Proposals to Amend the *Packaging and Transport of Nuclear Substances Regulations, 2015* and the *Nuclear Substances and Radiation Devices Regulations*

Discussion Paper DIS-24-01

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1. Background

In Canada, the possession and use, as well as the packaging and transport of nuclear substances and radiation devices are regulated by the Canadian Nuclear Safety Commission (CNSC) in accordance with the *Nuclear Safety and Control Act* (NSCA), its associated regulations and CNSC licences.

The CNSC regulates the packaging and transport of nuclear substances in accordance with the *Packaging and Transport of Nuclear Substances Regulations, 2015* (PTNSR 2015). The PTNSR 2015 came into force on June 12, 2015 and have not been revised since this date.

The *Nuclear Substances and Radiation Devices Regulations* (NSRDR) came into force on May 31, 2000, and establish the requirements for the licensing and certification of nuclear substances and radiation devices, use of radiation devices and record-keeping. The last revision of the NSRDR was completed in 2008.

2. Scope

This paper will outline the proposed amendments to the PTNSR 2015 and the NSRDR including the anticipated impacts to national security, the health and safety of persons and the environment.

Comments from stakeholders, the public, as well as Indigenous Nations and communities are welcome on both sections of this document. Stakeholders, licensees, and parties holding certificates under the PTNSR 2015 should focus their attention to Part I of this document; whereas, stakeholders and licensees subject to the NSRDR should focus their attention to Part II of this document.

The paper also will provide a high-level description of the proposed amendments to the following:

- REGDOC-1.6.1, *Licence Application Guide: Nuclear Substances and Radiation Devices*, Version 2
- REGDOC-2.2.2, *Personnel Training*, Version 2

Please note that the following documents **are not expected to** be amended as part of the PTNSR 2015 amendment project:

- REGDOC-2.14.1, Volume I, Information Incorporated by Reference in Canada's Packaging and Transport of Nuclear Substances Regulations, 2015, Version 2
- REGDOC-2.14.1, Packaging and Transport, Volume II: Radiation Protection Program Design for the Transport of Nuclear Substances
- RD-364, Joint Canada-United States Guide for Approval of Type B(U) and Fissile Material Transportation Packages

These documents will be reviewed and amended according to the CNSC's Regulatory Framework Plan.

3. Preliminary impact analysis associated with the PTNSR 2015 and NSRDR proposals

Departments and agencies must analyze the impacts on all regulatory proposals, to support stakeholder engagement and evidence-based decision-making. Impact analysis must examine potential positive and negative effects of a regulatory proposal on the health, safety, security, social and economic well-being of Canadians, businesses, and on the environment.

More specifically, the Treasury Board Secretariat's *Cabinet Directive on Regulation* requires departments and agencies must consider costs and benefits, impacts on the environment, Gender-based analysis plus (GBA+), minimizing burden on business, modern treaty obligations, etc.

The proposed PTNSR 2015 amendments are to:

- Align requirements with the *Radiation Protection Regulations*
- Amend existing requirements
- Add new licensing requirements.

The proposed NSRDR amendments are to:

- Codify existing practices and expectations into regulation that have been in place for several years
- Extend the dosimeter return period for exposure device operators to align with IAEA – Information System on Occupational Exposure in Medicine, Industry and Research expectations
- Clarify definitions and existing requirements
- Introduce a new definition and requirement

The CNSC has conducted an internal review of the NSRDR amendments and expects that these proposals will have minimal to no impact on the regulated communities, Indigenous Nations and communities, the environment, and/or the health and safety of Canadians. Furthermore, in some circumstances, some proposals will reduce the regulatory burden placed on stakeholders.

Stakeholders are encouraged to review the proposed amendments and identify any potential impacts that they may experience via the CNSC's online consultation platform Let's Talk Nuclear Safety.

3.1 Impacts to regulatory documents (REGDOCs)

The CNSC intends to update REGDOC-1.6.1, *Licence Application Guide: Nuclear Substances and Radiation Devices* in its entirety to reflect any changes initiated by the NSRDR amendments and updates to application procedures.

The CNSC anticipates that minor amendments will be required to REGDOC 2.2.2, *Personnel Training*, Version 2. The proposed amendments are outlined in the table below. Amendments to CSA PCP-09 are not required at this time.

