

## IMPLEMENTATION OF A FINANCIAL GUARANTEE POLICY AT THE CNSC

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### ABSTRACT

The Canadian Nuclear Safety Commission (CNSC) was established in 2000 under the *Nuclear Safety and Control Act* (NSCA) to replace the Atomic Energy Control Board (AECB). Prior to the coming in force of the NSCA, financial guarantees associated with licensed activities were not prescribed in the *Atomic Energy Control Act* or its regulations. Under the NSCA, the Commission Tribunal "the Commission" was given authority to impose conditions in licences requiring financial guarantees from licensees. Other provisions of the NSCA provided information on the application of financial guarantees and for refunds when decommissioning obligations had been met.

Since 2000, the application of financial guarantees has been primarily focussed on licences issued pursuant to the *Class I Nuclear Facilities Regulations* and the *Uranium Mines and Mills Regulations*. This was to assure that the requirements for financial guarantees were initially directed at the high risk, complex facilities licensed by the CNSC. However, all licensees have not yet been required to provide a financial guarantee for all licensed facilities, activities or licence types. Additionally, CNSC expectations in relation to when financial guarantees, associated decommissioning plans and cost estimates need to be reviewed, updated and submitted, and what they should entail have been evolving, indicating a need for a clear CNSC policy on the subject.

Consequently, the CNSC is proceeding with the development of a financial guarantee policy and implementation plan to assure that generators of nuclear waste will have the financial resources available to decommission nuclear facilities, operations and devices and that this activity will not fall to government as a future liability. This program will require approval by the Commission, planned for 2012. This paper will further describe this policy and its possible outcomes.

## 1. INTRODUCTION

### 1.1. Background

The CNSC was established in May 2000 when the NSCA came into force, replacing the *Atomic Energy Control Act*. With the promulgation of the NSCA, the CNSC became the successor organization to the Atomic Energy Control Board (AECB) which was founded in 1946. Prior to the NSCA, provisions requiring that licensees provide financial guarantees to ensure that decommissioning liabilities would be met were not set out in the *Atomic Energy Control Act*.

In the early 1990's, due to economic factors impacting the uranium mining industry, it was becoming evident that there was a risk that government may end up responsible for costs associated with decommissioning one or more large uranium mining facilities in Ontario.

Consequently, in 1994, the AECB, requested amendments to the *Uranium and Thorium Mining Regulations* of the *Atomic Energy Control Act*. These amendments required that uranium mining companies make a number of provisions to ensure that funding for decommissioning would be

available. The fundamental objective of the amended regulations was to ensure that the costs of decommissioning uranium mining facilities would be borne by industry and not by government.

The key changes to the regulations required that licensees:

- develop a decommissioning plan and review it every 5 years,
- develop a cost estimate and work schedule for decommissioning,
- implement measures to ensure that the costs of decommissioning would be met.

Based on industry feedback, the AECB did not prescribe what these measures would be; giving flexibility to industry to propose solutions that would best suit their individual situations. The AECB recognized that it would need to be able to control and assure that the measures taken would only be used for the funding of decommissioning activities, so the amended regulations also required that industry obtain approval from the *Board* prior to removing any capital from any established fund or security, to ensure that the viability of the decommissioning fund would be maintained.

When the *Atomic Energy Control Act* was replaced by the NSCA, the Commission was given authority to impose conditions in licences requiring that licensees provide financial guarantees. Also in 2000, the CNSC issued two regulatory documents to assist licensees in meeting CNSC expectations; G-206 "*Financial Guarantees for the Decommissioning of Licensed Activities*" and G-219 "*Decommissioning Planning for Licensed Activities*". These two documents provided set out CNSC expectations in relation to what should be provided by a licensee in a decommissioning plan, and what would be an acceptable form of cost estimate and financial guarantee.

However, neither the NSCA nor its regulations prescribed that financial guarantees were required, what they could be used for, or to what types of licensed activities they should apply. The legislation gave the Commission the authority to require them if they chose. Consequently, the provision of a financial guarantee is a discretionary authority of the Commission enforced through the application of specific licence conditions requiring them.

In 2000, the CNSC expanded the number and types of licensed activities that would be required to provide financial guarantees in addition to those that were already required under the *Uranium Mines & Mills Regulations*. Consequently, all organizations that held licences issued pursuant to the *Class I Nuclear Facilities Regulations* were also required to provide financial guarantees for their facilities. This was to assure that financial guarantees were being provided for all of the highest risk, most complex facilities licensed by the CNSC.

