



# Proposal to amend REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy

Discussion Paper DIS-24-03

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**Document availability**

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## Executive Summary

The Canadian Nuclear Safety Commission (CNSC) regulates the use of nuclear energy and materials to protect the health, safety and security of Canadians and the environment, and to implement Canada's international commitments on the peaceful use of nuclear energy. Under this mandate, the CNSC's *General Nuclear Safety and Control Regulations* ensures that licensees take all necessary measures to facilitate Canada's compliance with any applicable safeguards agreement.

The CNSC is revising REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy* to reflect the proposed amendments to the *General Nuclear Safety and Control Regulations* and to implement lessons learned since the publication of the REGDOC in 2018.

This discussion paper seeks input from licensees, proponents, the Canadian public, Indigenous Nations and communities and other stakeholders regarding the proposed changes to REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*. The feedback gathered during this consultation will guide the CNSC's revisions to this regulatory document.

Interested parties can submit comments on this paper on the CNSC's e-consultation platform [Let's Talk Nuclear Safety](#).

## DIS-24-03, Proposal to amend REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy

### 1. Introduction

Canada is a signatory to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) [1] which has been the cornerstone of the international nuclear non-proliferation regime since 1970. States that are party to the NPT have commitments and obligations in the areas of non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

To fulfil the non-proliferation commitment made under the NPT, Canada has safeguards agreements with the International Atomic Energy Agency (IAEA), which provide for the application of IAEA safeguards in Canada. Under the safeguards agreements, Canada has an obligation to report to the IAEA on all nuclear material (i.e., uranium, thorium and plutonium) and on certain types of nuclear research and manufacturing in Canada, and to accept IAEA inspections of those areas. In turn, the IAEA has an obligation to ensure that safeguards are applied to all nuclear material in Canada, for the purpose of verifying that such material is not diverted to non-peaceful uses.

While the fundamentals of safeguards have remained consistent since Canada signed its comprehensive safeguards agreement [2] with the IAEA in 1972 and brought into force an Additional Protocol [3] to its agreement in 2000, implementation of safeguards by the IAEA in Canada has evolved to address technological advancements and emerging safeguards challenges both domestically and globally. Since 2016, the IAEA has been developing a revised State-level Approaches (SLA) for certain Member States. This revised SLA aims to provide a more robust, consistent and impartial approach to the implementation of safeguards using all safeguards-relevant information available to the IAEA about a State. Despite changes to the way safeguards are applied over time, the IAEA's overarching objective of independent international assurance of a State's peaceful uses of nuclear energy remains unchanged.

Under the Nuclear Safety and Control Act (NSCA), the Canadian Nuclear Safety Commission (CNSC) has the mandate to achieve conformity with Canada's safeguards agreements. To accomplish this, the CNSC imposes obligations on its licensees for reporting required by the IAEA and for the access necessary for IAEA verification of this reporting.

REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*, sets out requirements and guidance on safeguards for applicants and licensees who possess nuclear material, operate a uranium and/or thorium mine, carry out specified types of nuclear fuel-cycle related research and development work, and/or carry out specified types of nuclear-related manufacturing activities. The requirements and guidance in the REGDOC are essential to Canadian compliance with its safeguards agreements, and with licensee obligations established in the *General Nuclear Safety and Control Regulations* (GNSCR).

The CNSC is proposing revisions to REGDOC-2.13.1 to provide greater clarity using the experience gained since the last revisions in 2018 and to align with the proposed amendments to the GNSCR. These amendments to the GNSCR are currently available for consultation in Canada Gazette Part I, under the title [Regulations Amending Certain Regulations Made Under the Nuclear Safety and Control Act \(Imports, Exports and Safeguards\)](#).