Section	Section Title	Proposed Amendments
0	Preface	• The second paragraph should reflect that REGDOC 2.2.2 sets out requirements for…..at nuclear facilities and where nuclear substances and prescribed equipment are used… • The fourth paragraph should say that licensees are also responsible for safe use of nuclear substances and prescribed equipment
1.0	Introduction	• Should indicate that training system provides …. of training of workers at facilities where nuclear substance, prescribed equipment and exposure devices are used.
3.0	Training System for Nuclear Facilities	• Point 2. After required to perform their duties add: including SOPs, security and emergency procedures, necessary equipment, and radiation protection • Point 10. add regulatory requirements

Part I: PTNSR 2015

4. Pre-Consultation Activities to Date

No formal pre-consultation activities have been performed to date. Operational experience gathered while performing licensing, certification and compliance activities involving the packaging and transport of nuclear substances, as well as informal discussions with stakeholders since the last time the PTNSR 2015 were amended, have informed the considerations for potential amendments in this discussion paper. The intent of this discussion paper is to serve as the opening of formal consultation with stakeholders for the potential amendments to the PTNSR 2015.

5. Considerations for Potential Amendments to the Regulations and Anticipated Impacts

Amendments to the *Radiation Protection Regulations* (RPR), published in November 2020, have introduced additional amendments that have resulted in inconsistencies with the PTNSR 2015. The ongoing review aims to rectify this misalignment and bring the regulations in line with the RPR, also presenting an opportunity to incorporate other minor amendments for clarification purposes and for better alignment with the IAEA's *Regulations for the Safe Transport of Radioactive Material* (SSR-6) (hereinafter referred to as IAEA SSR-6). The proposed amendments to the PTNSR 2015 are summarized in three sections: (1) Alignment with the RPR, (2) proposed amendments, and (3) new requirements.

6. Align the PTNSR 2015 with the Radiation Protection Regulations (RPR)

6.1 Proposed amendment: align the retention period for dose records.

Subsection 24 (2) of the RPR requires that: "Every licensee must keep a record of doses of radiation and retain it for a period ending on the fifth anniversary of the day on which the information is collected."

Subsection 31(2) of the PTNSR 2015 currently requires "Every consignor, carrier or consignee must keep a record documenting their radiation protection program and of any information collected under it; and retain the record for a period ending two years after the day on which the information is collected".

Information collected under the radiation protection program includes records of doses of radiation and therefore, the CNSC intends on amending subsection 31(2) to extend the retention period for records from two years to five years.

Impact: The impact is deemed minimal. Licensees are expected are already expected to retain the records electronically for two years. Extending the period to 5 years imposes a minimal additional burden to licensees. Only carriers would be impacted by the proposed amendment as consignors and consignees (typically CNSC licensees) are already subject to the requirements of the RPR, which require a five-year retention period for records of doses of radiation.

6.2 Proposed amendment: update the definitions in PTNSR 2015 to align with the RPR.

The CNSC intends on updating Section 30 of the PTNSR 2015 to include references to the following definitions from section 1 of the RPR: effective dose, one-year dosimetry period, five-year dosimetry period, dosimetry service.

The term "radon progeny" will also be removed from paragraph 31(1)(a) of PTNSR 2015, to align with subsection 4(a) of the RPR. As such, this term will also be removed from section 30 of PTNSR 2015.

Impact: The CNSC does not foresee any impacts as a result of this proposed amendment. The updating of definitions from the RPR will provide clarity of terms used within the radiation protection requirements in PTNSR 2015.

6.3 Proposed amendment: add a requirement for monitoring equivalent doses to skin, hands and feet.

Paragraph 8(1)(b) of the RPR requires that "Every licensee must use a licensed dosimetry service to measure and monitor the doses of radiation received by and committed to nuclear energy workers who have a reasonable probability of receiving: ...(b) an equivalent dose to the skin, or the hands and feet, that is greater than 50 mSv in a one-year dosimetry period."

The CNSC intends to update subsection 31(c) of the PTNSR 2015 to include an identical requirement for individual monitoring of persons if there is a reasonable probability that the equivalent dose to the skin, or the hands and feet, be greater than 50 mSv in a one-year dosimetry period.

Impact: The impact of this new requirement is deemed to be low. Only carriers would be impacted by the proposed amendment as consignors and consignees (typically CNSC licensees) are already subject to the requirements of the RPR. Doses to carriers are typically low and most persons are expected to have equivalent doses to these tissues well below the 50 mSv where individual monitoring would be required.

