



Frequently asked questions

REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources*

May 2016



Part I: General questions

- Q1.** Why did the Canadian Nuclear Safety Commission publish REGDOC- 2.12.3?
- Q2.** When will REGDOC-2.12.3 come into effect?
- Q3.** When are radioactive sources hazardous?
- Q4.** What is a dirty bomb and how dangerous could it be?
- Q5.** Is there international guidance on the security of radioactive materials?

Application

- Q6.** Do security requirements apply to low-risk radioactive source?
- Q7.** How is a source's category determined?

Part II: Specific questions

Transportation

- Q8.** Why does this regulatory document apply only to road transport?
- Q9.** Does REGDOC-2.12.3 apply to carriers?

Background check – Trustworthiness and reliability

- Q10.** What is the requirement for a background check?
- Q11.** How will the CNSC check that licensees verify their employees' trustworthiness and reliability?
- Q12.** Who will be required to undergo background security screening checks?
- Q13.** What happens if an individual has a criminal record?
- Q14.** What are the criteria for a valid background check?
- Q15.** Can employees that have worked for my organization for more than five years be granted trustworthiness on the basis of continuous previous employment records?
- Q16.** What about international students where this information is sometimes difficult to obtain or validate?
- Q17.** Where do I submit my site security plan?

Frequently Asked Questions

REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources*

Part I: General questions

Q1. Why did the Canadian Nuclear Safety Commission publish REGDOC-2.12.3?

A1. REGDOC-2.12.3 clarifies requirements set out in the *General Nuclear Safety and Control Regulations* and licence conditions.

This document:

- provides clear regulatory instructions to industry and stakeholders
- will help licensees understand Canadian Nuclear Safety Commission (CNSC) requirements and expectations for the security of radioactive sealed sources
- provides guidance to prevent the loss, sabotage and illegal use, possession, or removal of sealed sources during their entire lifecycle
- aligns with international guidelines and standards, including the International Atomic Energy Agency (IAEA) *Code of Conduct on the Safety and Security of Radioactive Sources*

Q2. When will REGDOC-2.12.3 come into effect?

A2. In January 2015, the CNSC amended close to 2,500 licences related to sealed sources used in medical, industrial, commercial, and academic and research applications. The amendment included a new condition requiring licensees to comply with the security measures set out in CNSC regulatory document REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources*. This new condition came into force on May 31, 2015 for Category 1 and 2 sealed sources, and will come into force on May 31, 2018 for Category 3, 4 and 5 sealed sources.

Q3. When are radioactive sources hazardous?

A3. Radioactive sources pose no undue radiological hazard to workers, the environment or the public when used as intended. Problems can arise if radiation sources are involved in accidents, and if they become damaged or lost. Some of these sources contain large amounts of radioactive material and have the potential to cause serious radiological harm if they were to be used in malicious acts.

Q4. What is a dirty bomb and how dangerous could it be?

A4. A dirty bomb is a type of radiological dispersion device (RDD) made of conventional explosives and radioactive material. An RDD may contain

radioactive materials, but does not use that material to produce a nuclear explosion like a nuclear weapon does. As with any explosion, people in the immediate vicinity could be killed or injured by the blast itself. The dispersed radioactive material could lead to exposure to people in the vicinity and/or cause panic.

This type of weapon could be used maliciously to contaminate a large area and has the potential to cause physical, economic or psychological harm to persons in surrounding vicinity and beyond.

The levels of exposure of persons would depend on many factors like the physical and chemical form of the radioactive material, size and type of explosive and proximity of persons to the blast. Other effects of a dirty bomb could include the social disruption associated with the evacuation, the subsequent clean-up of contaminated property and the associated economic costs.

Q5. Is there international guidance on the security of radioactive materials?

A5. The IAEA *Code of Conduct on the Safety and Security of Radioactive Sources* includes requirements for the security of sources. Canada, along with many other countries, has undertaken to abide by this code and work toward its full implementation.

This document is also aligned with the IAEA recommendation document NSS 14, *Nuclear Security Recommendations for Radioactive Material and Associated Facilities*, and implementing Nuclear Security Series guides NSS 11, *Security of Radioactive Sources*, and NSS 9, *Security of Radioactive Material in Transport*.

Application

Q6. Do security requirements apply to low-risk radioactive source?