## **1.2. Purpose of a Financial Guarantee**

The purpose of a financial guarantee is not specified in the NSCA, but it is generally recognized that it is to ensure that financial resources will be available to guarantee that decommissioning of licensed facilities and activities, including management of resulting wastes can be funded, regardless of the financial health of the licensee.

The NSCA gives authority to the Commission to require financial guarantees of its licensees. Sub-section 24(5) of the NSCA states that licences may contain conditions requiring financial guarantees, and sub-sections 24(6) and 24(7) give the Commission the authority to spend or refund money from such a guarantee. Paragraph 37(5)(b) contains a related provision, that a

designated officer who issues a licence containing a condition requiring a financial guarantee must report it to the Commission.

Section 3.0 of the NSCA states;

***Purpose***

*3. The purpose of this Act is to provide for*

*(a) the limitation, to a reasonable level and in a manner that is consistent with Canada's international obligations, of the risks to national security, the health and safety of persons and the environment that are associated with the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and prescribed information; and*

*(b) the implementation in Canada of measures to which Canada has agreed respecting international control of the development, production and use of nuclear energy, including the non-proliferation of nuclear weapons and nuclear explosive devices.*

The requirement for a financial guarantee to assure that decommissioning can be funded is directly related to the purpose of the NSCA. However, a financial guarantee can be required by the Commission for other purposes than to assure that decommissioning will be funded. Paragraph 24(6) of the NSCA states:

*Application of proceeds of financial guarantee*

*(6) The Commission may authorize the application of the proceeds of any financial guarantee referred to in subsection (5) in such manner as it considers appropriate for the purposes of this Act.*

Other purposes that could be considered appropriate by the Commission could be to assure that:

- the CNSC's *Cost Recovery Fees Regulations* are adhered to,
- a licensee will be able to fund safety upgrades while an operating licence is in affect,
- a licensee will be able operate a facility for a specified period,
- funds are available to put a facility into a safe state of closure,
- a licensee will have financial resources to protect the health and safety of persons and the environment from impacts from the licensed activity,
- a licensee will have financial resources to maintain long-term repositories,
- a licensee will have financial resources to retire from service (which could include collecting, packaging, transporting, storing or disposing) prescribed information or equipment, nuclear substances, radiation devices and radioactive sources or other licensed activities.

### **1.3. NSCA Regulations**

Reference to financial guarantees can be found in the *General Nuclear Safety and Control Regulations*, paragraph 3(1)(l). This paragraph requires that an application for any CNSC licence include a description of any proposed financial guarantee, thereby linking the power to require such guarantees to the licensing process.

This regulation applies to any licence issued by the Commission.

#### **1.4. Alignment with Other Policies/Guidance**

Since all nuclear substances will eventually end up as radioactive waste when retired from its related nuclear activity or facility, the development of a CNSC policy on financial guarantees aligns with the Canadian Government Policy Framework on Radioactive Waste issued by Natural Resources Canada in 1996. The policy framework states, "Waste producers and owners are responsible for funding, organization, management and operation of disposal and other waste management facilities". This is consistent with the CNSC's nuclear regulatory practice in putting the onus of safe operations on licensees and facility operators.

Additionally, the proposed CNSC policy is consistent with the *Nuclear Fuel Waste Act*, which requires generators of spent nuclear fuel to deposit funds for the long term management and disposal of this waste in accordance with the "polluter pays principle". It is also consistent with the CNSC's *Cost Recovery Fees Regulations*, which requires that licensees reimburse costs associated with nuclear regulation and oversight, removing the financial burden from Canadian taxpayers.

Internationally, the financial guarantee policy being proposed is consistent with *International Atomic Energy Agency* and *Nuclear Energy Agency* guidance concerning good waste management practices. This guidance proposes that adequate financial provisions be available to assure that the liabilities associated with decommissioning nuclear facilities and activities that were developed for the benefit of today's society, not be passed on to future generations.

#### **1.5. Existing Regulatory Guidance**

While the regulations require that information be submitted regarding decommissioning plans and financial guarantees, they do not prescribe what is required. The CNSC communicates its expectations through regulatory documents. Two such documents were issued in June 2000 to provide guidance on decommissioning plans and financial guarantees; G-219, *Decommissioning Planning for Licensed Activities* and G-206, *Financial Guarantees for the Decommissioning of Licensed Activities*.

G-219 provides guidance on how to meet CNSC expectations for acceptable preliminary and detailed decommissioning plans and provides suggestions and advice on what is expected within these plans. G-219's scope is not defined to specific licence types, although application is primarily focused on decommissioning plans for the more complex nuclear facilities.