The major proposed change to the GNSCR is to impose certain safeguards reporting and access requirements to persons (i.e., individuals or corporations) who do not hold a CNSC licence. More specifically, the GNSCR will apply to persons who:

- possess any quantity of nuclear material (generally uranium, thorium, plutonium-239, excluding ores)

- engage in specified types of nuclear fuel cycle-related research and development activities (examples provided in Appendix A of REGDOC-2.13.1); and/or
- engage in specified types of nuclear-related manufacturing activities (examples provided in Appendix B of REGDOC-2.13.1)

The objective of this discussion paper is to solicit feedback from licensees, proponents, the Canadian public, Indigenous peoples and other stakeholders regarding the proposed changes to REGDOC-2.13.1. The feedback received during this consultation period will inform the CNSC's approach to revising the REGDOC.

Interested parties can submit comments on this paper via Let's Talk Nuclear Safety until June 13, 2024.

## 2. Description of Proposed Changes

The CNSC is suggesting revisions to the REGDOC to align with the proposed amendments to the GNSCR and to address areas for improvement identified by staff and stakeholders since the document was published in 2018.

The proposed modifications to the REGDOC resulting from the proposed amendments to the GNSCR should not impact CNSC licensees that have REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy* as part of their licensing basis. The revised REGDOC will now additionally provide guidance for:

- licensees who do not have REGDOC-2.13.1 as a licence condition but have been voluntarily complying with safeguards requirements
- all persons who do not require a CNSC licence but possess nuclear material, are engaged in nuclear fuel cycle-related research and development activities or in specified nuclear-related manufacturing activities. These persons will need to report to the CNSC but will not require a CNSC licence.

These proposed amendments to the REGDOC to address the areas of improvement since 2018 aim to clarify safeguards requirements and guidance for CNSC licensees.

The proposals presented in this document are subject to approval of the amendments to the GNSCR.

### 2.1 Purpose

All persons, including CNSC licensees, who meet the criteria set out in the GNSCR will have safeguards requirements such as reporting and granting access to the IAEA. The purpose of the REGDOC will be clarified to specify that the document sets out the general requirements and guidance for safeguards, including, when appropriate, the establishment and maintenance of a safeguards program.

### 2.2 Scope

The scope of the document will be modified to align with the proposed amendments to the GNSCR, which extends specific safeguards requirements to all persons who possess nuclear materials or who conduct nuclear-related manufacturing activities and/or nuclear fuel cycle-related research and development activities.

Question:

Would it be useful to add examples of what items containing nuclear material and what nuclear-related activities are subject to safeguards?

### 2.3 Categorization of Licensees

[Section 3 of REGDOC-2.13.1](#) currently outlines three categories of licensees: facilities, locations outside facilities and other licensees. To accommodate the proposed amendments to the GNSCR, the CNSC intends to introduce a fourth category named 'non-licensees' and will update the section title appropriately. This category will encompass persons who engage in the same activities or possess the same list of nuclear materials as those in the 'Other licensee' category but do not require a CNSC licence.

The CNSC is considering adding a table to help illustrate the reporting and access requirements for the four categories of licensees and non-licensees.

Question:

Would it be useful to add a table to describe what the reporting and access requirements are for the different categories of licensees and non-licensees?

### 2.4 Safeguards Program

The CNSC will revise this section to provide a description of safeguards requirements in general rather than what would need to be documented in a safeguards program. Licensees will need to review their current safeguards program and determine if there are any gaps with the proposed changes to the GNSCR and REGDOC-2-13.1. The section will be revised to:

- clarify the CNSC's requirements and guidance for a licensee's safeguards program
- outline how the safeguards program interfaces with other CNSC programs

Questions:

Which elements of the safeguards program should be described further?

Would it be useful to describe how the safeguards program interfaces with other CNSC programs?