6.4 Proposed amendment: clarify the regulatory intent for workplace and individual monitoring of doses to persons.

The CNSC intends to update paragraphs 31(c)(i) and 31(c)(ii) of the PTNSR 2015 by specifying that the doses of radiation discussed are that of "effective doses". The addition of the wording "effective doses" will clarify that the requirement for workplace or individual monitoring is based on whether it may reasonably be expected that the effective doses of radiation received by persons at the workplace will be 1 mSv or more but less than 5 mSv a year. Similarly, the requirement for the conduct of individual monitoring is based on whether it may reasonably be expected that the effective doses of radiation received by persons at the workplace will be 5 mSv a year or more.

It is noted that the proposed amendment to align requirements for individual monitoring of equivalent doses to the skin, hands and feet of persons is discussed in section 5.3.

Impact: The impact is deemed low as no new requirements are being introduced. The proposed amendment provides clarity for the intent of these existing regulatory requirements in the PTNSR 2015, which is to ensure that decisions for workplace versus individual monitoring are based on the potential effective doses of radiation received by persons.

6.5 Proposed amendment: add clauses to protect persons from receiving additional dose following an exceedance of a regulatory dose limit.

Section 32 of the PTNSR 2015 dictates requirements for consignors, carriers and consignees when a dose limit may have been exceeded. The requirements are similar as those in Section 16 of the RPR; however, the PTNSR 2015 do not have any clauses concerning removing the affected person from duties to preclude the person from receiving additional dose. Requirements for the subsequent return-to-work of persons following an exceedance of a dose limit is also not included in PTNSR 2015.

Therefore, the CNSC intends to introduce similar requirements as subsection 16(b) and section 17 of the RPR to the PTNSR 2015, to ensure persons are protected from receiving additional doses beyond the applicable dose limits and to address their subsequent return-to-work, following an exceedance of a regulatory dose limit.

Impact: Adding similar clauses as subsection 16(b) and section 17 of the RPR into the PTNSR 2015 will further protect persons from receiving additional doses beyond their applicable dose limit. Only carriers would be impacted by the proposed amendment as consignors and consignees (typically CNSC licensees) are already subject to the requirements of the RPR. This is only a clarification of actions to be taken in the event of exceeding applicable dose limits.

6.6 Proposed amendment: align requirements to ensure that nuclear energy workers (NEWs) are informed of their dose levels on an annual basis.

The CNSC intends to specify in paragraph 33(1)(d) PTNSR 2015 that radiation dose levels must be provided to NEWs, in writing, on an annual basis. This amendment aligns with the specified frequency for providing radiation dose levels, in writing, to NEWs, as per paragraph 7(1)(d) of the RPR.

Impact: Minimal, as the proposed amendment provides clarification of the frequency for the existing requirement in PTNSR 2015.

6.7 Proposed amendment: align requirements for the provision of information and the accommodation of pregnant and breastfeeding NEWs.

In alignment with subsections 7(2) and 7(3) of the RPR, the CNSC intends to introduce similar requirements for every consignor, carrier or consignee subject to the PTNSR 2015 regarding provision of information for pregnant and breastfeeding NEWs. A new requirement for making accommodations for breastfeeding NEWs once informed in writing by the NEW that they are breastfeeding an infant, in alignment with subsection 11(2) of the RPR, is proposed to be added to PTNSR 2015.

In addition, the requirement for the NEW to inform their employer of a pregnancy, in writing, as currently required of paragraph 33(2)(a) of the PTNSR 2015, is proposed to be removed to align with the RPR.

The requirement for making accommodations of pregnant NEWs, as specified in paragraph 33(2)(c) of the PTNSR 2015, will remain as this continues to align with subsection 11(1) of the RPR.

Impact: Only carriers would be impacted by the proposed amendment as consignors and consignees (typically CNSC licensees) are already subject to the requirements of the RPR. The impact is deemed minimal. The amendments will ensure that NEWs have all the necessary information to make informed decisions about disclosing that they are pregnant or breastfeeding an infant. The proposed amendments enhance the protection and safety of breastfed infants. The accommodation of breastfeeding NEWs will only be needed in certain occupational settings, since many workplaces do not have the potential for internal intakes of nuclear substances by workers.

6.8 Proposed amendment: align requirement to provide information to licensed dosimetry services with respect to each NEW.

Subsection 8(2) of the RPR requires "Every licensee referred to in subsection (1) must provide the following information to the licensed dosimetry service with respect to each nuclear energy worker referred to in subsection (1): (a) the worker's given names, surname and any previous surname; (b) the worker's Social Insurance Number; (c) the worker's gender; (d) the worker's job category; and (e) the date, province and country of birth of the worker."

