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APPENDIX 1 – Glossary and Acronyms
APPENDIX 2 – General Nuclear Safety and Control Regulations
PART 1 – INTRODUCTION

1. CONTEXT

1.1 Purpose of the Guidelines

The purpose of this document is to identify for the proponent, Ontario Power Generation (OPG), the nature, scope and extent of the information that must be addressed in the preparation of the Environmental Impact Statement (EIS) for its proposed Deep Geologic Repository (DGR) to store low- and intermediate-level radioactive waste. The proponent will prepare and submit an EIS that examines the potential environmental effects, including cumulative effects, of the site preparation, construction, operation, decommissioning and abandonment of the project and evaluates their significance. In addition, the proponent will address all requirements for a site preparation and construction licence, detailed in Appendix 2 of this document. This information will be used by a joint review panel established pursuant to the Canadian Environmental Assessment Act and the Nuclear Safety and Control Act as the basis for a public review.

While the EIS guidelines provide a framework for preparing a complete and accessible EIS, it is the responsibility of the proponent to provide sufficient data and analysis on any potential environmental effects to permit proper evaluation by a joint review panel, the public, and technical and regulatory agencies. The EIS guidelines outline the minimum information requirements while providing the proponent with flexibility in selecting methods to compile data for the EIS.

Exchanges between the proponent and other government organizations, Aboriginal people and stakeholders, where appropriate, are encouraged to ensure that the EIS responds adequately to these guidelines.

1.2 Environmental Assessment and Regulatory Process

On December 2, 2005, OPG wrote to the Canadian Nuclear Safety Commission (CNSC) indicating its intent to initiate the regulatory process to prepare a site, construct and operate a DGR on the existing Bruce Nuclear Site within the Municipality of Kincardine, Ontario. The proposed DGR would receive low and intermediate level radioactive waste currently stored on the Bruce Site in an interim facility, as well as waste produced from the continued operation of OPG-owned generating stations at Bruce, Pickering and Darlington, in Ontario.

OPG’s proposal includes the site preparation, construction, operation, decommissioning and abandonment of above-ground and below-ground facilities. The surface facilities would consist of components such as the underground access and ventilation buildings, associated temporary or permanent buildings and related infrastructure. The underground facilities would comprise components such as shafts, ramps and tunnels, emplacement
rooms, and various service areas and installations. Surface and underground facilities are expected to be located within the boundaries of the Bruce Nuclear Site.

DGR operations would involve those activities required to operate and maintain the DGR facility, including the transfer of waste from the existing interim storage facility and the receipt of waste at the repository, the emplacement of the waste in rooms within the repository and the closure of these rooms.

The project triggers the Canadian Environmental Assessment Act given that the proponent requires authorizations under subsection 24(2) of the Nuclear Safety and Control Act in order for the project to proceed. A comprehensive study for this proposed project was initiated January 30, 2006.

The CNSC held a public consultation and a public hearing on the scope of the environmental assessment. As a result of the public hearing the CNSC reported to the federal Minister of the Environment on the scope of the environmental assessment, public concerns, the possibility of adverse environmental effects and concerns regarding the comprehensive study’s ability to address all of the questions raised by the project and provided a recommendation to the Minister of Environment to refer the environmental assessment to a review panel. On June 29, 2007, the Minister of the Environment announced that the DGR project would be referred to a joint review panel.

A joint review panel under the Canadian Environmental Assessment Act and the Nuclear Safety and Control Act is being established to undertake an environmental assessment and regulatory review of this project. The joint review panel process will examine environmental assessment issues that relate to the full life cycle of the project, from site preparation through to operations, as well as an examination of decommissioning, and abandonment activities. The joint review panel process will also consider OPG’s application for a site preparation and construction licence. Separate licence applications and regulatory reviews would be required for OPG to operate the DGR, decommission, and to abandon the facility.

CNSC staff has confirmed with the Ontario Ministry of the Environment that there are no provincial EA requirements under the Ontario Environmental Assessment Act that are applicable to this proposal.

1.3 Preparation and Review of the EIS

The EIS guidelines were prepared by the Canadian Environmental Assessment Agency (CEAA) and the CNSC, and in consultation with other expert federal departments including Health Canada, Natural Resources Canada and Environment Canada. The draft EIS guidelines were subject to a public comment period from April 4, 2008 to June 18, 2008. After consideration of the comments received from Aboriginal groups and the public during the consultation period, the guidelines were revised and finalized, and submitted to the federal Minister of the Environment for approval. The guidelines were subsequently issued to the Proponent.
An EIS is a document prepared by the proponent that allows a joint review panel, regulators, Aboriginal groups and members of the public to understand the project, the existing environment, and the potential environmental effects of the project. The proponent must also provide all information required to support the application for a site preparation and construction licence for the joint review panel, as a panel of the Commission, to consider and render a licensing decision under the Nuclear Safety and Control Act and the regulations made under the Act (See Appendix 2).

The proponent will prepare an EIS that addresses the requirements of these guidelines for submission to the joint review panel that will be established for this project. The EIS will then be made available to the public and stakeholders for a comment period on whether the EIS is in conformity with these guidelines. The joint review panel will determine whether additional information must be provided before convening public hearings.

The EIS that is made available for public and stakeholder comment should not contain:

- Information that could cause specific, direct and substantial harm to the proponent, to a witness, or specific harm to the environment by the disclosure of;
- Information that involves national or nuclear security;
- Information that is confidential (i.e., financial, commercial, scientific, technical, personal or other nature), that is treated consistently as confidential, and the person affected has not consented to the disclosure; or
- Information that is likely to endanger the life, liberty or security of a person through its disclosure.

The proponent must inform the joint review panel in writing for a determination as to whether specific information required by these guidelines should be submitted to, and retained by the joint review panel, as confidential.

Following public hearings, the joint review panel will prepare a report that includes, but is not limited to, the rationale, conclusions and recommendations of the joint review panel relating to the environmental assessment of the project, including any mitigation measures and follow-up program, and a summary of any comments received from the public and Aboriginal groups.

This joint review panel report will be submitted to the Minister of the Environment. The report will be made available to the public at that time. The government will then respond to the joint review panel’s report. The Government of Canada’s response to the joint review panel report will be made available by the Canadian Environmental Assessment Agency.

Subsequent to the Government of Canada’s response, the joint review panel will render a licensing decision for a licence to Prepare Site and Construct under the Nuclear Safety and Control Act.
2. GUIDING PRINCIPLES

2.1 Environmental Assessment as a Planning Tool

Environmental assessment is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate the possible adverse effects of development on the environment and to encourage decision makers to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy.

The environmental assessment of this project must, in a manner consistent with those purposes, identify possible environmental effects; propose measures to mitigate adverse effects and predict whether there will be likely significant adverse environmental effects after mitigation measures are implemented.

2.2 Public Participation and Aboriginal Engagement

Public participation is a central objective of the overall review process. Meaningful public participation requires the proponent to address concerns of the general public regarding the anticipated or potential environmental effects of the project. In preparing the EIS, the proponent is required to engage residents and organizations in all affected communities, other interested organizations, and relevant government agencies. The proponent must provide in the EIS the highlights of this engagement, including the methods used, the results, and the ways in which the proponent intends to address the concerns identified, including a summary of issues raised during such engagement.

Another objective of the overall review process is to involve potentially affected Aboriginal people in order that the environmental assessment can identify and address concerns regarding any changes that the project may cause in the environment and the resulting effects of any such changes on the use of lands and resources for traditional purposes by Aboriginal persons. The proponent must ensure that it engages with Aboriginal people that have asserted or have established Aboriginal rights, Aboriginal title or treaty rights that may be affected by the project. In preparing the EIS, the proponent must ensure that Aboriginal people have the information that they require in respect of the project and of how the project may impact them. The proponent is required to describe in the EIS how the concerns respecting Aboriginal people will be addressed. That description should include a summary of discussions, the issues or concerns raised, and should consider and describe any asserted or established Aboriginal rights, Aboriginal title and treaty rights. The EIS must document the potential impact of the project on any asserted or established Aboriginal rights, Aboriginal title and treaty rights, and the measures to prevent or mitigate those potential impacts.

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1 As described in CEAA’s Public Participation Guide (May 2008), terms such as “participation,” “consultation,” “involvement,” and “engagement” are often used interchangeably, although they may mean different things to different people. These guidelines endeavour to use these terms in a manner that is consistent with the ‘Public Participation Terminology’ described in this CEA Agency Guidance.
Meaningful involvement in the environmental assessment can only take place when all parties have a clear understanding of the proposed project as early as possible in the review process. Therefore, the proponent is required to:

- Continue to provide up-to-date information describing the project to the public and especially to the communities likely to be most affected by the project;
- Involve Aboriginal people in determining how best to deliver that information, e.g., the types of information required, translation needs, different formats, the possible need for community meetings; and
- Explain the results of the EIS in a clear and direct manner to make the issues comprehensible to as wide an audience as possible.

### 2.3 Traditional Knowledge

Traditional knowledge, which is rooted in the traditional life of Aboriginal people, has an important contribution to make to an environmental assessment. Traditional knowledge refers to the broad base of knowledge held by individuals and collectively by communities that may be based on spiritual teachings, personal observation and experience or passed on from one generation to another through oral and/or written traditions. This tradition is dynamic, substantive, and distinct living knowledge.

