effective in providing an overall indication of safety performance. The Section also states that licensees must "have programs in place to ensure they meet any release limits imposed upon them and the implementation of its program is verified during inspections and desktop reviews."[24] The ROR does not provide any explanation of the types of programs licensees have in place or what types of release limits are imposed on different sectors. CELA **submits** that if the CNSC is verifying implementation of these programs during inspections, then this provides an opportunity for the ROR to present the degree of compliance with the environmental protection SCA across all sectors. At the very least, the ROR should provide context regarding the sealed sources and other types of equipment mentioned by Ms. Owen-Whitred such that the public can better understand *why* the risk to the environment is considered negligible.

CNSC staff concluded that there is no additional benefit to highlighting performance in the Environmental Protection SCA for all licensees covered in the ROR.[25] CELA **urges** the CNSC to consider this request from the perspective of the general public, which lacks access to data that verifies there is actual environmental compliance. Building trust in the CNSC's ability to regulate nuclear substances requires transparency.

Lacking analysis and the supporting references, CELA still **submits** 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.

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[23] ROR 2021, p. 12.
[24] ROR 2021, p. 13.
[25] Ibid.

Recommendations

5. 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.
6. Conclusions in the ROR specific to various safety and control areas, including that for the Environmental Protection, should be supported by information setting out on what basis the finding is made.

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 2021:

- A holding tank of water from laundry was inadvertently discharged to the sewer;
- Consolidated plant wastewater streams were discharged from a holding tank with the appropriate the appropriate approvals as specified by procedures (the total non-radioactive phosphorus concentration indicated a minor exceedance of 0.75ppm over the limit of 10mg/L).; and
- A licensee was sampling local air and not the air released form the stacks for a period of a few weeks to a month due to equipment failures (an estimated 2GBq/week of tritium was emitted from the stack which is well below the action level).

The CSNC concluded that for these three reported incidents, "all releases were kept well below regulatory limits and there was no impact on the health and safety of persons and the environment."[26] With regards to the improper air sampling incident, Appendix E indicates that this event was reported on March 10, 2021.[27] It is unclear as to when exactly this exceedance happened in relation to the timing of the incident reported. The vague timeline of a few weeks to a month of equipment failures means that anywhere between 4-12 GBq of tritium would have been emitted from this licensee's facility, depending on whether these samples did not occur for 2 weeks, or 6 weeks.[28]

While the emissions were apparently well below the action level, the ROR does not indicate what the action level is set to. It is not stated where this facility is located, and how this release event will impact cumulatively within the local environment. With a lack of detail surrounding this

[26] ROR 2021, pp. 11-12.
[27] ROR 2021, p. 53.
[28] ROR 2021, p. 12: *based on the estimate of 2GBq/week of tritium emissions.*

incident, CELA **requests** that this environmental release be discussed further at the upcoming Commission meeting. For instance, the Commission should consider the following:

i) *Has this facility been the subject of Environmental Protection SCA reported events in the past?*
ii) *When was this facility last inspected, and what was its risk-ranking prior to the incident?*
iii) *What measures are in place to monitor and prevent improper air quality monitoring from re-occurring/occurring at other WNSL facilities?*
iv) *What is the "action level" for tritium emissions?*

Additionally, CELA has concerns about the sufficiency of information provided within the ROR concerning WNSLs. Appendix B.5 within the 2021 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 that "due to the small number of WNSL, specific data related to the environmental protection SCA and the conventional health and safety SCA are not included in this section."[29] CELA **submits** the small number of WNSL licensees 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.

For example, it was reported in the ROR that one WNSL licensee reported improper air sampling due to equipment failures. WNSLs are included in the commercial sector throughout the report (a sector which only accounted for 6% of inspections in 2021[30]), and because there is a very high level overview of WNSLs, it is unclear whether this licensee was inspected recently. There is no data available in the ROR that indicates how WNSL sites are complying with the Environmental Protection. The ROR lacks sufficient information and detail to allow the report to conclude that WNSL licensees made adequate provision to protect the environment, as well as conventional health and safety as required by the *Nuclear Safety and Control Act*. Therefore, CELA **recommends** that the ROR should be updated to include specific data related to the environmental protection SCA and the conventional health and safety SCA. The provision of this information would greatly assist the public in understanding how the environment and health and safety are being safeguarded by the CNSC in the context of waste nuclear substances licences.