The CNSC intends to amend the PTNSR 2015 to require consignors, carriers, and consignees to provide the information specified in subsection 8(2) of the RPR to a licensed dosimetry service, in order to align with the requirements of the RPR.

Impact: Only carriers who are required to conduct individual monitoring of persons (as per 31(1)(c)(ii) and the proposed new requirement for individual monitoring of equivalent doses of persons as discussed in section 5.3) will be impacted minimally by the proposed amendment. Consignors and consignees (typically CNSC licensees) are already subject to the requirements of section 8 of the RPR.

6.9 Proposed amendment: align with requirements to ensure that instruments are properly calibrated.

Instruments are used to verify dose rates and contamination on packages. It is essential that these instruments be properly calibrated to ensure accurate readings. Inaccurate readings could lead to negative effects to human health and the environment.

Section 20 of the NSRDR currently requires that radiation survey meters be calibrated within 12 months preceding their use. Section 25 of the RPR also requires instruments and equipment used for radiation measurements be selected, tested and calibrated for their intended use. Instruments that are not regularly tested and calibrated may result in inaccurate readings.

The CNSC intends to amend the PTNSR 2015 to add a new requirement that all instruments be selected, tested and calibrated prior to being used for packaging and transport.

Impact: Minimal. Only carriers could be impacted by the proposed amendment as consignors and consignees (typically CNSC licensees) are already subject to the requirements of the RPR and the NSRDR.

6.10 Proposed amendment: clarify requirements with respect to the application to persons participating in biomedical research studies.

As per paragraph 2(2)(b) of the RPR, a dose of radiation received by or committed to a person as a result of the person's voluntary participation in a biomedical research study is exempted from regulatory control; however, the nuclear substances administered to a person in such biomedical research studies are subject to regulatory control under the PTNSR 2015.

To uphold regulatory consistency, the CNSC intends to clarify in paragraph 2(2)(b) that nuclear substances administered to a person as a result of the person's voluntary participation in a biomedical research study are exempt from regulatory control under the PTNSR 2015.

Impact: This proposed amendment will reduce the regulatory burden on the regulated community for nuclear substances administered during biomedical research studies.

7. Proposed Amendments

7.1 Proposed amendment: expand the list of exempted medical isotopes.

Paragraph 2(2)(n) of the PTNSR 2015 states: "These Regulations, except for sections 6 and 7, do not apply to the packaging and transport of a nuclear substance…that is present in a load of waste that is in transport, is not classified as radioactive material triggered a radiation monitor alarm if the nuclear substance in the load has been determined only to be one or more of the following medical isotopes and if there is no loss or dispersal of the material during the transport:

(i) Chromium 51
(ii) Indium 111
(iii) Iodine 123, 124 or 131,
(iv) Gallium 67,
(v) Technetium 99m,
(vi) Thallium 201."

Based on the new isotopes that may be used in the medical sector, the CNSC intends to expand the abovementioned list to include the following:

- Copper-64
- Gallium-66
- Lutetium-177
- Radium-223 or 224
- Rhenium-186
- Yttrium-90
- Zirconium-89

Impact: This is a reduction of regulatory burden on the regulated community as it expands the list of isotopes that are exempted under these circumstances. There are no anticipated impacts to members of the public or the environment.

7.2 Proposed amendment: reporting requirements for portal alarm monitors.

Paragraph 2(2)(o) of the PTNSR 2015 states the regulations do not apply to the packaging and transport of a nuclear substance if it is being transported for proper characterization in accordance with Section 3 of the regulations if:

(i) it is present in a load that was already in transport,
(ii) it is not classified as radioactive material,
(iii) it has triggered a radiation monitor alarm and the maximum dose rate on any external surface of the vehicle that is transporting it is less than or equal to 500 µSv/h, and
(iv) there is no loss or dispersal of the material during the transport

Subsection 3(3) requires that the nuclear substance identified in paragraph 2(2)(o) be characterized at the earliest point possible in accordance with the PTNSR 2015 and NSRDR. The person performing the characterization must:
(a) keep a record documenting the detection of the radiation and the disposal of the nuclear substance for two years;

(b) file an annual report with the Commission by April 30 that contains a summary of radiation detections for the calendar year before the date of the report; and

(c) immediately notify the Commission if the source of the radioactivity in the load is determined to be a licensable quantity of a nuclear substance"

The existing annual reporting requirement in para 3(3)(b) provides no additional safety benefit, therefore, the CNSC intends to remove this reporting requirement to reduce the regulatory burden associated with shipments of unknown nuclear substances detected while in transport and that emit doses below 5 µSv/h.