Traditional knowledge, in combination with other information sources is valuable in achieving a better understanding of potential impacts of projects. Traditional knowledge may, for example, contribute to the description of the existing physical, biological and human environments, natural cycles, resource distribution and abundance, long and short-term trends, and the use of lands, and land and water resources. It may also contribute to project siting and design, identification of issues, the evaluation of potential effects, and their significance, the effectiveness of proposed mitigation, cumulative impacts, and the consideration of follow-up and monitoring programs.

Certain issues relevant to the review process are firmly grounded in traditional knowledge, such as harvesting, cultural well-being, land use, heritage resources, and others. Although the basis for traditional knowledge and science-based knowledge can differ, they may on their own or together, contribute to the understanding of these issues.

The joint review panel will promote and facilitate the contribution of traditional knowledge to the review process. It is recognized that approaches to traditional knowledge, customs and protocols may differ among Aboriginal communities and persons with respect to the use, management and protection of this knowledge. The joint review panel can consider the views of communities and traditional knowledge holders during the joint review process and determine which information should be kept confidential. The proponent must incorporate into the EIS the local knowledge to which it has access or that it may reasonably be expected to acquire through appropriate due diligence, in keeping with appropriate ethical standards and without breaching obligations of confidentiality.
Alternatively, the proponent may facilitate the presentation of such knowledge by persons and parties having access to this information to the joint review panel during the course of the review. If requested by an Aboriginal people, the proponent should cooperate to develop a mutually agreed-upon arrangement for the Aboriginal people themselves to provide traditional knowledge throughout the joint review process, either by themselves or in collaboration with the proponent.

2.4 Sustainable Development

Sustainable development seeks to meet the needs of present generations without compromising the ability of future generations to meet their own needs.

Environmental assessment provides a systematic approach for identifying, predicting and evaluating the potential environmental effects of projects before decisions are made. In addition, environmental assessment provides the means to identify mitigation measures for adverse effects. Environmental assessment promotes sustainable development and contributes to decision making that can ultimately provide net ecological, economic and social benefits to society.

A project that is supportive of sustainable development must strive to integrate the objective of net ecological, economic and social benefits to society in the planning and decision-making process and must incorporate citizen participation. The project, including its alternative means, must take into account the relations and interactions among the various components of the ecosystems and meeting the needs of the population. The proponent must include in the EIS consideration of the extent to which the Project contributes to sustainable development. In doing so, the proponent should consider, in particular:

(a) The extent to which biological diversity may be affected by the Project; and
(b) The capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of present and future generations.

2.5 Precautionary Approach

One of the purposes of environmental assessment is to ensure that projects are considered in a careful and precautionary manner before authorities take action in connection with them, in order to ensure that such projects do not cause significant adverse environmental effects. The Precautionary Principle informs the decision-maker to take a cautionary approach, or to err on the side of caution, especially where there is a large degree of uncertainty or high risk.

The document *A Framework for the Application of Precaution in Science-based Decision Making About Risk* [Reference 1] sets out guiding principles for the application of precaution to science-based decision making in areas of federal regulatory activity for the protection of health and safety and the environment, and the conservation of natural resources.
The proponent must indicate how the precautionary principle was considered in the design of the project in at least the following ways:

- Demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to ensure that they do not cause serious or irreversible damage to the environment and/or the human health of current or future generations;
- Outline and justify the assumptions made about the effects of all aspects of the project and the approaches to minimize these effects;
- Alternative means of carrying out the Project are evaluated and compared in light of risk avoidance, adaptive management capacity and preparation for surprise;
- That in designing and operating the project, priority has been and will be given to strategies that avoid the creation of adverse impacts;
- That contingency plans explicitly address accidents, malfunctions and malevolent acts and include risk assessments and evaluations of the degree of uncertainty;
- Identify any proposed follow-up and monitoring activities, particularly in areas where scientific uncertainty exists in the prediction of effects; and
- Present public views on the acceptability of all of the above.

In doing so, the proponent shall consider the guiding principles set out in the Framework for the Application of Precaution in Science-based Decision Making About Risk.

2.6 Study Strategy and Methodology

The proponent is expected to observe the intent of the EIS guidelines and to identify all environmental effects that are likely to arise from the project (including situations not explicitly identified in these guidelines), the mitigation measures that will be applied, and the significance of any residual effects. It is possible that these guidelines include matters that, in the judgment of the proponent, are not relevant or significant to the project. If such matters are omitted from the EIS, they must be clearly indicated with appropriate justification so that the public and other interested parties have an opportunity to comment on this judgment. Where the joint review panel disagrees with the proponent's decision, it may require the proponent to provide additional information.

The proponent must explain and justify methods used to predict impacts of the project on each valued environmental component (VEC), which includes biophysical and socio-economic components, the interactions among these components and the relations of these components within the environment. The information presented must be substantiated. In particular, the proponent must describe how the VECs were identified and what methods were used to predict and assess the adverse environmental effects of the project on these components. The value of a component not only relates to its role in the ecosystem, but also to the value placed on it by humans. The culture and way of life of the people using the area affected by the project may themselves be considered VECs.

In describing methods, the proponent must document how it used scientific, engineering, traditional and other knowledge to reach its conclusions. Assumptions made must be clearly identified and justified. All data, models and studies must be documented so that
the analyses are transparent and reproducible. All data collection methods must be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated. The sections in the EIS regarding the existing environment and the potential adverse environmental effects predictions and assessment must be prepared, using best available information and methods, to the highest standards in the relevant subject area. All conclusions must be substantiated.

The EIS must identify all significant gaps in knowledge and understanding where they are relevant to key conclusions presented in the EIS. The steps to be taken by the proponent to address these gaps must also be identified. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from traditional knowledge, the EIS must contain a balanced presentation of the issues and a statement of the proponent's conclusions.

2.7 Use of Existing Information

In preparing the EIS, the proponent is encouraged to make use of existing information relevant to the project. When relying on existing information to meet the requirements of various sections of the EIS guidelines, the proponent must either include the information directly in the EIS or clearly direct (e.g., through cross-referencing) the joint review panel to where it may obtain the information. When relying on existing information, the proponent must also comment on how representative the data are, clearly separate factual lines of evidence from inference, and state any limitations on the inferences or conclusions that can be drawn from them, according to the criteria for information quality set out in section 2.6 of the EIS Guidelines. For instance:

- Assumptions should be clearly identified and justified;
- All data, models and studies must be documented such that the analyses are transparent and reproducible;
- The uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated;
- Conclusions should be substantiated; and
- The studies should be prepared using best available information and methods, to the highest standards in the relevant subject area.

3. PRESENTATION OF THE EIS

For clarity and ease of reference, the EIS should be presented in the same order as the EIS guidelines. However, in certain sections of the EIS, the proponent may decide that the information is better presented following a different sequence. The EIS must include a guide that cross-references the EIS guidelines with the EIS so that points raised in the EIS guidelines are easily located in the EIS.

In the interest of brevity, the EIS should make reference to, rather than repeat, information that has already been presented in other sections of the document. A key subject index would also be useful and should reference locations in the text by volume, section and sub-section. The names of the proponent's key personnel and/or contractors
and sub-contractors responsible for preparing the EIS must be listed. Supporting documentation can be provided in separate volumes, and should be referenced by volume, section and page in the text of the EIS. The proponent must submit the EIS and all supporting documents in both an electronic format to facilitate internet access and in hard copy for record keeping and review.

The proponent should present the EIS in the clearest language possible. However, where the complexity of the issues addressed requires the use of technical language, a glossary defining technical words and acronyms must be included. The proponent should provide charts, diagrams and maps wherever useful to clarify the text, including perspective drawings that clearly convey what the developed project site would look like.

Information required to support the application for the Licence to Prepare Site and Construct must clearly cross-reference the EIS where appropriate.

3.1 Environmental Impact Statement Summary

The proponent must prepare a plain language summary of the EIS that provides the reader with a concise but complete overview of the EIS.

4. SCOPE

The following section outlines the scope of the project and the factors to be assessed. The scope of the project was based on the project description submitted in December 2005. While the details of the project are expected to change and develop through the environmental assessment process, the scope is sufficient to ensure the EIS will capture the project as it is planned to proceed.

4.1 Scope of the Project

Pursuant to paragraphs 15(1) (b) and 15(3) (b) of the Canadian Environmental Assessment Act, the Minister of the Environment is proposing that the scope of the project include the site preparation, construction, operation, decommissioning, and abandonment of the project components and activities proposed by OPG as described in Deep Geologic Repository for Low and Intermediate Level Radioactive Waste – Project Description [Reference 2]. The long-term management of used nuclear fuel under the mandate of the Nuclear Waste Management Organization is not within the scope of this project.

The physical works for this project include both surface facilities and underground facilities. Surface facilities could include two permanent buildings, plus any buildings required for ancillary facilities. The principal structures of the surface facilities expected are comprised of:
• Receipt/Access Building: this building could contain facilities for underground access by ramp or shaft. If access is by shaft, this building is expected to have a hoist/headframe/cage. If access is by ramp, this building would include ramp access. This building is likely to have facilities for staff, as well as the heating ventilation and air conditioning (HVAC) equipment. Low- and intermediate-level waste could be received at this building and may be staged for transfer to the DGR. This building may also be used for transfer and removal of excavated rock during construction activities; and

• Ventilation Shaft Headframe Building: this building may provide cover for the ventilation shaft, exhaust fans, sampling/monitoring devices, a hoist and mechanical/electrical systems.

Underground facilities would likely include the following:

• Ramp or Main Shaft: the main shaft would be excavated using drill and blast or other methods. The ramp would be tunnelled into the rock. Either the ramp or the shaft would be used to bring materials and waste into the DGR

• Ventilation Shaft: the ventilation shaft would be used to route air and provide emergency egress. This shaft would be excavated by drill and blast, raise bore, or other methods.