Recommendations

7. The reported event at a WNSL site resulting in an improper air sampling incident should be discussed at the upcoming Commission Meeting.

[29] ROR 2021, p. 30.
[30] ROR 2021, p. 4.

8. The ROR should be updated to include specific data related to the environmental protection SCA and the conventional health and safety SCA.

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.

First, the number of total inspections has continued to decrease over the past several years. This year's ROR indicated that there were 583 inspections performed in 2021 (233 in-person, 9 hybrid, and 341 remote).[31] Although this number exceeds the planned number of 495 inspections, and is an increase from 2020, which had a total of 371 inspections,[32] this is still a drastic decrease in inspections compared to previous years:

- 2015: 1,568 inspections
- 2016: 1,452 inspections
- 2017: 944 inspections
- 2018: 949 inspections
- 2019: 863 inspections

While much of the decrease in the number of inspections can be attributed to the COVID-19 pandemic and its associated restrictions, the declining trend is also the result of other factors about which CELA has concerns. At last year's Commission Meeting, Mathieu Laflamme, the Senior Project Officer in the Inspection Division explained that the decline in inspections being performed over the last five years can be attributed to three main factors:

1) Changes in inspector resources and the need for onboarding new inspectors;
2) Increase in inspection practices over the years, such as verification of security requirements that are described in RegDoc 2.12.3; and
3) The transition from performing records-based inspections to performance-based inspections.[33]

Inspections are a critical component of ensuring licensee compliance and CELA is particularly concerned about Mr. Laflamme's comment regarding the lack of necessary inspector resources. There are over 3000 nuclear substance licensee locations across Canada that are subject to CNSC inspection and there needs to be an adequate number of inspectors for these facilities. The ROR states that the CNSC is "… aiming to recruit new inspectors at a level that will compensate for

[31] ROR 2021, p. 4.
[32] ROR 2021, p. 4.
[33] CNSC, Transcript of November 23, 2021 Commission Meeting, pp. 47-49.

natural attrition rates, and to retain the qualified staff already in place."[34] However, Mr. Laflamme noted that it can take up to two years to get an inspector fully up to speed to be able to independently inspect all the different type of licensees.[35] CELA **requests** more information regarding the CNSC's plan for recruiting and training new inspectors to address annual inspection needs. For instance, what is the number of existing inspectors in comparison to the number required? Since it can take years for an inspector to be trained to independently inspect the different types of licensees, has the CNSC considered training inspectors to focus on certain sectors (e.g. could inspectors be trained to inspect the industrial or medical sectors independently since these two sectors make up approximately 79% of all licenses[36])?

CELA also **requests** more information regarding the CNSC's plan to increase the number of on-site inspections as COVID-19 restrictions continue to be lifted. The 2020 ROR provided the following statement:

> […] CNSC staff recognize that conducting a reduced number of annual inspections is not sustainable going forward. There is a potential for licensee performance to decrease if not inspected regularly. In addition, reduced compliance performance information that would typically be gathered during on-site inspections would eventually impact CNSC staff's ability to make risk-informed licensing decisions. As such, staff are currently focused on re-calibrating the CNSC's regulatory oversight of nuclear substances licensees by steadily increasing the number of on-site inspections as vaccination rates rise and the risks from COVID-19 continue to decline.[37]

The 2021 ROR similarly recognized the value of conducting on-site inspections, noting: "while remote inspections are a useful tool, in most cases CNSC staff believe that on-site inspections are the preferred option when possible; as such, we expect the proportion of on-site inspections to increase as COVID restrictions continue to ease."[38] Despite this, only 40% of inspections in 2021 were in-person (2% were hybrid, and 58% were remote)[39] and the ROR does not set out the CNSC's plans to increase the number of on-site inspections, nor does it set out a response plant to ensure future emergencies do not impact the inspection process.