A6. This regulatory document applies to sealed radioactive sources (encapsulated or solid). This document applies to Category 1, 2, and 3 sources and provides recommended practices for Category 4 and 5 sources (i.e., prudent management practice) to ensure that sealed sources are secured to prevent illegal use, theft or sabotage, and that a periodic inventory is carried out to ensure sealed sources are at their designated location and are secure.

Prudent management practices for Category 4 and 5 sources include, but are not limited to:

- regular inventory verification
- security awareness training for workers and contractors
- restricted access to authorized personnel only (e.g., storage in secure container or location and mechanism to prevent unauthorized removal)

Q7. How is a source's category determined?

A7. Table A of REGDOC-2.12.3 identifies materials and thresholds, which are based on the IAEA *Code of Conduct on the Safety and Security of Radioactive Sources*.

For security control, a situation-specific sealed source category must be determined by aggregating sources in a single storage (or use) facility. This is done by adding the actual activities of the sealed sources and determining the category from table A. For example, one industrial level gauge containing a sealed source with 0.19 TBq of cesium-137 is a category 3 source ($1.0 > 0.19 > 0.1$). However, for security reasons, six of these sealed sources at a single licensed location would be treated as category 2 ($6 \times 0.19 = 1.1 > 1.0$).

The A/D ratio for a single radionuclide is the activity (A) of the source compared to the activity determined to define a threshold of danger (D). For the aggregation of various radionuclides, the sum of the A/D ratios is used to determine a final category as described in RS-G-1.9, *Categorization of Radioactive Sources*. If multiple sources from different categories are stored, the highest category should suffice (e.g., storage of category 2, 3 and 4 sources would meet the security requirements for category 2).

Part II: Specific questions

Transportation

Q8. Why does this regulatory document apply only to road transport?

A8. The transport of dangerous goods by sea, air and rail is subject to similar security measures undertaken by other intergovernmental organizations, such as the International Maritime Organization, the International Civil Aviation Organization and the International Carriage by Rail.

Q9. Does REGDOC-2.12.3 apply to carriers?

A9. Most carriers are not licensed by the CNSC, and are therefore not subject to the security requirements applicable to CNSC licensees when transporting sealed sources or storing them while in transit. This document is intended to assist licensees with contracting carriers, to ensure that specific physical security measures are taken into consideration when transporting sealed sources.

The licensee (as the consignor) is responsible for ensuring that their carriers meet the measures set out in REGDOC-2.12.3.

Pursuant to the *Packaging and Transport of Nuclear Substances Regulations*, common carriers are required to transport radioactive material in accordance with the consignor's instructions.

Examples of applicable security measures for common carriers:

The following is a summary of the security measures that licensees must ensure that a common carrier complies with, before allowing the carrier to transport these category 1, 2 or 3 sealed sources:

- Be able to track packages while they are in transport (such as through bar codes, RFID tags or an equivalent system).
- Verify that drivers have undergone background checks by the carrier.
- Have procedures requiring packages to remain locked inside vehicles if drivers leave them unattended.
- Ensure drivers have reliable mobile communications devices and emergency contact numbers, which they must carry at all times.
- Use secured containers for storing packages while in transport.

Note: Since most common carriers will not have such secured containers in their vehicles, licensees may provide carriers with containers.

Containers must be:

- made of steel or other material resistant to physical attack by handheld tools
 - equipped with a key, combination padlock or similar locking device resistant to an attack by handheld tools
- When packages are transported in an open vehicle (such as the open back of a half-ton truck or in a flatbed truck), they shall be securely affixed to the vehicle to prevent unauthorized removal.

Background check – Trustworthiness and reliability

Q10. What is the requirement for a background check?

A.10 Each licence holder with high-risk radioactive sources will have to implement an effective trustworthiness and reliability verification program that includes a criminal record name check, for individuals to have unescorted access to these sources.

Personnel who require authorized access to such radioactive material or prescribed/sensitive information to perform job duties, but who are not approved by the licensee, must be escorted by an approved individual.

Q11. How will the CNSC check that licensees verify their employees' trustworthiness and reliability?

A11. The licensee is responsible for retaining documentation regarding trustworthiness and reliability for the period ending one year after the expiry of the licence, in accordance with subsection 28(1) of the *General Nuclear Safety and Control Regulations*.