• Underground Tunnels: these tunnels would provide access from the underground receipt area to the operational level.

• Emplacement Rooms: these rooms would provide the storage space needed for the low- and intermediate-level waste, a volume estimated as 160,000 m$^3$.

• Operational Level Office, Amenities and Maintenance Areas: these may be constructed adjacent to the main shaft/ramp and possibly used for servicing underground equipment, or serve as a distribution point for services.

The physical works also consist of the site infrastructure, and would include such things as power, a sanitary sewer system, a potable water system, a storm water system, a subsurface drainage system, a construction laydown area, access roadways, fencing, waste rock storage and associated roads, security and roadways for linking the DGR to the existing Western Waste Management Facility.

The undertakings in relation to the physical works comprise those that are proposed in the project description (Section 8). This includes activities such as:

**Site Preparation**: clearing a portion of the proposed site (approximately 15 hectares are wooded) and development of roads to provide site access.

**Construction**: construction of surface facilities, the shaft or ramp, the ventilation shaft, and the underground excavation of tunnels and an initial set of emplacement rooms. Construction would also result in storage of rock on the Bruce site.
Operation: operational activities include transfer of low- and intermediate-level radioactive waste from the Western Waste Management Facility and waste emplacement in the DGR and any sealing of emplacement rooms during the operating period. The operational phase may also include construction campaigns for additional emplacement rooms.

Decommissioning: decommissioning activities include activities such as dismantling the equipment, sealing the repository and access ways and decontamination and demolishing the surface facilities.

Abandonment: although there are no activities associated with abandonment, the long term performance of the facility must conform to CNSC Regulatory Policy P-290, Managing Radioactive Waste [Reference 3].

4.2 Factors to be considered in the EIS

The Minister of the Environment is proposing that the following factors be considered in the EIS in order to adequately understand and assess the potential adverse effects of the project:

a. The environmental effects of the project, including the environmental effects of malfunctions, accidents or malevolent acts that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;

b. The significance of the effects referred to in (a);

c. Comments from the public that are received during the environmental assessment;

d. Measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;

e. Purpose of the project;

f. Need for the project;

g. Alternatives to the project;

h. Alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;

i. Measures to enhance any beneficial environmental effects;

j. The requirements for a follow-up program in respect of the project;

k. The capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future; and

l. The consideration of community knowledge and Aboriginal traditional knowledge.
PART II – CONTENT OF THE EIS

Part II of the EIS guidelines provides specific instructions for the content of each section in the EIS. The EIS as a whole must reflect the Guiding Principles in section 2 of the guidelines.

5.  CONTEXT

This section must orient the reader to the EIS by briefly introducing the geographic setting, the project, the underlying rationale for the project, the proponent, the federal joint review panel process and the content and format of the EIS.

5.1  Setting

This section must provide a concise description of the geographic setting in which the DGR is proposed to be constructed, demonstrating its proximity to Lake Huron, any National Parks or ecologically significant areas, the Municipality of Kincardine and the Town of Saugeen Shores, the Saugeen Ojibway Nation’s two residential communities of Saugeen and Cape Crocker. This section must also outline current use of lands, waters (both ground and surface waters) and resources, including those used for traditional purposes by Aboriginal persons that may be affected by the project and those lands, waters and resources related to established or asserted Aboriginal rights, Aboriginal title or treaty rights. Maps at appropriate scales to illustrate the regional setting should be included. The description must be focused on those aspects of the environment important for understanding the potential environmental effects of the project. A brief description of current regional land uses is required to integrate the natural and human elements of the environment in order to explain the interrelationships between the physical and biological aspects and the people and their communities.

5.2  Project Overview and Purpose

The proponent will briefly summarize the project, its purpose, location, scale, components, activities, scheduling and costs. A more detailed description of the project is provided for in Section 8 in these guidelines.

5.3  Proponent

This section should introduce readers to the proponent with summary information on the nature of the current management structure and any reasonably foreseeable changes in management structure and organizational accountability for the:

- Design, construction, operation and modification of the project;
- Implementation of environmental mitigation measures and environmental monitoring; and
- Management of potential adverse environmental effects.
5.4 Environmental Assessment and Regulatory Process and Approvals

For the purpose of the environmental assessment, the proponent must:

- Identify the planning context for the environmental assessment of the project;
- Discuss government policies, regulations, and land use plans that have a bearing on the project;
- Identify the requirements for the environmental assessment under the *Canadian Environmental Assessment Act* and the *Nuclear Safety and Controls Act*;
- Summarize and discuss the approach, including the role of regulatory bodies, to ensure compliance with existing federal and provincial environmental legislation such as the *Nuclear Safety and Control Act*, *Migratory Birds Convention Act*, the *Fisheries Act*, *Species at Risk Act*, the *Canadian Environmental Protection Act 1999*, *Ontario Environmental Protection Act*, *Ontario Water Resources Act*, *Lakes and Rivers Improvement Act* and Ontario’s *Endangered Species Act*;
- Summarize the main steps in the environmental assessment process and the main approvals required to undertake the project; and
- Describe the role of the EIS in the overall environmental assessment and regulatory process.

The joint review panel will also be considering information and evidence in support of OPG’s application for a licence to prepare a site and construct a DGR for low- and intermediate-level waste in accordance with the *Nuclear Safety and Control Act* and its regulations. These requirements are outlined in section 8.1 and Appendix 2 of these guidelines.

5.5 International Agreements

The proponent must summarize and discuss in the EIS applicable international agreements, designations, or action plans, their implications and relationship to the planning and regulatory process described in section 5.4 and how they may influence the project or its environmental effects.

The location of the facility on the shores of a trans-boundary watershed requires specific attention be paid to the *Canada-U.S. Air Quality Agreement*, the *Great Lakes Water Quality Agreement* and other such bi-national treaties and agreements.

6. PUBLIC PARTICIPATION

Involvement of Aboriginal people, government agencies, non-governmental organizations, and other interested parties is a central objective of the overall review process. In preparing the EIS, the proponent will demonstrate how it has engaged (i.e., shared information with, and gathered input from) interested parties that may be affected or have an interest in the project, in keeping with the Guiding Principles in section 2 of the guidelines. The key issues identified must be summarized in the EIS:
• The types of support provided to communities, organizations and individuals involved in the public participation process.
• The role of public engagement in identifying VECs, issues, effect prediction and mitigation.
• An explanation of how the results of that engagement influenced the design of the project; and
• A description of the principles and methods will be employed to provide information to, obtain input from or otherwise engage communities and groups regarding the project activities over the lifespan of the project.

6.1 Aboriginal Peoples

The EIS must describe the proponent’s involvement of the Chippewas of Saugeen First Nation, the Chippewas of Nawash Unceded First Nation and engagement of any other Aboriginal people, including Métis, that may be affected by the project, especially those Aboriginal people claiming Aboriginal rights, title or established treaty rights at the location or in the vicinity of the project.

This description will include a summary of the history of the proponent's relationship with Aboriginal people with respect to the Bruce Nuclear Site in general and the proposed project in specific. The EIS will describe the objectives of and the methods used for Aboriginal group engagement, issues or concerns raised through such engagement and any details not otherwise subject to confidentiality agreements, including a summary of the discussions, paper and electronic correspondence and meetings held. Details may include date and time, agenda, summary of discussions and a description of how the proponent has addressed the issues or concerns raised by Aboriginal people.

6.2 Government Agencies

The EIS must describe the proponent’s involvement of provincial and federal government ministries, departments or agencies and local governments which should include the municipalities of Kincardine, Saugeen Shores, Arran-Elderslie, Brockton and Huron-Kinloss. This may also include the Ontario Ministry of Energy and Infrastructure, the Ontario Ministry of the Environment and the Ontario Ministry of Natural Resources Park Superintendents for McGregor Point and Inverhuron Provincial Parks. The EIS must describe the objectives of such engagement, the methods used, issues raised during such engagement and the ways in which the proponent has addressed these issues.

6.3 Stakeholders

The EIS must describe the proponent’s involvement of stakeholders (e.g., local businesses, neighbouring residences, cottagers, outdoor recreational interests, and environmental non-government organizations). The EIS must describe the objectives of such engagement, the methods used, the issues raised and the ways in which the proponent has addressed these issues.
6.4 Other Public Participation

The EIS must describe any other public engagement undertaken by the proponent prior to submitting the EIS. The *Canadian Environmental Assessment Act* does not exclude the public outside of Canada, thus the EIS should describe any public participation opportunities for non-Canadians. This description must identify the objectives of such engagement, outline the methods used, and summarize the issues raised by the public and the ways in which the proponent has addressed these issues.

7. PROJECT JUSTIFICATION

7.1 Purpose and Need for the Project

The proponent must clearly describe the need for the proposed DGR. This description should define the problem or opportunity the project is intending to solve or satisfy and should establish the fundamental rationale for the project.

The proponent must describe the purpose of the project by defining what is to be achieved by carrying out the project.

The “need for” and “purpose of” the project should be established from the perspective of the project proponent and provide the context for the consideration of alternatives in sections 7.2 and 7.3 below.

7.2 Alternatives to the Project

An analysis of alternatives to the project must describe functionally different ways to meet the project’s need and achieve the project’s purpose from the perspective of the proponent. The analysis of alternatives to a project must be established in relation to the project need and purpose. The analysis of “alternatives to” a project may serve to validate that the preferred alternative is a reasonable approach to meeting need and purpose and is consistent with the aims of the *Canadian Environmental Assessment Act*.