Second, there is conflicting information regarding the relationship between the decline in inspections and licensee compliance. During last year's Commission Meeting, Director Owen-Whitred commented: "…while the number of inspections has gone down year over year, we do not believe that that has had any impact on the effectiveness of our compliance program."[40] However, this year's ROR states that "while the number of annual inspections has increased since 2020, CNSC can see a correlation between the reduced number of inspections due to the pandemic and the compliance results from the past 2 years..."[41] CELA **requests** clarity on this issue and also

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[34] ROR 2021, p. 5.
[35] Ibid, p.47.
[36] ROR 2021, p. 4.
[37] ROR 2020, p. 7.
[38] ROR 2021, p. 4.
[39] ROR 2021, p. 4.
[40] CNSC, Transcript of November 23, 2021 Commission Meeting, p. 49.
[41] ROR 2021, p. 4.

requests that more information be provided on the CNSC's plan to increase the number of on-site inspections and deal with potential reduced compliance performance issues.

Third, the ROR does not disclose the inspection process or methodology which details why and how inspections occurred. For example, it is unclear how frequently whistleblower instances and events factor into the inspections of different licensees. CELA **recommends** that the ROR provide the number (and percentage) of inspections that arose from whistleblower instances and events as opposed to being routine. CELA also continues to **recommend** that information should be provided regarding whether or not the outcomes of inspections differ when the inspection is announced or unannounced. At the very least, the CNSC should begin tracking this characteristic of its inspections in the ROR.

Fourth, when reviewing the Management SCA and Radiation Protection SCA information within last year's ROR, one Commission member concluded that "nuclear medicine is good at managing but poor at radiation protection, and it's the other way around for radiation therapy"[42] In this year's ROR, Appendix B.5 provides data on inspection ratings, by sector. Figure 1 provides a comparison of the performance of these two subsectors during inspections for the management system SCA and radiation protection SCA in 2020 and 2021. Despite there being a general increase in inspections, the satisfactory compliance rate has not improved that much for either sector.

Figure 1: Comparing 2020 and 2021 SCA satisfactory compliance for nuclear medicine and radiation therapy

SCA	Nuclear Medicine	Radiation Therapy
Management System[43]	2020: 94 % (47 inspections) 2021: 99% (89 inspections)	2020: 0% (1 inspection) 2021: 70% (10 inspections)
Radiation Protection[44]	2020: 73% (155 inspections) 2021: 75% (119 inspections)	2020: 100% (2 inspections) 2021: 100% (20 inspections)

In the overall analysis of 2021 compliance results, the 2021 ROR touches upon the poor performance of these sectors:

> While not showing a particular decline this past year, the 2021 performance results in certain SCAs for some sectors continued a trend of slightly poorer performance over the last five years. In particular, this applies to the radiation protection SCA in the medical sector and the operating performance SCA in the fixed gauge sub-sector. Although the majority of licensees consistently achieve satisfactory ratings in these SCAs, CNSC staff have developed and implemented various strategies in recent years with the goal of promoting increased compliance among these licensees. While we acknowledge that more work needs to be done in these sectors, our current focus on regaining the baseline inspection frequency means we are not actively developing new regulatory responses at present. Until that baseline has been regained, CNSC staff will continue to closely monitor compliance indicators in these areas and will maintain the capacity to address any serious concerns in an expedited manner.[45]

[42] CNSC, Transcript of November 23, 2021 Commission Meeting, p. 84.
[43] ROR 2021, p. 30, Table 4.
[44] ROR 2021, p. 31, Table 6.
[45] ROR 2021, p. 8, *emphasis added.*

CELA **recommends** the ROR provide more information about the types of strategies the CNSC has developed and implemented to increase compliance with these SCAs. Additionally, CELA **requests** the CNSC provide a timeline for restoring the baseline inspection frequency, as well as stating what the baseline is.