G-206 is applicable to any proposed financial guarantee. Its purpose is to allow the licensee to provide assurance to the CNSC that the decommissioning liability will be funded. It links decommissioning plans to cost estimates and indicates that the cost of management of wastes must also be included in the financial guarantee. It provides general criteria for the acceptability of a financial guarantee; liquidity, certainty of value, adequacy of value and continuity.

G-206 also allows that expressed commitments from federal or provincial governments can be considered as an acceptable form of financial guarantee.

These two documents were directed more to complex facilities associated with the *Class I Nuclear Facilities Regulations* and the *Uranium Mines and Mills Regulations*. They do not adequately cover nuclear substances, radiation sources or devices.

## 2. PROPOSED FINANCIAL GUARANTEE POLICY

### 2.1. Policy Statement

The proposed policy that will be considered by the Commission states:

*“It is CNSC policy that a decommissioning financial guarantee is required at all stages of licensing for all licensed facilities and activities, unless in the opinion of the Commission, a financial guarantee is not required.”*

All nuclear substances have the potential to be hazardous to human health and the environment, be mobile, be easily dispersible, have potential for being used for malevolent purposes and could cause widespread social impacts if they are not controlled and secured appropriately. Assuring that funding is available, irrespective of the financial health of a licensee, to appropriately manage and dispose of nuclear substances and to decommission facilities, is an extension of regulatory control mandated to the CNSC through the *Nuclear Safety and Control Act* and meets the purposes of the NSCA as set out in Section 3.

### 2.2. Licences Impacted by the Policy

#### 2.2.1 Major Nuclear Facilities and Uranium Mines and Mills

Since 2000, the CNSC implemented financial guarantees for all major nuclear facilities and uranium mines and mills across Canada (licences issued pursuant to the *Class I Nuclear Facilities Regulations* and the *Uranium Mines & Mills Regulations*). All financial guarantees were considered by the Commission and are included as part of the licensing basis for each applicable nuclear facility, mine or mill. Consequently, the revised policy will have minimal impact upon existing licenses in this Class.

For new licences issued under these regulations, there may be an impact as the policy will now clearly apply to all stages of licensing. In life-cycle licensing, separate licences are required for the more complex licensed operations as set out in Table 1, as derived from the regulations under the NSCA.

**Table 1: Licence Types**

<i>Licence Type</i>	<i>Class I Nuclear Facilities Regulations</i>	<i>Uranium Mines And Mills Regulations</i>	<i>Class II Nuclear Facilities and Prescribed Equipment Regulations</i>
Prepare Site	X	X	
Construct	X		X
Operate	X	X	X
Decommission	X	X	X
Abandon	X	X	

For all of the above licences, with the exception of a licence to abandon, physical changes to the environment could be authorized that would incur some amount of decommissioning liability. For a licence to abandon, a financial guarantee would not normally be required. For a decommissioning licence, the financial guarantee could be drawn down commensurate with the remaining liability as decommissioning proceeds.

### 2.2.2 Waste Nuclear Substance Licences

Waste Nuclear Substance Licences are issued for the possession of and/or the processing of waste nuclear substances where the resident inventory of nuclear substances is less than  $10^{15}$  Bq. They typically entail small waste storage and processing sites, waste brokers and university waste management facilities. In the past, they have not been subject to the requirements of providing a financial guarantee, but will be subject to this requirement under the proposed CNSC policy. Currently, holders of waste nuclear substance licences are being requested to submit preliminary decommissioning plans, associated cost estimates and an appropriate financial guarantee.

### 2.2.3 Other Facilities and Activities Licensed by the CNSC

For the remaining facilities and activities licensed by the CNSC that do not currently have financial guarantees in place, the CNSC is proposing that financial guarantees be extended to encompass these uses. This is the subject of Discussion Paper DIS-11-01 "*Implementation of Financial Guarantees for Licensees*", March 2011, available on the CNSC web site at: [www.nuclearsafety.gc.ca](http://www.nuclearsafety.gc.ca). For these types of licences, a different approach and process is being proposed. Consequently, information on this aspect of the implementation of the financial guarantee policy can be referred to in DIS-11-01, which is not the subject of this paper.

### 2.2.4 Licences to be Excluded from the Requirement for a Decommissioning Financial Guarantee

There are certain licences issued by the CNSC that do not have a decommissioning liability associated with them. Consequently, certain licence types would not be expected to have an associated financial guarantee. These could include:

- import licence,
- export licence,
- transport licence,
- prescribed information licence,
- licence to abandon [a nuclear substance, prescribed equipment/information],
- dosimetry service licence.