This section of the EIS must: identify any alternatives to the DGR that are within the control and/or interests of the proponent; explain how the proponent developed the criteria to identify the major environmental, economic and technical costs and benefits of those alternatives; provide reasons for rejection of these alternatives; and identify the preferred alternative to the project based on the relative consideration of the environmental, economic and technical benefits and costs. This must be done to a level of detail which is sufficient to allow the joint review panel and the public to compare the project and its alternatives.

Alternatives to the project described in the EIS may include, but are not limited to:
- The *status quo* (i.e., the Western Waste Management Facility); and
- Surface and near-surface storage.
7.3 Alternative Means of Carrying out the Project

The EIS must identify and describe the alternative means to carry out the project that are, from the perspective of the proponent, technically and economically feasible. The EIS must also describe the environmental effects of each alternative means. In describing the preferred means, the EIS should identify the relative consideration of environmental effects, and technical and economic feasibility. The criteria used to identify alternative means as unacceptable, and how these criteria were applied, must be described, as must the criteria used to examine the environmental effects of each remaining alternative means to identify a preferred alternative.

To the extent that these alternative means are feasible for the proponent, this may include, but are not limited to, the following:

- Alternatives to “natural” containment (i.e., engineered barrier);
- Alternative storage systems;
- Timing options for various components and phases of the project;
- Construction methods;
- Layout and design of the DGR;
- Siting of the DGR in a different location within the existing site;
- Siting of the DGR in a location outside the existing site; and
- Reduction at source.

The alternative “reduction at source” represents the ways in which OPG could reduce the waste generated during the operation of the existing nuclear power generating stations but does not represent consideration of abandoning nuclear power. Consideration of provincial energy policy is not within the terms of reference of this joint review.

The Need for and Purpose of the project should include a description of how the site location was selected. If other potential sites were considered, they should be assessed under the context of alternative means.

8. Description of the Project

The project description must address all phases of the project, within the scope outlined in section 4, in sufficient detail to allow the joint review panel to assess potential adverse environmental effects and take into account public concerns about the project. The proponent must describe the project as it is planned to proceed through the site preparation and construction, operation (including any potential modifications or refurbishments that may be required during operations), decommissioning, and abandonment of the facility. The description must include a timeline for all phases of the project. Where specific codes of practice, guidelines and policies apply to items to be addressed, those documents must be cited and may be included as appendices to the EIS.
The following information must be provided in summary form. Where applicable, reference may be made to more detailed information.

8.1 General Information and Design Description

Information to be provided in the EIS must include:

- The location of the project;
- A description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;
- The DGR concept, its components and supporting infrastructure (including the basic configuration, layout, shape, size, and key design features);
- Plans showing the location, perimeter, areas, structures and systems of the nuclear facility;
- Plans showing the existing and planned structures, excavations and underground development;
- The design of the waste containers/packages, their performance and longevity with respect to their containment function, including reference to international experience if available and applicable;
- A description of the design of and the maintenance program for every eating area;
- A description of the proposed emergency power systems and their capacities;
- The proposed ventilation and dust control methods and equipment for controlling air quality;
- The proposed level of effectiveness of, and inspection schedule for, the ventilation and dust control systems;
- A description of the anticipated liquid and solid waste streams within the facility, including the ingress of water and any diversion or control of the flow of uncontaminated surface and groundwater;
- The type of waste streams to be emplaced in the DGR including the inventories and characteristics of nuclear substances and other hazardous materials to be stored at the facility;
- The description and characteristics of the waste containment system; identifying what components, both natural and man-made, comprise the system; and how these components will function to contain and isolate the waste from humans and the environment in the long-term;
- The description of the waste characteristics including source, chemical hazard, radiological hazard, and the non-fissile nature of the material, including the half-life of each isotope, and how the properties, chemical and radiological hazards will change with time;
- The transfer of waste packages, waste package handling, and final waste package emplacement processes;
• The sources, types, and quantities of radioactive, hazardous and non-hazardous waste predicted to be generated by the project;
• The processes for the collection, handling, transport, storage and disposal of radioactive, hazardous and non-hazardous waste to be generated by the project;
• The sources and characteristics of any fire hazards;
• The sources and characteristics of any noise, odour, dust and other likely nuisance effects from the project;
• The sources and characteristics of any potential risks (including radiological risks) to workers, the public and the environment from the project;
• The predicted doses to workers involved with the associated operations and activities that are within the scope of this project;
• The key operational procedures relevant to protection of workers, the public and the environment that are within the scope of this project;
• The key components of the facility and its physical security systems (excluding prescribed information) that are relevant to management of malfunctions and accidents that may occur during the site preparation and construction activities, and during the subsequent operations;
• The predicted sources, quantities and points of release from the project of emissions and effluents containing nuclear substances and hazardous materials;
• The proposed program for selecting, using and maintaining personal protective equipment;
• The proposed measures to control the spread of any radioactive contamination;
• The proposed quality assurance program for the activity to be licensed;
• The proposed worker health and safety policies, programs and procedures;
• The proposed environmental protection policies and procedures, and
• The proposed effluent and environmental monitoring programs.

Because the joint review panel will be considering the proponent’s application for a licence under the *Nuclear Safety and Control Act* to prepare the site and construct the DGR facility, there is a need for the proponent to provide additional and more detailed information as described in section 8.2.

### 8.2 Site Preparation and Construction

The EIS will describe any relevant site clearing and preparation activities required for this project and will provide a description of the permanent or temporary structures that will be constructed, including construction practices, hours of operation and proposed construction schedules. This section should also include a description and schedule of activities relating to the construction of any additional emplacement rooms in the DGR after operation of the DGR has commenced.

The following information requirements are required for the EIS and do not replace the requirements referred to in the *Nuclear Safety and Control Act* and its regulations noted above.

For site preparation, the EIS must describe, but should not be limited to, the following:

- Drilling, stripping of vegetation, clearing and grubbing;
- Blasting (handling procedures, frequency and size, pre-blast surveys, weather condition considerations);
- Topsoil and overburden storage (location and dimensions);
- Rock stockpile (location and dimensions);
- Site access roads;
- Sewage treatment and waste management systems;
- Storage areas for the management of site preparation and construction waste;
- Dangerous goods storage areas;
- Dams, watercourse crossings and diversions, including wetland alteration;
- Surface facilities and utilities;
- Groundwater seepage and surface runoff management;
- Erosion and sedimentation control measures; and
- Risk management (e.g., contingency plans for uncontrolled release of substances, emergency response plans).

For construction of the facility, the EIS must provide, but should not be limited to, the following information:

- The proposed construction program, including its schedule and capital costs;
- A description of the components, systems and equipment proposed to be installed, including their design operating conditions;
- The proposed quality assurance program for the design of the facility;
- The results of a process-hazard analysis and a description of how those results have been taken into account;
- A description of the proposed design, construction and operation of any waste management system, including the measures to monitor its construction and operation, the construction schedule, the contingency plans for construction and the measures to control the movement of water in existing waterways;
The anticipated quantities and quality of waste rock that will be removed, their proposed storage location, and the proposed method for managing the waste rock in the near and long term;

- The proposed excavation methods and programs; and

- The preliminary commissioning plan for the components, systems and equipment to be installed at the facility.

The proponent is also required to provide, or reference, the policies, programs and procedures that would be followed for site preparation and construction of the facility in order to provide some assurance that the facility could be constructed safely and in accordance with the *Nuclear Safety and Control Act* and its regulations.

### 8.3 Operation

For the operations of the facility, the EIS must describe, but not be limited to, the following information:

- For each project phase, the proponent must describe the number of workers required by occupation and/or skill;
- A description of the material handling, treatment, and disposal plans.
- A description of the provisions for onsite transfer of waste and other materials, including proposed modes and routes of transfer, the volumes and quantities to be transferred and how they will be placed into storage in the DGR;
- Any construction campaigns to add additional emplacement rooms to the DGR and how this will affect normal operations of the DGR; and
- Information on how emplacement rooms will be sealed off, once full, should be included.

The proponent is also required to provide, or reference, the policies, programs and procedures that would be followed for the operation of the facility in order to provide some assurance that the facility could be operated safely and in accordance with the *Nuclear Safety and Control Act* and its regulations following construction.

### 8.4 Modifications

The proponent must describe the management approach to, and conceptual plans for, potential modifications, including expansion or discontinuation, to the proposed project. The proponent must specify the conditions or potential risks which would necessitate modifications to the project. The proposed process to follow when proposing modifications to the project should be described and include a description of plans for informing the public.

### 8.5 Decommissioning

A decommissioning plan for the facility must be included in the EIS. The proponent should refer to CNSC Guide G-219, *Decommissioning Planning for Licensed Activities* [Reference 4] for more details.
The preliminary plan will document the preferred decommissioning strategy, including a justification of why this is the preferred strategy. The preliminary decommissioning plan will also include:

- End-state objectives;
- The major decontamination, disassembly and remediation of surface and underground facilities;
- The closure activities associated with sealing the shafts to the underground facilities;
- The nature and approximate quantities and types of waste generated during decommissioning; and
- An overview of the principal hazards and protection strategies envisioned for decommissioning.

8.6 Abandonment

An abandonment plan is required to determine the safety of the facility and its potential impact on human health and the environment. Section 13 of these guidelines provides more details regarding the long-term safety of the DGR. Refer also to CNSC Regulatory Guide G-320 Assessing the Long-Term Safety of Radioactive Waste Management [Reference 5] and CNSC Regulatory Policy P-290 “Managing Radioactive Waste” for the standards and practices for the management and control of radioactive waste.

