



**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: 2019 and Class IB
accelerators in Canada: 2018-2019**

**Rapport de surveillance
réglementaire sur l'utilisation
des substances nucléaires au
Canada : 2018 et les accélérateurs
de catégorie IB au Canada : 2018 et
2019**

Commission Meeting

Réunion de la Commission

November 5, 2020

Le 5 novembre 2020



**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: 2019 AND CLASS 1B ACCELERATORS**

October 13, 2020

**Prepared by:
Kerrie Blaise, Legal Counsel**

I. INTRODUCTION

This intervention is filed in response to the Canadian Nuclear Safety Commission's ("CNSC") notice of meeting dated September 1, 2020¹ concerning the presentation of the two-part regulatory oversight report titled "*Part I, Use of Nuclear Substances in Canada: 2019, and Part II, Class 1B Accelerators in Canada: 2018 and 2019*" (herein "ROR").² A virtual meeting with respect to this matter is scheduled for November 5, 2020.

CELA received participant funding to review the 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

CELA is a non-profit, public interest law organization. For nearly 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

¹ CNSC, Revised Notice of Participation at a Commission Meeting (Ref. 2020-M-02) 1 September 2020.

² CNSC, Directorate of Nuclear Substance Regulation Regulatory Oversight Reports: Part I: Use of Nuclear Substances in Canada: 2019 and Part II: Class 1B Accelerators in Canada: 2018-2019 (CMD 20-M23) 1 September 2020 [**ROR 2019**]

Aid Ontario as a specialty legal clinic, to provide equitable access to justice to those otherwise unable to afford representation.

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.³

II. COMMENTS ON PART 1 – NUCLEAR SUBSTANCES

CELA's comments on Part 1 of the ROR for nuclear substances reviews 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 the Commission should require CNSC Staff to remedy the deficiencies, outlined below, and draft an addendum to the current ROR.

i. Depth and Scope of Review

CELA has reviewed the ROR in detail and finds it is significantly more brief than prior ROR's on the same topic. Excluding appendices, the nuclear substance ROR in the past four years has had the following lengths:

- 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 last year's ROR. For instance, while each sector (ie. medical, industrial, academic and research, and commercial) were formerly described in the body of the report,⁴ this year's report omits this context and only provides tables tracking inspection ratings by sector.⁵

In furtherance of the CNSC's mandate to disseminate objective scientific, technical and regulatory information to the public, CELA **recommends** greater detail including the nature of

³ Canadian Environmental Law Association, online: cela.ca

⁴ CNSC, "Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2018" (4 September 2019) p 18 – 21, [**ROR 2018**]

⁵ ROR 2019, Appendix B, p 25 - 31

the regulated sector and its particular use of nuclear substances be described in the body of the report. 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.

RECOMMENDATION NO. 1: Greater detail, including the nature of the regulated sector and its particular use of nuclear substances, should be described 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.

ii. Environmental Protection

The nuclear substance ROR makes the following general conclusion about the Environmental Protection Safety and Control Area (SCA):

The evaluations of findings for the SCAs covered in Part I show that, overall, licensees made acceptable provision to protect health, safety, security, and the environment from the use of nuclear substances and prescribed equipment.⁶

Unfortunately, the ROR does not build on this conclusion and contains little to no discussion of licensee measures taken to protect the environment. In other words, the ROR omits any discussion or data to support the above noted conclusion. Lacking analysis and the supporting references, CELA submits the ROR does not contain sufficient information allowing the ROR 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.

RECOMMENDATION NO. 2: 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.

iii. Inspections and Compliance

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

⁶ ROR 2019, p 2 and 10

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 four years. Accordingly, in 2015 a total of 1,568 inspections were carried out. In 2016 the number of inspections decreased to 1,452. In 2017 this dropped further to 944 inspections, while 2018 saw a slight increase up to 949 inspections.⁷ As reviewed in this year's ROR, in 2019 a total of 863 inspections occurred.⁸ CELA **requests** CNSC Staff provide an explanation for this decrease at the ROR meeting. Further, we **recommend** subsequent ROR's provide greater trend analysis and reporting of inspections spanning a 5-year timeframe.