### 2.5 Safeguards Equipment and Seals

The CNSC will align the content in this section with subsection 30(1) of the GNSCR and will clarify requirements for licensees to both:

- implement measures to prevent any of the situations described in GNSCR 30(1) from occurring; and,
- report such events to the Commission

Additional guidance will be added with regards to reporting for the following situations:

- damage to IAEA equipment
- interference with or an interruption to the operation of safeguards equipment
- alteration, defacement or breakage of an IAEA seal when part of the seal consists of the licensee's storage container (i.e., weld profile)

Licensees are required to install safeguards equipment at the licensed site, facilitate the IAEA's installation of such equipment, and provide the services required for the operation of such equipment. The



CNSC will specify that in some instances, providing the services required for the operation of such equipment may include the licensee’s operation of the IAEA’s safeguards equipment in accordance with the procedures provided by the CNSC and/or the IAEA. “Operation” of IAEA equipment may include plugging and unplugging IAEA equipment, performing reference scans with IAEA equipment, or the joint use of equipment (e.g., nuclear material measurement).

Questions:

Which aspects of reporting should be further elaborated?

Which specific instances of operating safeguards equipment should be included as examples?

## **2.6 International Atomic Energy Agency Access**

The CNSC will revise this section’s format to clarify which elements for each of the three types of IAEA activities are background information, requirements and guidance.

## **2.7 Inspections**

The CNSC will provide clarity on the requirements and guidance for facilitating IAEA verification of licensees’ inventories, including provisions of access to all Group 1A material subject to an inspection. Additional information on how inspections are carried out will be provided. This will include clarification on the IAEA’s discretion on how it chooses to perform its measurement of nuclear material as well as the two-hour notification of specific inspections at certain facilities. The CNSC will provide further information on how and when the CNSC expects to participate in IAEA inspections.

## **2.8 Design information verification**

The text on how and when the CNSC expects to participate in IAEA design information verifications (DIVs) will be revised.

## **2.9 Complementary access**

The requirement will be revised to specify that both licensees and non-licensees are obligated to facilitate the IAEA’s complementary access activities. In alignment with the sections on “Inspections” and “Design Information Verification”, the list of IAEA activities will be moved from the guidance section to the requirement section.

The list of activities that the IAEA may perform during a complementary access will be expanded to align with Article 6 of the Additional Protocol (e.g., non-destructive measurements; sampling; and examination of safeguards relevant production and shipping records).

The CNSC will clarify requirements and guidance for handling IAEA photographs captured during complementary accesses.

## **2.10 Nuclear Material Accountancy**

The CNSC will revise this section to:

- clarify that a separate program is not required for nuclear material accountancy; and
- clarify the requirements and guidance for each nuclear material accountancy section, similar to the other sections in the REGDOC.

Question:

What aspects of nuclear material accountancy should the CNSC provide further guidance on?

### **2.11 Measurement of nuclear material**

The CNSC will define its expectation for the frequency of the calibration of any instruments used to measure nuclear material aligning it with industry standards.

### **2.12 Physical inventory taking**

The CNSC will specify that all information on the tag must correspond exactly to those listed on the list of inventory items list, not limited to just the items' unique identifier.

### **2.13 Provision of Information**

The CNSC will provide guidance on submitting nuclear material accountancy reports to the CNSC in instances where the Nuclear Material Accountancy Reporting (NMAR) e-business system is unavailable. Alternative methods of submission, such as through an electronic mailbox, may be used under such circumstances.

Additionally, the CNSC will update the safeguards and nuclear materials accountancy forms which are accessible from the CNSC's website following the publication of the revised REGDOC.

Question:

Which elements of the forms should be updated or clarified based on users' experience?

### **2.14 General Ledger**

The CNSC will clarify that the running balance of the nuclear material in the material balance areas on the general ledger is to be reported in chronological order. The CNSC will also clarify that the CNSC may request licensees to submit general ledgers to the IAEA for months in which no transactions occur to support IAEA surveillance review.

Question:

Are there any changes to the General Ledger which would make its generation and submission to the CNSC more efficient?