Consignors, carriers and consignees will remain subject to the additional requirements, as per subsections 3(3), 3(4) and 3(5) in the PTNSR 2015.

Impact: This is a reduction of regulatory burden on the regulated community as we are proposing a removal of some reporting requirements.

7.3 Proposed amendment: clarify requirements for transport licence applications.

Subsection 7(a) of the PTNSR 2015 requires that an application for a licence to transport a nuclear substance must contain the applicable information required by section 3 of the GNSCR; however, subsection 3(2) of the GNSCR states that subsection (1) does not apply "…in respect of an application for a licence to transport while in transit for which the information requirements are prescribed by the Packaging and Transport of Nuclear Substances Regulations, 2015."

This appears to create a conflict between the PTNSR 2015 and the GNSCR. To resolve this conflict, the CNSC intends to insert the applicable information pertaining to in-transit shipments into the PTNSR 2015 and remove the references to GNSCR.

Furthermore, the CNSC intends on clarifying the information that must be submitted when applying for a transport licence, such as indicating the version level of the package certificate and identifying the type of nuclear material to be transported.

Impact: No change in regulatory burden. This is merely for clarification purposes.

7.4 Proposed amendment: remove marking on packaging.

The CNSC is considering deleting subparagraph 28(2)(a)(iii) of the PTNSR 2015 – this would remove the requirement to have the word 'radioactive' appear on the package. Since the PTNSR 2015 incorporates by reference certain paragraphs of the International Atomic Energy Agency *Regulations for the Safe Transport of Radioactive Material* (IAEA SSR-6), consignors and carriers are subject to paragraph 532, which already require the word "radioactive" to be marked on the package/overpack as part of the shipping name.

Impact: This will result in a reduction of regulatory burden as the markings (radioactive) do not need to be duplicated.

7.5 Proposed amendment: align nomenclature with the IAEA SSR-6 for large objects.

Prior to the 2018 edition of the IAEA SSR-6, a large object would have been classified as SCO-I or SCO-II. With the publication of the 2018 edition, the IAEA introduced a new classification for large objects, namely SCO-III.

The CNSC intends to align with the nomenclature of the IAEA SSR-6 by updating section 1(1) of the PTNSR 2015.

Impact: Nothing anticipated as it is being updated for the purpose of aligning the nomenclature. Aside from the proposed change in nomenclature all other requirements related to large objects remain unchanged.

7.6 Proposed amendment: clarify reporting requirements for improperly classified material.

The CNSC intends to amend the PTNSR 2015 to clarify that improperly classified material is automatically reportable.

Impact: Nothing anticipated as this is a clarification of a requirement.

7.7 Proposed amendment: clarifying labeling requirements.

The CNSC intends to amend the labeling requirements in paragraph 28(1)(i) to allow for the use of either bilingual or unilingual labels, consistent with section 4.1 of Transport Canada's *Transportation of Dangerous Goods Regulations*.

Impact: This will result in a reduction of regulatory burden as it will offer the regulated community the flexibility in using either bilingual or unilingual labels.

8. Proposed new licensing requirements

8.1 Adding requirement that conveyances where no person is physically present be licensed.

The CNSC is considering the addition of a licensing requirement in section 6 of the PTNSR 2015, to require a transport licence when engaging in the transport of nuclear substances in conveyances where no person is physically present, such as remotely piloted aircrafts (drones) or driverless vehicles. This would provide the CNSC awareness when these technologies are used to transport nuclear substances (such as for the purposes of emergency responsiveness, and compliance).

Impact: Minimal additional regulatory burden is anticipated, as it will affect very few carriers.

Part II: NSRDR- Proposed Regulatory Amendments and Anticipated Impacts

9. Pre-Consultation Activities

No formal pre-consultation activities have been performed to date. Operational experience gathered while performing licensing and compliance activities as well as informal discussions with stakeholders including members of the CNSC/Industrial Radiography Working Group (IRWG) and industrial radiography licensees at the CNSC Sponsored Annual Meetings on Industrial Radiography have informed the considerations for potential amendments in this discussion paper. The intent of this discussion paper is to serve as the opening of formal consultation with stakeholders for the potential amendments to the NSRDR.

10. Proposed Amendments:

10.1 New and amending existing definitions:

New definition of a "spill":

The CNSC proposes to add the following definition for a "spill" – "a situation where an unsealed nuclear substance is no longer contained"

New definition of "uniformly distributed"

The definition of exemption quantity (EQ) and of unconditional clearance level (UCL), both make mention of when the radioactive nuclear substances are uniformly distributed, however, the term is not defined. As such, the CNSC proposes to add a definition for "uniformly distributed".