Recommendations

9. More information should be provided surrounding inspector recruitment, including the target for recruitment numbers and focal points for inspection shortfalls—either regionally or on a sector-by-sector basis.

10. There needs to be an assessment of how compliance can be improved, whether that is through more frequent reporting from licensees, or harsher enforcement mechanisms.

11. The ROR should provide the number (and percentage) of inspections that arose from whistleblower instances and events.

12. Information should be provided regarding whether or not the outcomes of inspections differ when the inspection is announced or unannounced. At the very least, the CNSC should begin tracking this characteristic of its inspections in the ROR.

13. Information should be provided regarding the CNSC's plan to increase the number of on-site inspections and deal with potential reduced compliance performance issues as a result of the COVID-19 pandemic.

14. The ROR set out the types of strategies that the CNSC has developed and implemented to increase compliance with SCAs.

15. The CNSC should provide a timeline for restoring the baseline inspection frequency, as well as define the baseline inspection frequency.

F. International Obligations

In previous years, CELA has **recommended** that the ROR should directly reference the international standards and regulatory basis (e.g., regulation or REGDOC) which support the ROR's conclusion that licensees adequately implemented Canada's international obligations and provide information about how CNSC Staff sought to review compliance with said obligations. During last year's Commission Meeting, Ms. Owen-Whitred addressed this recommendation as follows:

> …in the case in this sector, there are a number of obligations that would span those three categories. As one specific example, we have committed to the International Atomic Energy Agency's Code of Conduct with respect to sealed sources, the management of sealed sources, both with respect to the safety of those sources as well as ensuring that they're not diverted for non-peaceful uses. So that's the nature of the obligations that we talk about, that wide variety.
>
> We don't, you know, go through them systematically in this Regulatory Oversight Report to kind of report on them one by one. We just offer that higher-level conclusion that all appropriate obligations have been met.[46]

This year's ROR re-introduced a section describing how the CNSC fulfils its international commitments for the sectors covered in the report. CELA appreciates that section 8.0 "International Obligations and Commitments" has been re-introduced, as the ROR should be transparent about the international obligations that Canada must meet within the nuclear sector.

Section 8 of the ROR briefly explains some of the International Atomic Energy Agency ("IAEA") codes, standards and guidance documents that Canada has committed to implementing, namely:

- IAEA Code of Conduct for the Safety and Security of Radioactive Sources
- IAEA Regulations for the Safe Transport of Radioactive Material
- United Nations' Treaty on the Non-Proliferation of Nuclear Weapons[47]

Having this overview is helpful to see how the REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy* and REGDOC-2.13.2, *Import and Export*, are influenced by international standards and guidelines. However, it is unclear as to whether this is the extent of international codes, standards, and guidance documents that Canada must meet within the nuclear sector. The language within this section suggests that these are just a sample of international commitments:

> Canada has committed to the implementation of various International Atomic Energy Agency ("IAEA") codes, standards and guidance documents. For example, as part of Canada's commitment to the IAEA Code of Conduct for the Safety and Security of Radioactive Sources, nuclear substance licensees with Category 1 and/or 2 (high-risk) sealed sources must inform the CNSC of any transfer, receipt, export or import of sealed sources.[48]

CELA **submits** that the ROR would benefit from providing a thorough list of all international obligations that impact the licensees covered in the Report.

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[46] CNSC, Transcript of November 23, 2021 Commission Meeting, pp 72-73.
[47] ROR 2021, p. 17.
[48] ROR 2021, p. 17, *emphasis added.*

Despite these new inclusions, the ROR lacks information about follow-up actions and compliance with international obligations. The ROR notes 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. While the report provides that the results of the inspections were satisfactory, it also notes that the IAEA "…identified follow-up actions for the licensees and/or the CNSC. The CNSC is coordinating the resolution of these items with the licensees."[49] The ROR does not explain what these follow-up actions are, nor what type of licensees were flagged for follow-up actions. To provide transparency regarding compliance with international obligations, CELA **recommends** that the CNSC highlight the types of follow-up actions, and how these actions are being resolved.