### **2.15 Obligated material inventory summary**

The CNSC intends on removing the requirement for licensees to produce an annual Obligated Material Inventory Summary (OMIS) report. However, licensees will still be required to track any foreign obligations associated with their nuclear material inventories and inventory changes.

### **2.16 Design information**

The CNSC will clarify its expectations for the submission of preliminary design information "when a decision to construct has been made" and the update to that submission "before the start of construction".

Question:

Are the existing requirements and guidance for the drafting of design information questionnaires clear?

## 2.17 Retention of Records

The CNSC will revise this section to align with the proposed amendments to the GNSCR, ensuring a consistent approach to record retention.

## 2.18 Appendix B: List of Nuclear Fuel Cycle-Related Research and Development Activities

The CNSC will provide further guidance on what is reportable under Article 2a(i) of the Additional Protocol and what information must be included in the general description of the research and development activities. The general description of each research and development activity should include:

- a. The title of the research and development activity;
- b. The activity's project number or other unique designation to avoid any ambiguities in future references to the activity;
- c. The relationship or connection of the State to the research and development activity;
- d. A brief description of the work being performed (where the work is distributed over several organizations, the description of the work should identify who is doing what);
- e. The objectives of the specific research and development activity and the degree to which those objectives have been met at the time of the declaration (e.g., whether work toward the objective has just begun or is in progress or the objective has been met);
- f. The intended application of the research and development results if this is not apparent from the objectives; and
- g. Identification, if applicable, of the organization and location within another State with which there is collaboration on the research and development activity.
- h. The name and contact information of a single point of contact for each research activity.
- i. The anticipated project end date (end year is sufficient).

Nuclear fuel cycle-related research and development activities means those activities which are specifically related to any process or system development aspect of any of the following:

- conversion of nuclear material;
- enrichment of nuclear material;
- nuclear fuel fabrication;
- reactors;
- critical facilities;
- reprocessing of nuclear fuel;
- processing (not including repackaging or conditioning not involving the separation of elements, for storage or disposal) of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233;

Note that this does not include activities related to:

- theoretical or basic scientific research
- research and development on industrial radioisotope applications, medical, hydrological and agricultural applications, health and environmental effects, and improved maintenance

The CNSC will clarify that the language in its Additional Protocol with the IAEA, "...carried out anywhere that are funded, specifically authorized or controlled by, or carried out on behalf of, Canada" is intended to cover any nuclear fuel cycle-related R&D where the Government of Canada is involved, either in pursuit of its own interests or on behalf of any other entity. Examples of Government of Canada involvement would be: ownership, funding, administrative control or licensing. The "Government of Canada" includes both the federal and provincial governments and Crown corporations.

Further, the CNSC will clarify that the language "...related to any process or system development aspect" is intended in a broad sense to include R&D to improve the performance of an existing process.

Question:

Would it be useful to add examples of declarable nuclear fuel cycle related research and development activities?

### **2.19 Appendix C: Guidance on Materials Not Subject to Safeguards**

Guidance on Materials Not Subject to Safeguards will be reviewed and potentially amended.

### **2.20 Appendix D: Nuclear Material Accountancy Reference Tables**

Table D2, Box 447, Shipper's batch name, will be amended to include the requirement that Canadian receivers of foreign batches should use the shipper batch name, if available, to assist with transit matching.

## **3. Future public consultations and how to provide feedback**

Interested parties will also have the opportunity to provide feedback on the draft changes to REGDOC-2.13.1 during its development process. Notifications regarding these opportunities will be sent to CNSC subscribers list and will be posted on the online consultation platform at Let's Talk Nuclear Safety.

## References

1. [\*Treaty on the Non-Proliferation of Nuclear Weapons \(NPT\)\*](#), United Nations, New York.
2. [\*Agreement Between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons\*](#), 1972, INFCIRC/164
3. [\*Protocol Additional to the Agreement Between Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons\*](#), 2000, INFIRC/164/Add.1