Amending definition of "exemption quantity":

The CNSC intends to amend the definition of "exemption quantity" under Part (c) to ensure it applies to materials that contain more than one nuclear substance. This also aligns with the definition of "exemption quantity" in paragraph I.7 of the 2014 IAEA GSR Part 3, *Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards.*

Amending definition of "radiation device":

The NSRDR currently define a radiation device as:

> "(a) a device that contains more than the exemption quantity of a nuclear substance and that enables the nuclear substance to be used for its radiation properties; and
>
> (b) a device that contains a radium luminous compound. "

A radiation device is still a radiation device even though it may contain less than the exemption quantity (EQ). As such, the CNSC proposes to amend the definition of a radiation device by relocating the reference "more than an exemption quantity" to the certification section in Section 11 (see below).

In addition, the CNSC also intends to amend the "and" to "or" to clarify that a radiation device meets the definition if it meets (a) or (b) or both but does not have to be both as this will ensure consistency between the English and French versions of the Regulations.

10.2 *Section 2, Application*:

Nuclear substances may be implanted and/or administered to people or animals for medical diagnosis or treatment purposes. These substances can subsist in the person's/animal's remains after death. As a result, the NSRDR would apply to these persons/animals or their remains and a licence would be required.

The CNSC proposes to introduce an exemption so that a licence will not be required. This policy and wording will align with the current *Packaging and Transport of Nuclear Substances Regulations (2015)* and complements the *Radiation Protection Regulations*. For more information regarding dealing with remains please consult REGDOC-2.7.3, *Radiation Protection Guidelines for Safe Handling of Decedents*.

10.3 *Paragraph 5.1(2)(b), Abandonment or Disposal:*

The current regulations permit persons to abandon or dispose of a radioactive nuclear substance without a licence under certain conditions. This exemption does not extend to discharges of effluents from Class I nuclear facilities, mines, or mills.

The CNSC intends to clarify that that exemption does not extend to effluents and emissions. Emissions are airborne releases of a hazardous or nuclear substance to the environment, while effluents are a waterborne release of a hazardous or nuclear substance to the environment. This modification will codify existing CNSC practices and will align regulatory requirements set out in *REGDOC-2.9.1: Environmental Protection*.

10.4 ***Section 6, Smoke Detectors:***

This section of the NSRDR permits anyone to possess, transfer, use or abandon smoke detectors containing a nuclear substance with some conditions. The CNSC proposes to add import and export to the list of exempted activities as well as to add a new paragraph, similar to section (8), to ensure that the exemption from the licensing requirements is contingent upon that the smoke detectors are not disassembled or otherwise tampered with.

10.5 ***Section 7, Tritium Safety Signs:***

As with Section 6 above, the CNSC intends to add "under normal conditions of use" to Section 7 paragraph (c) and a new paragraph (g), similar to section (8), to ensure that tritium safety signs are not disassembled or tampered with. This is a preventative measure since the signs are exempt from licensing and there is no safety hazard in their possession.

10.6 ***Subsection 8(b), Devices Containing Radium Luminous Compounds:***

As currently written, the NSRDR state that a person can possess, transfer or use up to 10 devices containing a radium luminous compound without a licence.

On January 1, 2006, the Commission granted an indefinite exemption from this requirement after it concluded that the risks persons are low if the devices are intact and handled safely; however, some restrictions remain in place. A CNSC licence is still required to service radium luminous devices. Service activities include disassembling or repairing such a device or removing radium luminous compounds from such a device.

As such, the CNSC will enshrine this exemption into regulations, where persons may possess, transfer or use any number of such devices if the device only contains a radium luminous compound and it is not disassembled or tampered with.

10.7 ***Subsection 8.1, Check Sources:***

The CNSC proposes the following amendments to subsection 8.1:

- To add import and export to the list of activities to be exempted from the need for a licence in 8.1 for consistency with exemptions within Section 5 of the NSRDR.
- To increase the activity limit in (ii) from 3.7 kBq to 37 kBq. Since the exemption quantity (EQ) for the most common alpha emitting check sources is 10 kBq, increasing the activity limit to 37 kBq is appropriate and 10 times lower than the 370 kBq activity limit for beta/gamma sources.
- To remove clause (b) as limiting the activity will limit the dose rate.
- To remove clauses (e) and (f) as the standards referenced in the regulation are not applicable. The international standard referenced in (e) does not apply to calibration sources below 1000 kBq and the international standard referenced in (f) does not apply to calibration sources below 1100 kBq.