Recommendations

16. The ROR should reference all relevant international standards that apply to the licensees covered in this Report.

17. The CNSC should highlight the types of follow-up actions identified by the IAEA, and how the CNSC intends to resolve these 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"). This year's ROR provides that there were 7 reported doses to non-NEWs that were greater than the regulatory limit of 1 mSv/year.[50]

In one case, the dose was non-personal and likely resulted from improper storage of a dosimeter. This was a seasonal worker who received a dose of 3.82 mSv. The worker resigned during the time the licensee began the process for the a dose change request. In another case, a worker in the academic and research sector received a dose of 1.3 mSv as a result of the worker failing to follow established safe work practices. In this case, the licensee implemented corrective actions to prevent recurrence. Five of the reported cases involved two licensees who did not correctly identify workers likely to exceed the regulatory limit. Because these employees should have been acknowledged as NEWs, the CNSC considered these incidents to be administrative non-compliance. All 5 workers left their employment before they could be acknowledged as NEWs.[51]

The ROR provides a description of each of these events but does not include any details about actions or steps taken to deal with these exposures and prevent similar events in the future,

[49] ROR 2021, p. 17.
[50] ROR 2021, p. 13.
[51] ROR 2021, p. 14.

especially with regard to the licensees found to be administratively non-compliant. CELA **recommends** including a detailed discussion of the actions taken to deal with these incidents and the steps which will be taken to lessen exposures in subsequent years. CELA also **recommends** that information be provided about the potential long-term health risks and ways in which ongoing medical review will be provided to these non-NEWs.

Appendix D notes that one NEW working in the portable gauge sector was reported to have received a dose of 22.3 mSv, which was unexpected based on the work performed. It was determined that the worker was storing his dosimeter on top of the portable gauge when not in use. The worker now works in a different position, where a portable gauge is not used.[52] CELA **recommends** that the CNSC engages with licensees using portable gauges to ensure that proper health and safety procedures are understood and followed before allowing a worker to have access to portable gauges.

Recommendations

18. The ROR should include a detailed discussion of the actions taken to deal with the 3 exposure incidents involving non-NEWS in 2020 and the steps which will be taken to lessen exposures in subsequent years.

19. Information should be provided about the potential long-term health risks of the exposure incidents involving non-NEWS and ways in which ongoing medical review will be provided.

20. The CNSC should engage with licensees using portable gauges to ensure that proper health and safety procedures are understood and followed before allowing a worker to have access to portable gauges.

H. Reportable Events

The 2021 ROR provides that 171 reportable events occurred in 2021. According to the International Nuclear and Radiological Event Scale ("INES"), it was determined that 165 of the events were rated as INES level 0 (no safety significance) and 6 were rated as INES level 1 (anomaly).[53] 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.[54]

[52] ROR 2021, p. 43.
[53] ROR 2021, p. 14.
[54] International Atomic Energy Agency, "IAEA International Nuclear and Radiation Events Scale (INES)", brochure, online: https://www.iaea.org/sites/default/files/ines.pdf, p. 4.

Of the INES level 1 events, five involved the theft of portable gauges and one involved the loss of a fixed gauge. Only two of the stolen gauges were recovered and returned, while the other three have not been recovered. The fixed gauge is still lost.[55] According to Appendix E, "for all of the events reported, licensees implemented appropriate response measures to mitigate the impacts and to limit radiation exposure to workers and the public. CNSC staff reviewed the response measures and found them to be satisfactory."[56] This level of detail is insufficient because it does not provide the public with any information about the response measures taken and how they will mitigate the impacts of the events. Especially with regard to the 6 "Anomaly" events, where only 2 of six stolen/missing gauges were recovered. CELA **recommends** briefly mentioning corrective and remedial actions taken.