8.7 Malfunctions, Accidents and Malevolent Acts

Information on malfunctions and accidents, including intentional malevolent acts, are necessary to permit consideration of relevant environmental effects in the environmental assessment. A summary of information on malfunctions and accidents should be presented in this section of the EIS. A separate section of the EIS should provide more details regarding the information requirements relating to malfunctions and accidents as per section 12.0 of these guidelines.

8.8 Environmental Protection Policies and Procedures

Paragraph 3(g) of the Class I Nuclear Facilities Regulations stipulates that application for a Licence to Prepare Site and Construct shall contain the proposed environmental protection policies and procedures. CNSC Regulatory Standard S-296, Environmental Protection Policies, Programs and Procedures at Class I Nuclear Facilities and Uranium Mines and Mills (March 2006) [Reference 6] and Regulatory Guide G-296, Developing Environmental Protection Policies, Programs and Procedures at Class I Nuclear Facilities and Uranium Mines and Mills (March 2006) [Reference 7] provide more information regarding these requirements. The fundamental direction of these regulatory documents is towards the establishment, implementation and maintenance of an Environmental Management System (EMS) by the proponent that meets the requirements of IS 14001-2004 “Environmental Management Systems – Requirements with Guidance for Use” in the context of Canadian environmental protection policy and regulation and the specific environmental protection requirements of the Nuclear Safety and Control Act and its Regulations.
The proponent must therefore submit its proposed environmental protection policies and procedures (i.e., EMS documentation) and demonstrate that the EMS will carry forward the results of the environmental assessment so that it covers the Site Preparation, Construction and Operational phases of the project. The EIS should describe how the mitigation measures described through sections 11 through 14 and the Follow-up Program, as outlined in section 16 of these guidelines, would be integrated into the EMS.

9. ENVIRONMENTAL ASSESSMENT BOUNDARIES

Scoping establishes the boundaries of the environmental assessment and focuses the assessment on relevant issues and concerns. By defining the spatial and temporal boundaries, a frame of reference for identifying and assessing the environmental effects associated with the DGR will be established. Different boundaries may be appropriate for each Valued Ecosystem Component (VEC).

A description of the boundaries of the proposed project in a regional context showing existing and planned future land use, current infrastructure and proposed improvements to these infrastructure, including transportation (all modes), power distribution corridors and lines, urban areas and water supplies (individual and community), must be provided. A description of any traditional land use, any established or asserted Aboriginal rights, Aboriginal title or treaty rights from Aboriginal people within the wider regional context should be provided. Sensitive areas including wetlands, critical habitats as defined under the Species at Risk Act and archaeological sites found within the regional context must also be described.

9.1 Spatial Boundaries and Scale

In determining the spatial boundaries to be used in assessing the potential adverse environmental effects, the proponent must consider, but not be limited to, the following criteria:

a. The physical extent of the proposed project, including any offsite facilities or activities;
b. The extent of aquatic and terrestrial ecosystems potentially affected by the project;
c. The extent of potential effects arising from noise, light and atmospheric emissions;
d. The extent to which traditional land use, asserted or established Aboriginal rights, Aboriginal title or treaty rights could potentially be affected by the project;
e. Land use for residential, commercial, industrial, recreational, cultural and aesthetic purposes by communities whose areas include the physical extent of the project; and
f. The size, nature and location of past, present and reasonably foreseeable projects and activities which could interact with items (b), (c), (d) and (e).
These boundaries also indicate the range of appropriate scales at which particular baseline descriptions and the assessment of environmental effects must be presented. The proponent is not required to provide a comprehensive baseline description of the environment at each scale, but must provide sufficient detail to address the relevant environmental effects of the project and the alternative means. The EIS must contain a justification and rationale for all boundaries and scales chosen.

The geographic study areas for the EIS must encompass the areas of the environment that can reasonably be expected to be affected by the project, or which may be relevant to the assessment of cumulative environmental effects. Study areas must encompass all relevant components of the environment, including the people, non-human biota, land, surface water, groundwater, air and other aspects of the natural and human environment, notably, traditional land use. Study boundaries will be defined taking into account traditional knowledge, ecological, technical, social and political considerations.

The following geographic study areas should serve as the basis for developing project-specific and effect-specific study areas:

- **Site Study Area**: the Site Study Area includes the facilities, buildings and infrastructure at the Bruce Nuclear Site, including the existing licensed exclusion zone for the site on land and within Lake Huron, and particularly the property where the DGR is proposed.

- **Local Study Area**: the Local Study Area is defined as that area existing outside the Site Study Area boundary, where there is a reasonable potential for direct effects on the environment from any phase of the project, either through normal activities, or from possible accidents or malfunctions. The Local Study Area should include all of the Bruce Nuclear Site and the lands within the Municipality of Kincardine closest to it, as well as the area of Lake Huron adjacent to the facility. The boundaries must change if appropriate following an assessment of the spatial extent of potential effects.

- **Regional Study Area**: the Regional Study Area is defined as the area within which there is the potential for cumulative biophysical and socio-economic effects. This area includes lands, communities and portions of Lake Huron around the Bruce Nuclear Site that may be relevant to the assessment of any wider-spread direct and indirect effects of the project.

Within the aforementioned study areas, the boundary of concern will extend to a depth that will include the full extent of the surface water and groundwater.

### 9.2 Temporal Boundaries

In characterizing the environmental effects of the project, the proponent must consider the current baseline environment and environmental trends within the study areas. The description of the existing baseline and the environmental trends should include a
consideration of past projects and activities carried out by the proponent and/or others within the regional study area.

In describing and predicting the environmental effects of the project, the proponent must cover the period from the start of any site preparation activity associated with the project through construction, operation, including maintenance and repairs, and any modifications through the proposed life of the project, leading to the eventual decommissioning, abandonment, and the long-term performance of the DGR.

In assessing cumulative environmental effects within the study area, the proponent must consider the effects of the project in combination with other past, present and future projects that are either “certain” or “reasonably foreseeable” as defined in CEAA’s *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act* [Reference 8].

As is the case for the determination of spatial boundaries, the temporal boundaries must indicate the range of appropriate scales at which particular baseline descriptions and the assessment of environmental effects are presented.

At a minimum, the assessment is expected to include the period of time during which the maximum impact is predicted to occur. The approach taken to determine the temporal boundary of assessment should take into account the following elements:

- Hazardous lifetime of the contaminants associated with waste or with releases to the environment during both normal operation and postulated accidents and malfunctions;
- Duration of the operational period (before the facility reaches its end state);
- Design life of engineered barriers;
- Duration of both active and passive institutional controls; and
- Frequency and duration of natural events and human-induced environmental changes (e.g., seismic occurrence, flood, drought, glaciation, climate change, etc).

### 9.3 Valued Ecosystem Components

The EIS must describe the general criteria used to identify VECs that may be affected by the project. The EIS must identify the methods used to predict and assess the effects of the project on VECs, and will explain the criteria used to assign significance ratings to any predicted adverse effects. The spatial and temporal boundaries used in the assessment may vary as appropriate, depending on the VEC.

Table 1 presents a preliminary list of VECs for each environmental component of the assessment. This list of VECs should be modified as appropriate by the proponent in the EIS, following consultations with the public, Aboriginal people, federal and provincial government departments and relevant stakeholders, including those comments received by the Canadian Environmental Assessment Agency and the Canadian Nuclear Safety Commission during the April 4 to June 18, 2008 comment period.
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<tr>
<th>Environmental Component</th>
<th>VEC</th>
<th>VEC Category</th>
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<td><strong>Physical Environment</strong></td>
<td>Air Quality</td>
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<td>Noise Levels</td>
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<td>Surface Water Quality</td>
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<td>Surface Water Quantity and Flow</td>
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<td>Soil Quality</td>
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<td>Groundwater Quality</td>
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<td>Heal-all</td>
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<td>Employment</td>
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### Environmental Component

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<td>Business Activity</td>
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<td>Housing and Property Values</td>
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</tr>
<tr>
<td>Lake Huron</td>
<td>Physical</td>
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<td>Stream C</td>
<td>Physical</td>
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<td>Railway Ditch</td>
<td>Physical</td>
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<td>Wetland</td>
<td>Physical</td>
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### Aboriginal Factors

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<tr>
<td>Human/Socio-economic</td>
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### Ecological Features

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<th>VEC Category</th>
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<tr>
<td>Physical</td>
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## 10. EXISTING ENVIRONMENT

The EIS must provide a baseline description of the environment, including the components of the existing environment and environmental processes, their interrelations and interactions as well as the variability in these components, processes and interactions over time scales appropriate to this EIS. The proponent's description of the existing environment must be in sufficient detail to permit the identification, assessment and determination of the significance of potentially adverse environmental effects that may be caused by the project, to adequately identify and characterize the beneficial effects of the project, and provide the data necessary to enable effective testing of predictions during the follow-up program and support the conclusions on the long-term safety assessment (Section 13).

The baseline description should include results from studies done prior to any physical disruption of the environment due to initial site clearing activities planned as part of the site preparation phase. The baseline description must include characterization of environmental conditions resulting from historical and present activities in the local and regional study areas (see section 14 - Cumulative Effects). The EIS must compare baseline data with applicable federal, provincial, municipal or other legislative requirements, standards, guidelines or objectives.