10.8 ***Section 11, Certification of Radiation Devices*****:**

The definition of a radiation device, as per Section 1, includes a device that contains a radium luminous compound. The use of such devices would require certification pursuant to section 11. The manufacture of devices containing radium luminous compounds in Canada, mainly from the 1930s until the late 1960s, predates the regulatory requirements for the certification of radiation devices containing nuclear substances. Therefore, the CNSC proposes to add an exemption for devices containing radium luminous compounds from the certification requirements of section 11 of the NSRDR.

The proposed exemption is a clarification of regulatory expectations and would not require any action by those possessing devices containing radium luminous compounds. The CNSC does not anticipate any additional administrative burden.

10.9 Paragraph 11 (1)(a) ***Certification of Radiation Devices, Certification Requirement:***

As indicated above, the CNSC intends to relocate the phrase "more than the exemption quantity of a nuclear substance" from the definition of a radiation device to Section 11 (1)(a). This clarifies which radiation devices require certification.

There is no change to the requirements, the exemption was moved as it is better placed in this section than in the definition. This amendment simply codifies and clarifies existing practices.

10.10 ***Paragraph 12(1)(l), Application for Certification*****:**

The CNSC proposes to modify this paragraph for clarity and consistency to state that the labelling of a radiation device must be done in accordance with the requirements of Section 20 of the Radiation Protection Regulations.

10.11 ***Subsection 18(2), Leak Tests:***

As the NSRDR are currently written, licensees possessing, using, or producing sealed sources containing 50 MBq or more of a nuclear substance or a nuclear substance used as shielding are required to conduct leak tests. This includes depleted uranium.

Testing of depleted uranium used as shielding is only necessary for two cases: when it is located in an exposure device; or, when it is used as shielding and has been or may have been damaged. As such, the CNSC proposes to add an exemption to Subsection 18(2) clarifying that testing of depleted uranium used as shielding is only required for the abovementioned two cases.

10.12 ***Subsection 19(1), Transfers:***

The CNSC intends to remove "instructions referred to in the radiation device certificate for dealing with accidents, including fires and spills" to ensure that all documentation associated with the radiation device be provided to the transferee, rather than limiting it only to documentation dealing with accidents. The purpose of this amendment is to ensure that all documents applicable to the radiation device are transferred to the new owner.

10.13 ***Section 20, Radiation Survey Meters:***

The CNSC intends to amend this section to require that instruments used for radiation measurements, such as portable radiation survey and contamination meters and direct reading dosimeters must be calibrated within 12 months preceding their use. This amendment would help to clarify the requirement for persons to ensure that their instrumentation is calibrated prior to being used and aligns with section 25 of the Radiation Protection Regulations.

10.14 **Section 22,** ***Labelling for Field Operations:***

The CNSC proposes to replace "accident" with "emergency" since accident procedures are not specifically referenced in the licence. This amendment reflects current practice as the policies and procedures or radiation protection program(s) referenced in the licence include emergency procedures that are broader in scope and address accidents in addition to other emergencies such as fire, flood, spill, etc.

10.15 Certification of Exposure Device Operators (EDOs), Expiration of Certifications and the Associated Recertification Process

Prior to February 1, 2013, the CNSC issued EDO certifications without an expiry date. In February 2013, in anticipation of *Canadian Standards Association CSA PCP-09: Exposure Device Operator Personnel Certification Guide (CSA PCP-09)*, the CNSC began issuing EDO certifications with a five-year validity period.

Persons certified prior to February 1, 2013, were invited to exchange their old certificate for one with an expiry date.

To codify these amendments, the CNSC intends to modify the following sections of the NSRDR relating to EDOs:

10.15.1 ***Section 24, Exposure Devices, Requirement for Operators:***

The CNSC intends to clarify that only EDOs with valid certifications and trainees under direct supervision of an EDO with a valid certification can legally operate an exposure device.

10.15.2 ***Section 25, Exposure Devices, Application for Certification of Operator:***

The CNSC intends to enshrine the current EDO certification program into regulations:

Providing the CNSC the legal authority to renew the certification of EDOs subject to evidence that the applicant has completed the necessary training, obtained the required work experience, and completed the required examinations for renewing the certification.

Establishing that EDO certifications are valid for a period of 5 years after the date of issuance[1].