Appendix E: Reportable Events states: "Notifications that are not considered as reportable events include events such as action level exceedances, fishing operations (well-logging) and a flood where no nuclear substances or prescribed equipment were affected."[57] There is no explanation provided for excluding these events as "reportable events". CELA **requests** that an explanation be provided for excluding action level exceedances, fishing operations (well-logging) and a flood where no nuclear substances or prescribed equipment from being considered as reportable events.

Recommendations

21. Corrective and remedial actions taken to address reportable events should be described in the ROR.

22. An explanation should be provided for excluding action level exceedances, fishing operations (well-logging) and a flood where no nuclear substances or prescribed equipment from being considered as reportable events.

I. Update on Mississauga Metal & Alloys, Inc.

During last year's Commission Meeting, Mississauga Metals & Alloys, Inc ("MMA") was a topic of discussion. This licensee, which is a waste nuclear substance licensee, declared bankruptcy in 2021. At the time of the meeting, discussions with the secretariat were initiated to establish the hearing timeline for the commission to consider the revocation of the MMA's licence under the *Nuclear Safety and Control Act*.[58] According to the 2021 ROR, the waste nuclear substance license expired on February 28, 2022 and has not been renewed.[59]

[55] ROR 2021, pp. 14-15.
[56] ROR 2021, p. 49.
[57] ROR 2021, p. 49.
[58] CNSC, Transcript of November 23, 2021, p. 11.
[59] ROR 2021, p. 16.

Andrew McAllister, the Director of Nuclear Processing Facilities Division, also noted at the Commission meeting that the CNSC was looking at the next steps to safely characterize the material onsite and then ultimately remove it.[60] The 2021 ROR provides an overview of the CNSC Staff's main activities related to this file:

- Ensuring that the site remains safe and secure and evolving their approaches to this as site conditions have changed;
- Pursuing the provision of a contract to a third party expert to undertake the detailed characterization of the waste; and
- Working with other interested parties (e.g., bankruptcy trustee, key creditors, other levels of government) to find a solution related to the authority to undertake the needed work on the site (e.g., characterization, disposition).[61]

CELA **requests** that an update on this file be provided at the upcoming meeting, particularly with regard to characterizing the material onsite and its removal.

Recommendations

23. The CNSC should provide an update on this file at the upcoming meeting, particularly with regard to characterizing the material onsite and its removal.

J. Public and Stakeholder Engagement

According to the 2021 ROR, "the CNSC performs stakeholder engagement and outreach activities to facilitate communication on licensed activities and regulatory expectations between the CNSC and the nuclear substance licensees and other stakeholders. To date, Indigenous Nations and communities have not expressed a specific interest in this ROR and the licensed activities covered by this ROR."[62] Within the ROR, Appendix G provides a complete list of outreach activities for 2021. According to this list, the CNSC had 30 stakeholder engagement activities during 2021. Of these activities, only 4 events involved First Nations, Metis, or general public communities:

- A virtual meeting in February with the Metis Nation of Ontario regarding the transport of radioactive materials;
- A public virtual meeting in March 2021, as participation as a judge at the Ottawa Regional Science Fair;
- A virtual meeting in May 2021 with the Saugeen Ojibway Nation regarding the transport of radioactive materials;

[60] CNSC, Transcript of November 23, 2021, p. 86.
[61] ROR 2021, p. 16.
[62] ROR 2021, p, 16.

- A virtual meeting (1 in English, 1 in French) with members of the public in October 2021 regarding the transport of radioactive materials.[63]

CELA **submits** that the RORs provide a key opportunity for public engagement related to oversight of the use of nuclear substances in Canada and **requests** that community engagement be a topic at the upcoming meeting. For example, is there a plan to increase in-person engagement with Indigenous Nations and other communities as COVID-19 restrictions continue to be lifted? Has the CNSC considered why Indigenous Nations and other communities have not expressed specific interest in this ROR, and has there been an assessment of the CNSC's efforts to engage the public on topics that are included in this ROR?