Second, the ROR does not disclose the inspection process or methodology which details how inspections occurred. CELA **recommends** that at a minimum, the ROR set out the objectives and scope of inspection criteria, and detail methods used to track and report compliance of nuclear substance licensees. Relatedly, less than half of all nuclear substance licences were inspected.⁹ Thus, the SCA compliance ratings are based on the number of licensees inspected and not *all* licensees. It is a critical the ROR contain a transparent and well documented methodology so that compliance ratings, which are based on some not all licensees, is an accurate reflection of compliance within the four nuclear substance sectors.

Third, as submitted for last year's nuclear substance ROR meeting, CELA requested information pertaining to the allocation of CNSC inspection resources. In response, CNSC staff indicated at the ROR meeting that their tracking data does not "distinguish whether the findings came from an announced or unannounced inspection."¹⁰ While CNSC Staff set out the differences between announced and unannounced inspections and the varying levels of compliance which could be anticipated (with unannounced inspections resulting in greater findings of minor non-compliances compared to those which were announced), we **request** the Commission confirm if CNSC Staff have commenced tracking this characteristic of its inspections.

Fourth, last year the ROR noted that due to an inspection focus on high-risk licensees, attention had turned away from medium-risk licensees. Accordingly, last year's ROR committed that in 2019 "the inspection focus is turning to medium risk licensees that have not been inspected within the desired frequency."¹¹ Similarly, the meeting minutes from last year's ROR state that it was "CNSC staff's view that the medium-risk licensees needed additional regulatory attention.

⁷ ROR 2018 p 17, 47

⁸ ROR 2019, p 2

⁹ There is a total of 2,090 licences and 863 inspections occurred, ROR 2019, p 2

¹⁰ CNSC, Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on November 6–7, 2019, para 101 [Meeting Minutes]

¹¹ ROR 2018, p 31

CNSC staff added that moving some resources to the medium-risk sectors did not mean that CNSC staff would ignore the high-risk licensees.”¹² What remains unclear from the data presented in this year’s ROR is:

- What percentage of total licensees inspected are medium risk
- How the total number of medium risk licence inspections compares to the total number inspected last year

CELA **submits** that answering these two questions is critical, not only to track CNSC Staff’s commitment to increase medium risk inspections, but to ensure the validity of the ROR’s report that declines in some SCAs (ie. operating performance and radiation protection) “may be due to prioritizing medium risk licensees that were overdue for inspection.”

RECOMMENDATION NO. 3: RORs should provide greater trend analysis, such as reporting of inspections spanning a 5-year timeframe, to better explain decreases in inspection levels since 2015.

RECOMMENDATION NO. 4: To add credibility to the conclusions reached in the ROR, the report should set out the objectives and scope of inspection criteria, and methods used by CNCS Staff to track and report compliance of nuclear substance licensees.

iv. Complexity among Licensees

CELA requests CNSC Staff provide an update on a matter committed to review in last year’s ROR which does not appear in this year’s ROR text. Specifically, CNSC Staff in last year’s ROR noted:

In the fiscal year 2019–20, CNSC staff are reviewing the regulatory oversight strategies for larger or more complex nuclear substance and radiation device licensees to assess if the regulatory oversight tools used in its current regulatory approach are effective for these types of licensees.¹³

CELA **requests** that CNSC Staff provide an update on this review, disclose the rationale for reform, and include this update as an addendum to this year’s ROR. We also **recommend** that for matters where CNSC Staff have committed to undertake a review or reform for the coming year, it be made a required component of the subsequent year’s ROR.

¹² Meeting Minutes, para 102

¹³ ROR 2018, p 10

RECOMMENDATION NO. 5: For matters where CNSC Staff have committed to undertake a review or reform in the coming year, updates of the project's status should be a required component of the subsequent year's ROR.

v. *International Obligations*

Part 1 of the ROR includes the following general conclusion in relation to compliance with international obligations, noting:

The evaluations of findings for the SCAs covered in Part I show that, overall, licensees made acceptable provision to protect health, safety, security, and the environment from the use of nuclear substances and prescribed equipment, and took the measures required to implement Canada's international obligations (emphasis added).