This description must include, but not necessarily be limited to those VECs, processes, and interactions that either were identified to be of concern during any workshops or meetings held by the proponent, or that the proponent considers likely to be affected by the project. In doing so, the proponent must indicate to whom these concerns are
important and the reasons why, including social, economic, recreational, and aesthetic considerations. The proponent must describe the nature and sensitivity of the area within and surrounding the project and any planned or existing land and water use in the area. The proponent must also indicate the specific geographical areas or ecosystems that are of particular concern, and their relation to the broader regional environment and economy. This includes, but is not limited to, a detailed description of those areas of Lake Huron potentially affected by the project, the Baie du Doré Provincially Significant Wetland, Huron Fringe Woodland, Douglas Point Swamp Environmentally Significant Area, Stream C, the Scott Point Provincially Significant Life Science Area of Natural and Scientific Interest, and Inverhuron Provincial Park. Relevant information about the VECs is to be presented graphically to document physical and biological (e.g., home range) characteristics.

The subsurface environment will play a dominant role in containing and isolating the waste from humans and the environment in the long term. It is therefore expected that the information on subsurface site characterization will be sufficient to allow the development of site specific assessment models that will predict with reasonable confidence the long-term performance of the proposed DGR.

In describing the physical and biological environment, the proponent must take an ecosystem approach that considers both scientific and traditional knowledge and perspectives regarding ecosystem health and integrity. The proponent must identify and justify the indicators and measures of ecosystem health and social health. These must be related to project monitoring and follow-up measures.

For the biological environment, baseline data in the form of inventories alone is not sufficient for the joint review panel to assess effects. The proponent must consider the resilience of species, communities, and their habitats. The proponent must summarize all pertinent historical information on the size and geographic extent of animal populations as well as density. Habitat at regional and local scales should be defined in ecological mapping of aquatic and terrestrial vegetation types and species (e.g., ecological land classification mapping). Habitat use should be characterized by type of use (e.g., spawning, breeding, migration, feeding, nursery, rearing, wintering), frequency and duration. Emphasis must be on those species, communities and processes identified as VECs. However, the interrelations of these components and their relation to the entire ecosystem and communities of which they are a part must be indicated. The proponent must address issues such as habitat, nutrient and chemical cycles, food chains, productivity, as these may be appropriate to understanding the effect of the project on ecosystem health and integrity. Range and probability of natural variation over time must also be considered.

In describing the socio-economic environment, the proponent must provide information on the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect the people and communities in the study areas in a way that recognizes interrelationships, system functions and vulnerabilities. A description of the rural and urban settings likely to be affected by the project should be provided.
Information on existing and projected population densities and distributions in the region, including resident populations and transient populations, must be provided by project phase, and for the entire life of the project. Information such as present and future use of land and resources, including transportation infrastructure, public health infrastructure and services (municipal water treatment for domestic use or human consumption, wastewater treatment, landfill), housing and housing values, commercial fisheries in the area, recreation and tourism should also be provided as this information would be required to assess potential adverse effects of the project on human health and socio-economic conditions in the area, and to assess the effects of the environment on the project. The proponent must also describe any agreements with the surrounding municipalities or other jurisdictions regarding emergency plans or protective actions.

Traditional activities carried out by Aboriginal people must be described by the proponent. The proponent should provide information that would include a description of traditional dietary habits and dependence on country foods and harvesting for other purposes, including harvesting of plants for medicinal purposes. The analysis should focus on the identification of potential adverse effects of the project on the ability of future generations of Aboriginal people (up to seven generations) to pursue traditional activities or lifestyle.

If the background data have been extrapolated or otherwise manipulated to depict environmental conditions in the project area, modeling methods and equations must be described and must include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error.

10.1 Biophysical Environment

10.1.1 Geology and Geomorphology

The EIS must describe the bedrock and quaternary/surficial geology, geomorphology, topography, petrology, geochemistry, hydrogeology and geomechanics for the region and the area that will be disturbed by the project. The EIS must describe the geology and structural geology, such as fractures and faults, at the site and within the local and regional study areas from the bedrock surface through and into the top of the basement rock, the Precambrian formation. Geotechnical properties of the overburden must also be provided, including shear strength and liquefaction potential, to allow the assessment of slope stability and bearing capacity of foundations under both static and dynamic conditions.

The EIS must describe and assess any geotechnical and geophysical hazards within the study areas, including consideration of subsidence, uplift, seismicity and faulting, as well as consideration of the possibility of movements of the ground surface (including co-seismic rupture) and earthquake ground motions. Where appropriate, the narrative descriptions should be supplemented by illustrations such as maps, figures, cross sections and borehole logs.
10.1.2 Surface Water

The EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas. The description must include delineation of drainage basins at the appropriate scales and include a description of hydrological data such as water levels and flow rates collected over the years. The proponent must describe hydrological regimes, including seasonal fluctuations and year-to-year variability of all surface waters and assess normal flow, flooding, and drought properties of water bodies as well as the interactions between surface water and groundwater flow systems.

The EIS must identify watersheds within the project area and identify recharge and discharge areas, streams, ponds and lakes. The proponent must describe the flow regimes, seasonal flow patterns, quantity and quality of all surface waters. The description must include a discussion of existing surface runoff water management regimes within the project area. The proponent must describe all surface water sources used for drinking water in the area, including source water intakes for drinking water treatment facilities. The proponent must provide information on whether any bodies of water within the study areas are used for recreational purposes.

The EIS must provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate.

10.1.3 Groundwater

The EIS must describe the hydrogeology at the site, local and regional study areas, from the ground surface through and into the top of the basement rock, the Precambrian formation. This should include a discussion of both groundwater quality and quantity.

The EIS must characterize the hydraulic conductivities, effective porosities, longitudinal and transverse dispersivities, diffusivities, pore-space tortuosities and mass transfer coefficients/retardation factors, for the various geological units. The proponent should also describe the characteristics of groundwater interactions under different climatic and seasonal conditions.

The EIS must provide a conceptual hydrogeologic model that demonstrates the groundwater flow systems and patterns. The hydrogeologic model should describe the changes to groundwater characteristics with depth and identify groundwater discharge and recharge areas. Further information describing the importance of modeling and characterization to the long-term safety of the DGR is provided in section 13 of these guidelines.

The EIS must identify any hydrogeologic features such as aquitards. Describe any groundwater use in the area, including both current and potential future uses.

The proponent must describe all groundwater sources used for drinking water in the area, including sources that are consumed directly (i.e. wells).
10.1.4 Terrestrial Environment

The EIS must describe the terrestrial species at the site and within the local and regional study areas, including flora, fauna and their habitat. The EIS must describe any wildlife corridors and physical barriers to movement that exist within the project area. Any biological species of natural conservation status (e.g., rare, vulnerable, endangered, threatened and uncommon) at a federal, provincial, regional or local level and their critical habitats must be identified.

All protected and conservation areas established by federal, provincial, and municipal jurisdictions (e.g., wilderness areas, parks, sites of historical or ecological significance, and nature reserves, federal migratory bird sanctuaries and wildlife management areas, municipal protected water supply areas) must be identified.

Sites within the local or regional study area subject to contamination from previous nuclear or non-nuclear industrial activities may require baseline characterization of radionuclide and hazardous substance levels within soil, vegetation and non-human biota.

Field surveys must be described in terms of representativeness of the target populations, the design for allocation of samples in space and time, measurement methods and results.

10.1.5 Aquatic Environment

The EIS must describe the aquatic and wetland species at the site and within the local and regional study areas, including a description of the flora, fauna and their habitat. The proponent should seek from relevant authorities, such as the Department of Fisheries and Oceans and the Ontario Ministry of Natural Resources, any available information on aquatic and wetland species and habitat for the local and regional study areas.

The EIS must provide detailed habitat mapping in order to understand habitat usage by fish within the study area. This information must include depth profiles, substrate mapping, water temperature profiles, and a description of potential and known habitat usage (i.e., nursery, rearing, feeding and migratory) by fish that occur in the study areas.

The EIS must identify any biological species of natural conservation status (e.g., rare, vulnerable, endangered, threatened, and uncommon) at a federal, provincial, regional or local level and their critical habitats.

10.1.6 Ambient Radioactivity

The EIS must describe the ambient radiological conditions at the site and within the local and regional study areas. The EIS must provide information on the existing conditions in this regard, including an inventory of sources, their activity levels, and their origin (natural or anthropogenic), for all environmental media including air, soil, food, water, aquatic sediments, plant and animal tissue in the appropriate subsections of the EIS.
Humans and non-human biota exposed to ambient radioactivity must be assessed for all relevant routes of exposure (both internal and external exposure scenarios). Information on radiation levels to which workers and members of the public are exposed to must be provided. This must also include consideration of consumers of country food whose exposure pathways may differ due to cultural norms, including any dietary characteristics of Aboriginal peoples.

A description of the current radiological monitoring and management programs must be provided.

10.1.7 Climate, Weather Conditions and Air Quality

The EIS must describe the climatic conditions at the site, local and regional study areas. The EIS must also provide a description of seasonal variations in weather conditions within the above-noted study areas, to allow the assessment of effects on the project. Meteorological information provided should include air temperature, relative humidity, precipitation, wind speed and direction, atmospheric pressure, solar radiation, and describe the occurrence of weather phenomena including events such as tornadoes, lightning, temperature inversions and fog. Special consideration must be given in the analysis of extreme and rare meteorological phenomena. Uncertainties should be described and taken into account when discussing the reliability of the information presented.

The influence of regional topography or other features that could affect weather conditions in the study areas must be described.

A description of the ambient air quality in the study areas must be provided, with emphasis on those parameters for which there will be radiological and non-radiological emissions resulting from the project.