The lack of formal outreach activities being conducted for WNSLs on the grounds that they are a small subsector is particularly concerning.[64] CELA **submits** that nuclear waste is a topic is 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.[65] CELA **recommends** that the CNSC should reconsider expanding providing formal outreach activities for WNSLs, especially considering that there is a WNSL that has recently gone bankrupt and is now the responsibility of the CNSC.

Recommendations

24. Community engagement should be a topic at the upcoming meeting.

25. The CNSC should reconsider expanding providing formal outreach activities for WNSLs.

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: 2021*.

Sincerely,
CANADIAN ENVIRONMENTAL LAW ASSOCIATION

Sara Libman

Sara Libman, Legal Counsel

[63] ROR 2021, pp. 88-91.
[64] ROR 2021, p. 91.
[65] *See for instance:* https://cela.ca/?s=nuclear+waste

Appendix 1
Summary of Recommendations

1. CELA remains of the view that ROR meetings are not a replacement for relicensing hearings and the CNSC must remedy the discrepancy in participation rights among public intervenors and licensees by providing oral presentation opportunities.

2. Greater detail, including the nature of the regulated sector and its particular use of nuclear substances, should be provided in the body of the report. As nuclear substances do not undergo public licensing hearing processes, the ROR is an opportunity to provide the public with information specific to nuclear substance licensees, and the CNSC's oversight actions and findings.

3. The section on Class IB Accelerators in Canada should be re-introduced to the ROR and updated on an annual basis, especially in instances when a notable event occurred during the calendar year.

4. 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.

5. 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.

6. Conclusions in the ROR specific to various safety and control areas, including that for the Environmental Protection, should be supported by information setting out on what basis the finding is made.

7. The reported event at a WNSL site resulting in an improper air sampling incident should be discussed at the upcoming Commission Meeting.

8. The ROR should be updated to include specific data related to the environmental protection SCA and the conventional health and safety SCA.

9. More information should be provided surrounding inspector recruitment, including the target for recruitment numbers, and focal points for inspection shortfalls—either regionally or on a sector-by-sector basis.

10. There needs to be an assessment of how compliance can be improved, whether that is through more frequent reporting from licensees, or harsher enforcement mechanisms.

11. The ROR should provide the number (and percentage) of inspections that arose from whistleblower instances and events.

12. Information should be provided regarding whether or not the outcomes of inspections differ when the inspection is announced or unannounced. At the very least, the CNSC should begin tracking this characteristic of its inspections in the ROR.

13. Information should be provided regarding the CNSC's plan to increase the number of on-site inspections and deal with potential reduced compliance performance issues as a result of the COVID-19 pandemic.

14. The ROR set out the types of strategies that the CNSC has developed and implemented to increase compliance with SCAs.

15. The CNSC should provide a timeline for restoring the baseline inspection frequency, as well as define the baseline inspection frequency.

16. The ROR should reference all relevant international standards that apply to the licensees covered in this Report.

17. The CNSC should highlight the types of follow-up actions identified by the IAEA, and how the CNSC intends to resolve these action items.

18. The ROR should include a detailed discussion of the actions taken to deal with the 3 exposure incidents involving non-NEWS in 2020 and the steps which will be taken to lessen exposures in subsequent years.

19. Information should be provided about the potential long-term health risks of the exposure incidents involving non-NEWS and ways in which ongoing medical review will be provided.

20. The CNSC should engage with licensees using portable gauges to ensure that proper health and safety procedures are understood and followed before allowing a worker to have access to portable gauges.

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22. An explanation should be provided for excluding action level exceedances, fishing operations (well-logging) and a flood where no nuclear substances or prescribed equipment from being considered as reportable events.

23. The CNSC should provide an update on this file at the upcoming meeting, particularly with regard to an update characterizing the material onsite and its removal.

24. Community engagement should be a topic at the upcoming meeting.

25. The CNSC should reconsider expanding providing formal outreach activities for WNSLs.