### 2.2.5 New or Amended Licence Types

Licences were established pursuant to section 24 of the NSCA and approved in CMD 00-M16. It is possible that licence types could be further developed, deleted or amended, so this policy is also intended to address future changes in types of licences that may be issued by the CNSC. Consequently, this policy includes the provision that if licence types are amended, or if new licence types are approved, that the default policy of the CNSC would be that a financial guarantee will be required unless the Commission rules otherwise.

### **3. CNSC EXPECTATIONS FOR DECOMMISSIONING PLANS, COST ESTIMATES AND FINANCIAL GUARANTEES UNDER THE PROPOSED POLICY**

#### **3.1. Policy Terminology**

##### **3.1.1 Decommissioning**

Decommissioning is defined as those actions taken, in the interest of health, safety, security and protection of the environment, to retire a licensed activity or facility permanently from service and render it to a predetermined and stable end-state condition.

##### **3.1.2 Financial Guarantee**

A financial guarantee is defined as a specific provision to assure that adequate resources will be available to ensure that a defined obligation will be met. It is based upon the general criteria of liquidity, certainty of value, adequacy of value and continuity. It may include;

- cash in a segregated fund,
- an irrevocable letter of credit,
- an expressed commitment from a provincial or federal government,
- any other measure considered to be acceptable by the Commission.

An acceptable “financial guarantee” does not include a promise or pledge, a parent company or partner commitment, a promissory note, a statement of financial viability, a statement of assets or of revenue, or a letter of referral or recommendation.

##### **3.1.3 Decommissioning Activity**

A decommissioning activity is defined as an activity related to the following measures as appropriate to the class of licence;

- decommissioning activities associated with nuclear facilities,
- decommissioning activities associated with uranium mines and mills,
- measures associated with the maintenance of long-term repositories,
- measures associated with retiring from service (which could include collecting, packaging, transporting, storing or disposing) prescribed information or equipment, nuclear substances, radiation devices and radioactive sources or other licensed activities.

##### **3.1.4 Decommissioning Financial Guarantee**

A decommissioning financial guarantee is defined as a financial guarantee that assures that adequate resources are available to assure funding of a decommissioning activity, appropriate to the class of licence issued.

For facilities that are complex and purpose designed, decommissioning plans and cost estimates must be linked together to provide the basis for the value of the financial guarantee.

#### **3.2. Decommissioning Plans**

There are two types of decommissioning plans that are associated with licensed activities, preliminary and detailed.

A detailed decommissioning plan is different from a preliminary decommissioning plan in that it is developed based upon the knowledge and state of the facility as it has been assessed after facility operations have ceased; whereas a preliminary decommissioning plan makes future assumptions regarding facility conditions at some undefined future time. Typically, a detailed decommissioning plan is only required in support of an application for a licence to decommission.

Preliminary decommissioning plans must be kept updated to reflect operational changes in the facility, regulatory changes or technological improvements that may affect the manner by which decommissioning proceeds. Currently, it has been the practice that decommissioning plans be updated whenever the facility changes that increases the cost of decommissioning by more than 3 %, or when the Commission or a person authorized by the Commission requests it or, in any event, no later than every five years.

Among the various references to decommissioning in the regulations, several refer specifically to decommissioning plans. The *Class I Nuclear Facilities Regulations* paragraph 3(k) requires any application for a Class I nuclear facility licence (other than a Licence to Abandon) to include a decommissioning plan. The *Uranium Mines and Mills Regulations* paragraph 3(a)(viii) expresses a similar requirement for uranium mines and mills and the *Class II Nuclear Facilities and Prescribed Equipment Regulations* paragraphs 3(s) and 4(t) place similar requirements on applications for construction and operating licences for Class II nuclear facilities. There is no comparable requirement in the *Nuclear Substances and Radiation Devices Regulations*, although sub-paragraph 3(1)(b)(iv) requires information on the methods, procedures and equipment to be used to decontaminate the site or equipment. For all licences, the Commission has authority to require a decommissioning plan through a licence condition issued under authority of the *Nuclear Safety and Control Act* sub-section 24(5).

### **3.3. Cost Estimates**

Associated with the preliminary decommissioning plans are the cost estimates which are used to determine what the value of the financial guarantee should be. The cost estimate can be part of the preliminary decommissioning plan, or can be a separate submission. Given that the maximum review frequency of a decommissioning plan is five years, the maximum review frequency of a cost estimate is also five years.