10.15.3 Section 26, Exposure Devices, Refusal to Certify:

The CNSC proposes to add a new subsection requiring that the Commission (or a designated officer) must notify applicants of its decision not to renew the certification as well as the basis for its decision at least 30 days prior to rendering its decision. This will address a gap in procedural fairness for EDO certification renewal applicants and clarify available recourse if the request to renew has been denied.

10.15.4 *Paragraphs 31(1)(j) and (k), Subsection 31(5), Obligations of Operators:*

The NSRDR presently require that the licensee "place persons or erect barriers to prevent entry into any area within which the radiation dose rate is greater than 0.1 mSv per hour as a result of the possession or use of the exposure device". The placement of the person/barrier was not clear. As such, the CNSC proposes to amend paragraph 31(1)(j) to clarify that the barrier must be located prior to the entry into the work area or the radiography exclusion zone (if one exists).

Similarly, paragraph 31(1)(k) of the NSRDR presently require that the licensee "k) post a sufficient number of durable and legible signs that bear the radiation warning symbol set out in Schedule 3 to the Radiation Protection Regulations and the words "RAYONNEMENT — DANGER — RADIATION", to prevent entry into any area within which the radiation dose rate is greater than 0.1 mSv per hour as a result of the possession or use of the exposure device". As with the barrier location, the location of the signage was unclear. As such the CNSC proposes to amend the paragraph to clarify that signage must be located prior to entry into the work area or the radiography exclusion zone (if one exists). This amendment parallels the requirement set out in subsection 21 (b) of the *Radiation Protection Regulations*.

The CNSC intends to amend subsection 31(5) by removing the term "work shift" and replacing it with a limit of 2 mSv in a 24-hour period, to reduce the risk of a worker potentially receiving a higher dose based on how their work shifts were structured.

10.16 *Subsection 31(2), Obligations of Operators:*

The NSRDR presently require that every person who has been provided with a dosimeter referred to in paragraph 30(3)(c) by a licensee shall return the dosimeter to the licensee at the end of the 15-day period beginning on the first day that the person wore the dosimeter.

The CNSC proposes to amend section 31(2) of the NSRDR by extending the 15-day period to 30 days. This amendment was suggested by industry to align with other countries and IAEA-TECDOC-1747 (2014) The Information System on Occupational Exposure in Medicine, Industry and Research (ISEMIR): Industrial Radiography.

10.17 *Paragraph 32(2)(d), Appointment of Supervisors of Trainees:*

The current regulations require licensees to include a copy of the licence to use the exposure device as part of the appointment process for supervisors of trainees. The CNSC proposes to amend the requirement by permitting the licensee to reference the licence number rather than having to include a copy of the licence.

10.18 *Subsection 33(2), Obligations of Supervisors of Trainees:*

The CNSC proposes to further clarify "directly supervise and continuously observe" to ensure every trainee has close, visual, and uninterrupted supervision during every phase of the operation of the exposure device.

10.19 *Section 39, Coming into Force:*

The CNSC proposes to amend the wording from when regulations are approved by the Governor in Council to when they are published in the Canada Gazette Part II.

10.20 *SCHEDULE 1 (Section 1 and paragraph 38(1)(e)), Exemption Quantities:*

The CNSC proposes to replace SCHEDULE 1 with an ambulatory incorporation by reference to the exemption quantities set out in IAEA document "Radiation Protection and Safety of Radiation

[1] Aligns with: Subsection 9(4) of the Class I Nuclear Facilities Regulations, International Atomic Energy Agency (IAEA) and International Standards Organization (ISO) standards, and benchmarking from comparable industries (i.e. non-destructive testing certifications issued by Natural Resources Canada)

Sources: International Basic Safety Standards General Safety Requirements Part 3 No. GSR Part 3 (2014)". The table is more exhaustive than the current schedule; and, by replacing it with an ambulatory reference, it will preclude the requirement to update the schedule periodically.

11. Future Public Consultations and How to Provide Feedback

Future public consultations with the nuclear industry, government departments, Indigenous Nations and communities, as well as members of civil society may be held in support of the development of these two regulatory packages.

Notification of these opportunities will be posted on the CNSC's online consultation platform at Let's Talk Nuclear Safety.ca. To gain further feedback from stakeholders and to promote better understanding of the impacts from the proposed amendments, workshops will also be held during the consultation period.

Stakeholders will have the opportunity to comment on this paper either on Let's Talk Nuclear Safety or via email. Interested parties will also have the ability to comment on the draft amendments to the *Packaging and Transport of Nuclear Substances Regulations, 2015* and the *Nuclear Substances and Radiation Devices Regulations* through the normal regulation development process.