

## **SAFEGUARDS IMPLEMENTATION IN CANADA**

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### **ABSTRACT**

The Canadian Nuclear Safety Commission (CNSC) is the organization responsible for the implementation of safeguards in Canada. In particular, it ensures, through its regulatory framework and compliance activities, that Canada meets its safeguards obligations to the International Atomic Energy Agency (IAEA). In this paper, we review the role of the CNSC in ensuring the successful implementation of safeguards at facilities in Canada. Safeguards are applied across the full range of fuel cycle activities, including: uranium mining and milling, uranium refinement and conversion, fuel fabrication, nuclear power generation, and nuclear research and development.

### **INTRODUCTION**

Canada ratified the *Treaty on the Non-Proliferation of Nuclear Weapons* in 1970 and concluded its comprehensive safeguards agreement with the IAEA in 1972 (INFCIRC/164). Canada furthered its commitment to international safeguards by concluding an additional protocol with the IAEA in 2000 (INFCIRC/164 Add. 1).

Under Canada's Nuclear Safety and Control Act, the Canadian Nuclear Safety Commission (CNSC) has the mandate to ensure conformity with Canada's international obligations with respect to nuclear energy, including the international safeguards agreement. The CNSC has two roles in this regard: first, it acts on behalf of the Government of Canada as the state authority to ensure the successful implementation of Canada's safeguards agreements; and second, it is the regulatory authority in Canada that ensures that Canadian nuclear operators provide the information, access, and support required for the IAEA to conduct its verification activities in Canada.

### **SAFEGUARDS REGULATORY FRAMEWORK**

The CNSC licensing and compliance framework covers fourteen Safety and Control Areas (SCAs), of which Safeguards and Non-Proliferation is one. Within the Safeguards and Non-Proliferation Safety and Control Area, we have four specific areas: nuclear material accountancy and control, provision of access and assistance for verification activities, provision of design, operational, and other information (including information required under the additional protocol), and provision of support for safeguards equipment and seals. The requirements within the Safeguards and Non-Proliferation Safety and Control Area are codified in a regulatory document (REGDOC 2.13.1 Safeguards and Nuclear Material Accountancy).

## **ROLE OF THE CNSC**

The CNSC does not duplicate all of the IAEA's verification activities in Canada. Rather, it uses its licensing and compliance activities to ensure that Canadian operators provide what is required by the state authority to fulfil obligations to the IAEA.

### **Nuclear Material Accountancy**

The first specific area in the Safeguards and Non-Proliferation Safety Control Area is nuclear material accountancy. Under REGDOC 2.13.1, licensees are required to provide information on nuclear material inventories and changes thereto to the CNSC. The CNSC maintains a real-time inventory of all nuclear material in Canada in its Nuclear Material Accounting System (NMAS). This database is updated daily to reflect transfers of nuclear material, whether those transfers are between material balance areas in Canada or between Canada and other countries. The CNSC relies on its regulatory framework to ensure that licensees provide the nuclear material accountancy information to it. The CNSC, in turn, provides this information to the IAEA for verification. At the same time, nuclear material control is ensured by the licensees, as overseen by the CNSC's security division.

### **Provision of Access and Assistance to the IAEA**

The second specific area in the Safeguards and Non-Proliferation Safety Control Area relates to the provision of access and assistance to the IAEA. Under REGDOC 2.13.1, licensees have obligations to provide access and assistance for IAEA verification activities in order to remain compliant with their licences. The CNSC assures that licensees provide such access and assistance through its compliance framework. The CNSC will also participate in IAEA verification activities when required, either in person, or remotely, and document and follow-up on any access or assistance issues that may arise.

### **Provision of Design, Operational, and Additional Protocol Information**

The third specific area in the Safeguards and Non-Proliferation Safety Control Area relates to the provision of design, operational, and additional protocol information. Under REGDOC 2.13.1, licensees are obligated to provide specific information to assist the CNSC in meeting the requirements for information in the safeguards agreements. The CNSC reviews information provided by licensees to ensure that it meets the requirements of the CNSC regulatory framework and also of Canada's commitments under the safeguards agreements. The CNSC also ensures that requests for updates to design or additional protocol information made by the IAEA are provided by licensees in a timely fashion.

### **Support for IAEA Equipment**

The fourth specific area in the Safeguards and Non-Proliferation Safety Control Area relates to the provision by licensees of support IAEA equipment and seals. Licensees are obligated to provide reasonable support and assistance for IAEA cameras and automated detectors, including power supply and communications infrastructure. Licensees with installed IAEA equipment are

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also obligated to report to the CNSC on issues that may have potential implications for IAEA equipment, including power interruptions, potential issues with IAEA seals, and communications interruptions. CNSC staff work with licensees and the IAEA to determine if there was any loss of continuity of knowledge and assist in the development of work plans to recover the knowledge.

## **LICENSING AND COMPLIANCE**

### **Licensing Activities**

All licensees are required by CNSC regulation to provide the information and access required to implement Canada's safeguards agreements. Depending on the nature of a licensee's activities, the licensee may also have a requirement, in the form of a licence condition, to implement a safeguards program in accordance with REGDOC 2.13.1, Safeguards and Nuclear Material Accountancy. As noted above, REGDOC 2.13.1 spells out the requirements for the implementation of safeguards in each of the four specific areas of the Safeguards and Non-Proliferation Safety Control Area.

### **Compliance Activities**

The CNSC employs a graduated approach to compliance, with potential escalation from licensee safeguards staff, to licensee regulatory affairs departments, to licensee senior management. Compliance assessment is based on each of the specific areas in the Safeguards and Non-Proliferation Safety Control Area.

The tools available to the CNSC for compliance include both the promotion of compliance through recommendations, outreach, and regular reporting on licensee programs (such as annual Regulatory Oversight Reports) as well as reactive efforts in response to a non-compliance.

In the case of a non-compliance, the tools are graduated depending on the severity of the issue. There could be both regulatory responses and statutory enforcement actions. Regulatory responses include the issuance of noticed of non-compliance (which requires an action plan to be provided, approved, and implemented), warning letters, increased regulatory scrutiny, and investigations. Statutory enforcement actions are more severe and include orders by the Commission or a delegated authority, requests under the regulations, licensing actions, administrative monetary penalties, decertification, and prosecution.

## **CONCLUSIONS**

The CNSC is the safeguards regulatory authority in Canada, with the mandate to act on behalf of Canada in fulfilling the requirements under the safeguards agreements with the IAEA. The CNSC plays two roles: on the one hand it is delegated by the Government of Canada to implement Canada's safeguards agreements by providing the information, access, and assistance required to the IAEA; on the other hand, it maintains a safeguards regulatory framework in Canada to assure that licensees provide the information, access, and assistance required for the CNSC to implement

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the safeguards agreements. In short, the CNSC maintains an effective regulatory framework to support the function of the State System of Accounting and Control.