In all cases the financial guarantee must be sufficient at all times to fund the plan developed for decommissioning. Facilities and activities that are licensed by the CNSC vary in complexity, risk, size, volume, inventory etc. The guiding principle to assessing cost estimates is that the licensee abandons the nuclear facility leaving 'typical' amounts of production inventory. In response the CNSC must hire a consultant to conduct the decommissioning activities and to apply for regulatory approvals going through the 'regular' regulatory process leading to licence revocation or abandonment.

The cost estimate must include:

- safe state of closure activities to put the facility into a de-energized state while decommissioning is being planned,
- environmental assessment and regulatory process fees. Regulatory timeframes must be assumed and costs associated with licensing in support of licences to decommission and to abandon must be included,



- costs associated with facility decommissioning and site restoration,
- costs associated with maintaining the facility during the decommissioning program (taxes, utilities, supplies, etc.),
- waste disposal costs, both radioactive, conventional and hazardous,
- restoration costs,
- contingency factors for a five year period to cover decommissioning uncertainties (not to account for escalation),
- costs for third party project management, consultants and contractors to conduct the work and oversee the decommissioning (external contractor/consultant labour rates are assumed).

More clarity on how the CNSC assesses the value of the financial guarantee required is set out below for various facility/activity types:

### 3.3.1 Class I Facilities and Uranium Mines and Mills

For Class I Facilities and uranium mines and mills, the value of a financial guarantee is based upon the cost of decommissioning, and therefore is linked to an associated preliminary decommissioning plan.

### 3.3.2 Decommissioned Mines Containing Nuclear Substances

For decommissioned mines containing nuclear substances (tailings facilities), the value of a financial guarantee is typically based upon the ongoing cost of monitoring and maintaining the facility into the future. Extraordinary or catastrophic failures are not included in the cost model. In some cases where the mine is decommissioned, but water treatment plants remain, cost estimates must include future decommissioning of the water treatment plants and putting the facility into a passive and sustainable operational mode.

### 3.3.3 Class II Facilities, Radiation Devices and Nuclear Substances

For Class II Facilities, Radiation Devices and Nuclear Substances financial guarantees have not been traditionally required. The proposal for assessing decommissioning financial guarantees for these types of licences is described in DIS-11-01.

### 3.3.4 Waste Nuclear Substances

There are a wide variety of types of waste nuclear substances licences, ranging from those with large volumes (uranium mine tailings that were not licensed under the *Uranium Mines and Mills Regulations* or the *Class I Facilities Regulations* to small volumes of nuclear substances arising from a small waste processing facility.

For waste nuclear substances, the type of guarantees must be flexible to reflect the variety, complexity, volume and variety of activities and facilities of nuclear substances that are licensed. These could include:

- ongoing care and maintenance of nuclear substances in perpetuity,
- cost of continuing operations for a specified period,
- costs of packaging, transport of nuclear substances to a licensed facility,

- cost of decontaminating a facility and packaging and transport of nuclear substances to a licensed facility,
- or some other option that would address the requirement.

#### **4. IMPLEMENTATION**

For the facilities and activities identified above, implementation of CNSC expectations is rolling out at the sites and facilities that do not have a financial guarantee framework during licence renewals.

For radiation devices and nuclear substances, the proposal for assessing decommissioning financial guarantees for these types of licences is described in DIS-11-01.

CNSC staff will present the proposed process and timeline to the Commission in 2012 at a public hearing. Licensees and other stakeholders wishing to contribute to the proceedings will be able to do so via oral or written submissions.

Should the Commission agree to implement the financial guarantee policy, it would amend, on its own motion, all affected licences as required, to include the requirement for a financial guarantee that is acceptable to the Commission or a person authorized by it.

Additionally, should the proposed policy be confirmed by the Commission, the CNSC will embark on a process to revise and update its regulatory documents. Any new guidance produced will reflect the CNSC's policy and will be developed to clearly explain CNSC expectations in relation to decommissioning plans, the development of cost estimates and acceptable financial guarantees.

#### **5. SUMMARY**

The Commission is empowered by the NSCA to require financial guarantees of its licensees. It does so in order to fulfill the purpose of the Act to provide for the limitation, to a reasonable level and in a manner that is consistent with Canada's international obligations, of the risks to national security, the health and safety of persons and the environment that are associated with the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and prescribed information.

If confirmed by the Commission, financial guarantees will be extended to include virtually all licensed activities that are authorized by the CNSC.