A similar general statement was included in last year's ROR report and CELA **requested** the ROR reference the key international standards as well as obligations guiding licensing requirements and discuss how this is communicated to licensees. This remains an outstanding issue despite it being raised at last year's ROR meeting.¹⁴ CELA submits that general statements in the ROR, which are neither substantiated nor given greater context are not helpful in accomplishing the aims of the ROR, which should be to publicly report on compliance in a discernible way.

RECOMMENDATION NO. 6: The ROR should directly reference the international standards and regulatory basis (ie. regulation or REGDOC) which supports the ROR's conclusion that licensees adequately implemented Canada's international obligations. The ROR should also set out how CNSC Staff sought to review compliance of said obligations.

vi. *Radiation Exposure to Workers*

CELA has reviewed the sector-by-sector comparison of annual effective doses to Nuclear Energy Workers (NEWs). Notably, this year's ROR at Figure 11 now includes a column setting out doses equal to or less than 0.5 mSv.¹⁵ CELA **recommends** the change for this presentation of data be explained at the upcoming ROR meeting. For instance, were doses of this threshold always reported but not displayed in previous RORs? Or was a new requirement for reporting of this dose required by licensees? As drafted, the ROR remains unclear.

¹⁴ CNSC, Transcript – Public meeting November 7, 2019, online: <https://nuclearsafety.gc.ca/eng/the-commission/pdf/2019-11-07-Meeting-Final-e.pdf>, p 76

¹⁵ See ROR 2019, Figure 11, p 37 and ROR 2018, Figure 10, p 27

Furthermore, in reviewing the ROR's sector-by sector comparison of annual effective doses to all NEWs, we note some significant departures. These include:

- In 2019, 2,073 NEWs in the Industrial sector received effective doses of > 1 and ≤ 5 mSv. In 2018, it was 778.
- In 2019, 2,581 NEWs in the Industrial sector received effective doses of > 0.5 and ≤ 1 mSv. In 2018, it was 7,123.

The ROR contains a very limited explanation for these significant numerical differences between 2018 and 2019, noting that in the area of radiation protection, "the focus was on licensees that had not been inspected in the last five years, licensees with a poor compliance history and new licensees that had not been inspected." We **recommend** further information be provided at the upcoming ROR meeting as currently, there is no explanation specific to increases observed for NEWs effective dose.

RECOMMENDATION NO. 7: The new column displayed in Figure 11 should be explained at the upcoming ROR meeting. Specifically, why this additional column has been added, its purpose and whether it will continue in subsequent RORs.

RECOMMENDATION NO. 8: Explanation should be provided describing the significant changes to effective doses received to Industrial sector NEWs from 2018 to 2019.