10.1.8 Noise

The EIS must describe current ambient noise levels at the site and in the local study areas, and include information on its source(s), geographic extent and temporal variations. The description must also provide ambient noise levels for other areas which could be affected by the project, such as increased traffic along transportation corridors to and from the site during construction. The EIS must describe the anticipated noise levels during all phases of the project. The EIS must provide information on all potential receptors within the local and site study areas, especially residences and sensitive sites such as hospitals, schools, daycares, seniors’ residences and places of worship. Baseline sound measurements at representative receptors should be taken and information on both daytime and night time noise levels be provided.

10.2 Socio-economic Conditions

In describing the socio-economic environment, the proponent must provide information on the functioning and health of the socio-economic environment, encompassing a broad
range of matters that affect the people and communities, including Aboriginal communities, in the study area.

10.2.1 Economy

The EIS must describe the general socio-economic conditions at the local and regional study areas. The proponent must describe population and community distribution and density in the regional study area. The description must include the proximity of the project to affected communities, fluctuations in population and population attributes (e.g., age groups, employment).

A description of the local and regional economies must also be provided, including workforce and employment. Information must be provided on the available labour supply and rates of employment in the surrounding communities and region.

10.2.2 Land Use and Value

This EIS must describe land use in the local and regional study areas. The proponent must identify the past, current and planned land use(s) of the study areas. This must include a description of the current and planned operations on the Bruce Nuclear Site and a discussion of existing land-based infrastructure that is likely to be affected by the project, such as sewer and water treatment and distribution systems, wells and waste management areas.

A description of any commercial fisheries that could be affected by the project must be provided.

Estimates of the current and projected value of the recreational and tourist industry (e.g., hunting, fishing, hiking, parks, kayaking, and cottages along the shores of Lake Huron) for the study areas must be provided.

A description of current or of proposed future local, regional or provincial land use or urban development policies, programs and plans must also be provided.

10.2.3 Aboriginal Land, Aquatic Areas and Resource Use

In keeping with the Guiding Principles in Section 2.3 of these Guidelines, the EIS must describe land use at the site and within the local and regional study areas. The proponent should identify the lands, waters and resources of specific social, economic, archaeological, cultural or spiritual value to the Chippewas of Saugeen First Nation, the Chippewas of Nawash Unceded First Nations and any other Aboriginal people, including Métis, that assert Aboriginal rights or title or treaty rights or in relation to which Aboriginal rights or title or treaty rights have been established and that may be affected by the project. The EIS must identify traditional activities, including activities for food, social, ceremonial and other cultural purposes, in relation to such lands, waters and resources with a focus on the current use of lands, waters and resources for traditional purposes. Traditional land use may include areas where traditional activities such as
camping, travel on traditional routes, gathering of country foods (hunting, fishing, trapping, planting and harvesting) activities were carried out. Spiritual sites must also be considered as a traditional use activity of significance to Aboriginal people.

10.2.4 Land Based Transportation

This section of the EIS must describe the existing conditions of the proposed modes and routes of transportation (e.g., provincial highways, arterial highways, on-site access roads) that will be used throughout the development. The EIS must provide information on the existing types and volumes of traffic and a description of the areas through which trucks will travel, in particular residential or school areas.

10.2.5 Navigable Waters

This EIS must identify any navigational use or issues along Lake Huron, or any other waterbodies that may be affected by the project. Information on location (latitude and longitude), width, and depth must be provided, where appropriate.

10.2.6 Human Health

The EIS must describe the current health profiles of the communities likely to be affected by the project. The proponent should examine the aspects of human health that are defined by the World Health Organization, and include consideration of physical health and well-being, and associated emotional, social, cultural, and economic aspects.

The EIS must provide information on population health of the communities in the regional study area. A description of community and public health services available to the residents of communities and to Aboriginal people in the regional study area must also be included.

In keeping with the Guiding Principles in section 2.3 of these guidelines, a discussion on Aboriginal people’s health-related traditional activities, including the accessibility to spiritual sites within the regional study area, should be included. Health-related traditional activities could include gathering of country foods for consumption (hunting, fishing, trapping, planting and harvesting of plants for medicinal purposes), and activities of spiritual significance. Information on current consumption of country foods and its quality by food type, amounts consumed, parts consumed (whole body as opposed to a specific organ) by Aboriginal people must be provided where available.

10.2.7 Physical and Cultural Heritage Resources

The EIS must identify any terrestrial and aquatic areas containing features of historical, archaeological, paleontological, architectural or cultural importance. A description of the nature of the features located in those areas must be provided. Particular attention must be given to Aboriginal cultural, archaeological and historical resources since there is documented evidence of the presence of such resources in the study area.
11. EFFECTS PREDICTION, MITIGATION MEASURES AND SIGNIFICANCE OF RESIDUAL EFFECTS

11.1 Effects Prediction

This section must contain a description of any changes in the environment caused by the project, including the effects of these environmental changes on health and socio-economic conditions, physical and cultural heritage, current use of lands and resources for traditional purposes by Aboriginal persons, and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. Specific attention must be given to interactions between the project and the identified VECs. This section must also include changes to the project caused by the environment. Each environmental change must be described in terms of whether it is direct or indirect and positive or adverse.

The EIS must describe comprehensive analyses of both the short and long term effects of the project on the environment. The proponent must indicate the degree of uncertainty in predicting the environmental effects identified. When numerical models are used (e.g., a hydrogeological model) scientific defensibility must be demonstrated by performing model verification (e.g., peer review of model theory), calibration (e.g., adjusting key parameters to site-specific data), validation (e.g., comparison of predicted to observed), sensitivity and uncertainty analysis.

The proponent is expected to employ standard ecological risk assessment frameworks that categorize the levels of detail and quality of the data required for the assessment. These tiers are as follows:

- Tier 1: Qualitative (Expert opinion, literature review, and existing site information);
- Tier 2: Semi-quantitative (Measured site-specific data and existing site information); and
- Tier 3: Quantitative (Recent field surveys and detailed quantitative methods).

Thus, if the Tier 2 assessment still indicates a potential for effects for valued receptors then a Tier 3 assessment would need to be conducted to reduce the level of uncertainty. If the risk characterization component is uncertain this may necessitate the probabilistic modeling of the population level consequences of the proposed project.

An accepted approach to population-level ecological risk assessment and it use in environmental decision-making has been developed through recent scientific work. This approach includes a determination of when a population-level risk assessment is warranted (Tier 1 and Tier 2 assessments), the consideration of exit criteria, and a determination of the value of the assessment [Reference 9].
The consideration of views from the public and Aboriginal groups, including any perceived changes attributed to the project, should be recognized and addressed in the assessment method.

11.2 Mitigation Measures

Mitigation is the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means. The proponent must describe general and specific measures intended to mitigate the potentially adverse environmental effects of the project. The proponent must indicate which measures respond directly to statutory or regulatory requirements.

All proposed mitigation must be described by phase, timing and duration. Information must be provided on methods, equipment, procedures and policies associated with the proposed mitigation. The proponent must discuss and evaluate the effectiveness of the proposed measures and assess the risk of mitigation failure and the potential severity of the consequences of such failures. Information must be provided on similar mitigation methods used with similar Projects and the degree of success achieved.

The proponent must indicate what other mitigation measures were considered (including the various components of mitigation) and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation must be justified. The proponent must identify who is responsible for the implementation of these measures and the system of accountability.

For species at risk defined by the federal Species at Risk Act, pursuant to subsection 79(1) of that Act, the Responsible Authority under the Canadian Environmental Assessment Act must notify the appropriate federal Minister of any listed wildlife species, its critical habitat or the residences of individuals of that species that may be adversely impacted by the project. Pursuant to subsection 79(2) of the Species at Risk Act, if the project is carried out, the Responsible Authority must also ensure that measures are taken to avoid or lessen those effects and to monitor them; these measures must be taken in a way that is consistent with any applicable recovery strategy and action plans. Therefore, the proponent must include information in the EIS that will allow the Responsible Authority to meet this requirement.

Compliance monitoring verifies whether required mitigation measures were implemented. Compliance monitoring on its own does not satisfy the requirements for a follow-up program described in section 16, but serves to track conditions or issues during the project lifespan or at certain times. For each environmental component potentially affected by the project, the EIS must describe any proposed monitoring programs.

11.3 Significance of Residual Effects

The proponent is expected to take all reasonable precautions to protect the environment.
Hence, all reasonable means (e.g., best available technologies, industry best practices) are expected to be used to eliminate or mitigate adverse environmental effects. Any residual effects that persist, despite all mitigative activities, are to be assessed as to their significance.

The EIS must identify the criteria used to assign significance ratings to any predicted adverse effects. The EIS must contain a detailed analysis of the significance of the potential residual adverse environmental effects it predicts. It must contain clear and sufficient information to enable the joint review panel and the public to understand and review the proponent's judgment of the significance of effects. The proponent must define the terms used to describe the level of significance.

The proponent must assess the significance of predicted effects according to the following categories:

- Magnitude of the effect;
- Geographic extent of the effect;
- Timing, duration and frequency of the effect;
- Degree to which effects are reversible or mitigable;
- Ecological and social/cultural context; and
- Probability of occurrence.

In assessing significance against these criteria, the EIS must, where possible, employ relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment or maximum acceptable levels of specific hazardous agents in the environment. If the level of an adverse environmental effect is less than the standard, guideline, or objective, it may be not significant.