The licensee must permit the CNSC to have access to the trustworthiness and reliability records for review, inspection, or audit purposes.

Q12. Who will be required to undergo background security screening checks?

A12. The licensee shall verify the trustworthiness and reliability of all persons who require access to radioactive sources at the licensee's location or to prescribed/sensitive information. This also include service-company personnel, contractors and building maintenance staff who require unescorted access to locations where radioactive sources are used, processed or stored.

Individuals with unescorted access to high-risk radioactive sources will be required to provide proof of their criminal records name check (CRNC) to the licensee.

Q13. What happens if an individual has a criminal record?

A13. The trustworthiness verification program is the responsibility of the licensee. The licensee will be responsible for assessing the individual's past and current character and reputation, to provide reasonable assurance that this individual does not represent a risk to radioactive sources, prescribed equipment or prescribed information.

If gaps exist in the documentation or CRNC results show either "records match" or "incomplete", the licensee should inform the applicant, and ensure that the information is complete and/or accurate and contact the applicant to retrieve all necessary information and/or meet with the applicant to clarify any concerns.

If it is not possible to obtain background information to cover the last five years, or if significant adverse information arises during the process of the trustworthiness and reliability verification, the licensee should notify the individual in person and give them the opportunity to provide clarifications or explanations. In this case, the licensee may consider conducting an interview to assess if there is a risk to the high-risk radioactive source(s) or site security.

The decision to grant, deny or revoke unescorted access to the radioactive material rests with the licensee. **The decision should be supported by a management policy that includes a risk-based decision-making process.**

If CRNC information is unavailable or incomplete, or an indictable conviction exists, fingerprints should be verified through a police service agency (in the area of jurisdiction where the person has resided) or by a trusted third party

Q14. What are the criteria for a valid background check?

A14. REGDOC- 2.12.3 provides guidance on the assessment criteria. Some indicators that licensees may consider during their trustworthiness assessment include:

- conviction(s) for a serious crime within the past five years (including murder, attempted murder, or indictable offences involving violence)
- impaired performance or dangerous behavior attributable to psychological or other disorders
- misconduct that warrants criminal investigations or results in arrest or conviction
- indication of deceitful or delinquent behavior
- attempted or threatened destruction of life or property
- illegal drug use, abuse or distribution
- alcohol abuse disorders
- failure to comply with work directives
- hostility or aggression toward fellow workers or authority
- uncontrolled anger
- violation of safety or security procedures

Note: These indicators are not all-inclusive and are not intended to be disqualifying factors. Licensees should consider extenuating or mitigating factors.

Q15. Can employees that have worked for my organization for more than five years be granted trustworthiness on the basis of continuous previous employment records?

A15. All employees granted unescorted access must have a determination of trustworthiness and reliability. The level of investigation needed for those employed for more than five years is different than that required for new or recently hired individuals. A CRNC is required every five years but the reference, education and employment checks are not required for existing staff (these are required only for new hires). This provision applies if a person has been employed with the same employer for a five-year continuous period.

Q16. What about international students where this information is sometimes difficult to obtain or validate?

A16. All employees granted unescorted access must have a determination of trustworthiness and reliability. If this information is not available, the licensee may require the student to be escorted by an authorized person who is trustworthy and reliable. During the application process, the licensee may require additional information on the past residences, as well as credit, education and reference checks. There are also specialized pre-employment screening companies that have the appropriate tools to conduct such verification.

Q17. Where do I submit my site security plan?

A17. A site security plan is currently required for licensees with Category 1 and 2 sealed sources, and will become a requirement for licensees with Category 3 sources on May 31, 2018. This document must be submitted to the CNSC for review and acceptance before sealed sources are stored at that location.

Licensees using transport vehicles for mobile storage at temporary job sites that have exceeded a 90-day period are required to report the location to the CNSC as per the applicable licence condition and must submit a security plan (SP). The SP must include all information necessary to describe physical protection measures to protect the source(s) used at the location or vehicle where the sealed sources are stored.

The licensee may choose to provide a generic corporate site security plan, and submit a specific SP as a supplement or appendix when using a temporary job site or their vehicle for storage for a period of time that exceeds the 90 days.

If you have any questions about the above or REGDOC-2.12.3, please contact the CNSC at 1-888-229-2672.