III. COMMENTS ON PART 2 – CLASS 1B ACCELERATORS

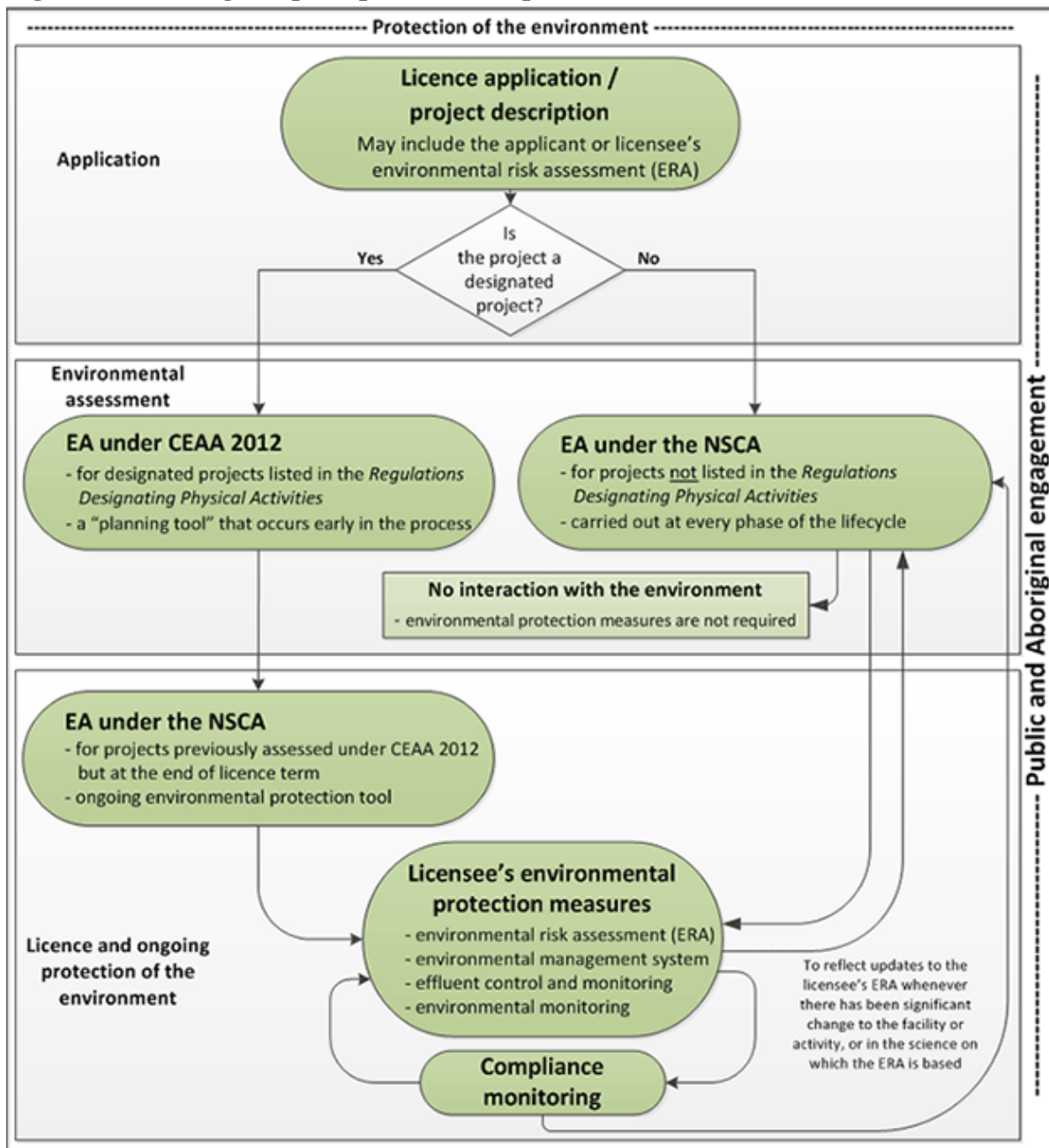
CELA's comments on Part 2 of the ROR for Class 1B accelerators is specific to the SCA of environmental protection. CELA finds that Part 2 of the ROR altogether lacks discussion of measures taken to protect the environment and omits any discussion or data related to the Environmental Protection SCA, which should have accompanied the compliance rating of each Class IB licensee. For the reasons detailed below, CELA requests this omission be remedied by the information being included at the upcoming ROR meeting and an addendum being draft to accompany the current ROR.

i. Compliance with REGDOC 2.9.1 Environmental Protection

The CNSC's environmental protection framework set out in REGDOC-2.9.1, details compliance monitoring as part of the CNSC's ongoing strategy to the protect the environment. As Figure 1 of REGDOC 2.9.1 displays (copied below), public engagement – displayed on the Y axis - and the protection of the environment – displayed on the X axis - are standard metrics regardless of

stage (ie. application, environmental assessment, licensing).¹⁶ Per REGDOC-2.9.1, CELA submits that this ROR would have been an ideal opportunity for CNSC Staff to reflect on licensees' Environmental Risk Assessments (ERA), compliance with licence conditions pertaining to environmental protection and whether there had been any changes made to the facility or activity upon which the licensees ERA is based.

Figure 1: Ensuring adequate provision for protection of the environment



¹⁶ Canadian Nuclear Safety Commission, REGDOC-2.9.1 *Environmental Protection: Environmental Principles, Assessment and Protection Measures*

Furthermore, CELA submits the fulfillment of the CNSC's commitment to publicly engage on environmental protection, as set out in REGDOC-2.9.1, cannot be met by way of the proponent's public information and disclosure obligation. While the ROR states that Class 1B accelerators have a responsibility to inform the public about their nuclear facilities and "ensure that timely information about the health, safety and security of persons and the environment and other issues associated with the nuclear facility are effectively communicated," (emphasis added) the sharing of information does not meet the threshold for engagement committed to in REGDOC-2.9.1.

Public participation is a recognized means of improving the quality and implementation of decisions as well as the accountability and transparency of the decision-maker.¹⁷ The Commission, by way of its ROR process, could enable public opportunities to participate by including sections designated to the review of licensees' environmental protection compliance.

Absent data and findings which examine the overall environmental impact of licensees in support of their compliance ranking (ie. Full Satisfactory, Satisfactory, etc.) the intent of REGDOC-2.9.1 and the engagement it contemplates specific to environmental protection cannot be fulfilled. CELA **recommends** this matter be discussed at the upcoming ROR meeting and the ROR updated by way of addendum, to set out how the environmental protection threshold per REGDOC-2.9.1 is fulfilled.

RECOMMENDATION NO. 9: The Commission should discuss how the ROR process meets the "public engagement" requirement set out in REGDOC-2.9.1. As drafted, the ROR does not contain a critical review or discussion of licensee environmental protection actions. Thus, without data or findings supporting how conclusions in the ROR specific to environment protection are reached, the public's ability to engage with such matters is limited.

ii. Decommissioning Planning

CELA **recommends** that decommissioning planning become a mandatory component of all future ROR reporting. Currently, the ROR does not contain any reference to decommissioning. The inclusion of decommissioning matters for Class 1B accelerators would directly further the objects of the Commission pursuant to section 9 of the *Nuclear Safety and Control Act*, specifically its role in preventing unreasonable risk to the environment and human health and achieving conformity with international obligations.¹⁸

Like all nuclear facilities, decommissioning is the inevitable end for an accelerator lifecycle. However, as the International Atomic Energy Association (IAEA) cautions, it has only been

¹⁷ Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Aarhus, Denmark, 25 June 1998

¹⁸ NSCA, s 9(a)(i) and (iii)

more recently that attention has been focused on the generation of radioactive waste and the radiological hazards associated with decommissioning. This realization also occurred at a time when “thousands of accelerators around the world were already in operation.”¹⁹

This gap caused by a historical oversight of decommissioning considerations, is compounded by the unique decommissioning challenges accelerators pose. As the IAEA summarizes, the decommissioning of accelerators is a challenge for reasons including²⁰:

- a) The range of residual activation is highly variable (residual activation is minor in some accelerators, and close to or below clearance criteria). In addition, the activation distribution varies considerably within a given facility, with the likely presence of hot spots.
- b) National or internationally recommended clearance criteria are very low, so measuring or evaluating residual activation can be a serious challenge.
- c) Clearance criteria vary from State to State, and the characterization procedures applied in one State may not be relevant in another in which there is no provision for generic clearance, such as in France (see Section I-5 on CERN decommissioning).
- d) End-of-life radiological characteristics vary substantially, depending on operational history, ad hoc specifications and modifications, and the presence of unusual radioisotopes. Such variability limits the application of generic decommissioning plans.

The IAEA ultimately recommends that “we need to pursue the decommissioning of accelerators like we do their installation and operation.”²¹ Therefore, the ROR should not focus on the narrow ‘operation of’ accelerators but rather include its purview, end of life cycle considerations.

CELA **recommends** that as a required component of RORs, the range of technically complex and challenging decommissioning actions which are specific to accelerators be considered. As the ROR canvases topics which are of relevance to all licensees of a certain class or type, the ROR discussion is particularly fitting. As the end goal of decommissioning is the elimination of the need for measures and oversight in order to protect the public and the environment from radiation,²² this recommendation would further advance CELA’s recommendations above specific to environmental protection considerations in the ROR.

Furthermore, CELA **recommends** the ROR be used as an opportunity to review decommissioning in the public domain. In preparing this submission, CELA did request the preliminary decommissioning plan from TRIUMF (one of two Class 1B accelerators reviewed in

¹⁹ IAEA, Decommissioning of Particle Accelerators (No. NW-T-2.9), p 2

²⁰ *Ibid*, p 7

²¹ *Ibid*

²² IAEA, Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities (SSG-47), s 2.6

the ROR), but was denied access to this document.²³ In light of this denial, it is even more critical that the Commission – in exercising its jurisdiction as Canada’s nuclear safety regulator tasked with disseminating information with the public – use the ROR to discuss matters which are difficult for members of the public to independently review or verify.

RECOMMENDATION NO. 10: With the aim of remedying historical oversights, the review of licensees’ decommissioning plans should be a required component of RORs. As RORs canvas topics which are of relevance to all licensees of a certain class or type, a discussion of the technically complex and challenging decommissioning actions specific to accelerators would be appropriate to review.

RECOMMENDATION NO. 11: The ROR should be used as an opportunity to review decommissioning matters as plans are otherwise not accessible nor in the public domain.

IV. CONCLUSION

We respectfully provide these comments to the Commission to assist in its review of the two-part 2019 Regulatory Oversight Report review of nuclear substances and Class 1B accelerators in Canada.

Sincerely,

CANADIAN ENVIRONMENTAL LAW ASSOCIATION



Kerrie Blaise, Legal Counsel

²³ Personal correspondence, Email from CNSC Staff to K. Blaise dated Oct 13, 2020

APPENDIX 1 SUMMARY OF RECOMMENDATIONS

Part 1 – Nuclear Substances

RECOMMENDATION NO. 1: Greater detail, including the nature of the regulated sector and its particular use of nuclear substances, should be described 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.

RECOMMENDATION NO. 2: 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.

RECOMMENDATION NO. 3: RORs should provide greater trend analysis, such as reporting of inspections spanning a 5-year timeframe, to better explain decreases in inspection levels since 2015.

RECOMMENDATION NO. 4: To add credibility to the conclusions reached in the ROR, the report should set out the objectives and scope of inspection criteria, and methods used by CNSC Staff to track and report compliance of nuclear substance licensees.

RECOMMENDATION NO. 5: For matters where CNSC Staff have committed to undertake a review or reform in the coming year, updates of the project's status should be a required component of the subsequent year's ROR.

RECOMMENDATION NO. 6: The ROR should directly reference the international standards and regulatory basis (ie. regulation or REGDOC) which supports the ROR's conclusion that licensees adequately implemented Canada's international obligations. The ROR should also set out how CNSC Staff sought to review compliance of said obligations.

RECOMMENDATION NO. 7: The new column displayed in Figure 11 should be explained at the upcoming ROR meeting. Specifically, why this additional column has been added, its purpose and whether it will continue in subsequent RORs.

RECOMMENDATION NO. 8: Explanation should be provided describing the significant changes to effective doses received to Industrial sector NEWs from 2018 to 2019.

Part 2 – Class 1B Accelerators

RECOMMENDATION NO. 9: The Commission should discuss how the ROR process meets the “public engagement” requirement set out in REGDOC 2.9.1. As drafted, the ROR does not contain a critical review or discussion of licensee environmental protection actions. Thus, without data or findings supporting how conclusions in the ROR specific to environment protection are reached, the public’s ability to engage with such matters is limited.

RECOMMENDATION NO. 10: With the aim of remedying historical oversights, the review of licensees’ decommissioning plans should be a required component of RORs. As RORs canvas topics which are of relevance to all licensees of a certain class or type, a discussion of the technically complex and challenging decommissioning actions specific to accelerators would be appropriate to review.

RECOMMENDATION NO. 11: The ROR should be used as an opportunity to review decommissioning matters as plans are otherwise not accessible nor in the public domain.