The EIS must avoid repetition by identifying the potential adverse environmental effects, the proposed mitigation measures and the significance of the effects after mitigation measures have been taken into account, on each VEC, both biophysical and socio-economic, in the same discussion. A summary of the effects, mitigation and significance associated with each VEC should be provided in tabular format to provide clarity and ease of reference.

The EIS must clearly explain the method and definitions used to describe the level of the adverse effect (e.g., low, medium, high) for each of the above categories and how these levels were combined to produce an overall conclusion on the significance of adverse effects for each VEC. This method must be transparent and reproducible.

11.4 Biophysical Environment

11.4.1 Geology and Geomorphology
The EIS must describe the predicted effects on any geological formations and how those effects will be avoided or minimized. Potential effects to be considered must include, but not be limited to, effects on physical stability conditions (including physical strength characteristics), geochemical conditions and thermal regime.

The proponent will discuss how these effects will be monitored, if required.

The EIS must identify potential effects of the project on the environment when bedrock, unconsolidated deposits, soils or sediments are disturbed, and stockpiled, or used for construction purposes. Where the proponent has identified alternative sites for the disposal of waste rock, the EIS must provide sufficient information about the effects of each technically and economically feasible alternative to explain the preferred option.

11.4.2 Surface Water

The EIS must identify and quantify the predicted effects on existing surface waterbodies and wetlands.

11.4.3 Groundwater

The proponent will discuss how the DGR development may affect surrounding groundwater quantity or quality and provide detail on how the effects to groundwater will be avoided or mitigated. Modelling work may be required to predict these effects. All parameter estimates (e.g. precipitation, evaporation, groundwater flows, soil permeability, hydraulic roughness, water balance, etc.) reported by the proponent must include the source of information (either estimates or empirical) and make reference to measurement standards or collection protocols used, assumptions built into the data, and data reporting that includes ranges and confidence estimates for the parameters.

The proponent should justify all parameter choices (base-case values, ranges, statistical distributions) for groundwater flow and solute transport modeling and sensitivity analyses. Describe any monitoring programs, including sampling protocol and monitoring station locations that will be designed to provide information on effects on groundwater quality and quantity.

11.4.4 Terrestrial Environment

For all phases of the project, the EIS must describe the effects of the project on terrestrial fauna and flora and include a full accounting of effects on species of natural conservation status and their habitat. This effects evaluation should be based on results of field monitoring studies and predictions from an ecological risk assessment model. It must be clear how predicted effects to the biota exposed to the project stressor compare to the expected “reference condition” for unexposed biota on a biological population basis taking into account natural variation. Potential effects may include but are not limited to:

- Effect of loss of terrestrial habitat and the quality of lost habitat for relevant species;
• Disturbance of feeding, nesting or breeding habitats;
• Physical barriers to wildlife;
• Disruption, blockage, impediment and sensory disturbance (e.g., noise and light effects) of daily or seasonal wildlife movements (e.g., migration, home ranges, etc.);
• Direct and indirect wildlife mortality;
• Reduction in wildlife productivity; and
• Contaminant concentration of the food chain.

The proponent must describe any proposed monitoring programs that will be designed to provide information on the effects of the project on the terrestrial environment and biota.

11.4.5 Aquatic Environment

The proponent will describe the effects of the project on aquatic fauna and flora, and include a full accounting of effects on species of natural conservation status and their habitat. Potential effects may include but are not limited to:

• Effects on habitat, including aquatic vegetation and sensitive areas such as spawning grounds, nursery areas, winter refuges and migrations corridors;
• Effects on aquatic species, including rare and/or sensitive species;
• Effects of blasting on fish and fish habitat on local aquatic systems; and
• Contaminant concentration of the food chain.

Descriptions of potential effects must include changes to food chain and food web dynamics as a habitat component as this relates to fish populations. Particular attention must be placed on the effects to the existing sport fishing and Aboriginal commercial fishing industry.

The proponent must describe any proposed monitoring programs that will be designed to provide information on the effects of the project on the aquatic environment and biota.

11.4.6 Radiological Conditions

For all phases of the project, the EIS must describe in the appropriate sections any changes to radiation and radioactivity present in the terrestrial and aquatic environments, the atmosphere, and to workers and members of nearby communities as a result of the project. Any mitigation to reduce negative effects and any monitoring programs to monitor effects must also be described.

11.4.7 Atmosphere

The EIS must identify all air emissions including maximum emissions from point source and fugitive releases, including greenhouse gases, expected to be generated during all phases of the project. The proponent must describe how these emissions will
affect the environment and indicate what will be done to avoid or mitigate adverse effects. The EIS must include a comparison of the project’s marginal contribution to total national and provincial emissions on an annual basis. The proponent must describe any monitoring programs that will be designed to provide information regarding effects on air quality and the success of mitigation measures employed.

11.4.8 Noise and Vibration

For all phases of the project, the EIS must describe the predicted effects (with rationale) of any change in noise or vibration levels on terrestrial and aquatic species and on workers and nearby residents and communities. The methods to be used to monitor noise and vibration levels must also be described. The proponent must model sound levels during both construction and operation and predicted sound levels must be compared against existing levels. This should include both daytime and night time noise levels and tonal noise.

11.4.9 Effects of the Environment on the Project

The EIS must describe the potential effects that the environment may have on the project. The assessment must take into account how local lake conditions and natural hazards, such as severe weather conditions and external events (e.g. flooding, tornado, fire and seismic events), could adversely affect the project. Longer-term effects of climate change must also be discussed in relation to the long-term performance of the project. Information regarding applicable climate elements must include, but not be limited to:

- An estimate of its importance to the project;
- An estimate of how sensitive the project is to variations of this element;
- A discussion of climate data used; and
- Change in lake level.

The sensitivity of the project to long-term variability and effects must be identified and discussed. The Canadian Environmental Assessment Agency document *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners* [Reference 10] provides guidance for incorporating climate change considerations into an environmental assessment.

11.5 Socio-economic Effects

This section of the EIS must describe the predicted changes to health and socio-economic conditions, physical and cultural heritage, and current use of lands and resources, including those used for traditional purposes by Aboriginal people that result from any changes the project may cause in the environment.

11.5.1 Economy

For all phases of the project, the EIS must describe the expected effects on the regional study area’s economy, including effects on employment and economic sectors such as
commercial, retail and recreational sectors. It must also describe what measures are within the proponent’s control to avoid or mitigate adverse economic effects.

11.5.2 Land Use and Value

The EIS must describe the predicted effects (with rationale) that the proposed DGR development will have on the existing and planned operation on the Bruce Nuclear Site as well as on other land and water uses, including changes in tourism, aesthetics, education, and recreational opportunities caused by the construction, operation and modification of the project in terms of increased noise levels, lowered air and water quality, alteration or visual and topographic characteristics of the area. Discuss the potential effects on existing structures (e.g., building foundations, wells, etc.) caused by blasting, etc. Discuss plans to conduct a pre-blast survey prior to any blasting activities. Also discuss temporary and permanent restrictions on land use during construction and operation.

For all phases of the project, the EIS must describe the expected effects or pressures on, but not limited to, land use, the housing market (including local and regional residential rental market), property taxes, and property values.

11.5.3 Aboriginal Traditional Land Use

The EIS must identify any change that the project is likely to cause in the environment, and any effect of any such change on the use of lands and resources for traditional purposes by the Chippewas of Saugeen First Nation, the Chippewas of Nawash Unceded First Nations and any other Aboriginal group including, but not limited to, effects to hunting, trapping, fishing and gathering. For each effect, the EIS must specify where possible the particular area that may be affected. The EIS must identify any concerns raised by such Aboriginal people about the project or other past or present means of storing or disposing of nuclear waste, and regarding the cumulative effects of the project in combination with any other over these areas.

11.5.4 Land-based Transportation

For all phases of the project, the EIS must describe the expected effects on transportation infrastructure in the regional study area. The discussion on the predicted effects, (with rationale) to local and regional traffic volumes and road conditions, including provincial highways, arterial highways and on-site access roads, must be provided. Information on the potential effects on the areas, through which trucks will travel, such as residential or school areas, must also be included. The proposed methods for avoiding effects on the existing transportation infrastructure must be described.

11.5.5 Navigable Waters

The EIS will identify potential effects on navigability on Lake Huron and other water bodies that may be affected by the project.

11.5.6 Human Health
The EIS must provide a discussion on the potential effects on the physical, mental, and social well-being of workers, the public and communities.

The information must include, but not be limited to, the following:

- An analysis of the effects of the project on the health and safety of all workers, including the possible effects of any malfunctions or accidents;
- The predicted doses to workers, including doses to contract workers, and to members of the project resulting from activities within the scope of this project;
- A description of quantitative risk assessment modeling conducted, where necessary, for any malfunctions and accidents;
- An assessment of the project's potential effects on human health through sources of contaminants from the project and potential exposure pathways into air and potable water;
- Any potential effects of air emissions associated with the project on human receptors within the project study area, such as health effects of nitrogen oxides, sulphur oxides, VOCs, carbon monoxide, dioxins/furans, metals, hydrogen chloride, and any other emissions from fossil fuel combustion, and explosives use; and
- Any potential effects of project-generated noise on human receptors within the study area.

The effects of the project on local and regional health services and public health infrastructure (water supplies for domestic use and sewage treatment) must also be described.

11.5.7 Physical and Cultural Heritage Resources

If it has been determined that sites of historical, archaeological, paleontological or architectural importance exist, the potential effects of the project on these sites and on any physical and cultural heritage resources that are likely to be affected by the project must be identified and discussed. The proposed measures to preserve, protect or recover these resources must be described.

12. ACCIDENTS, MALFUNCTIONS AND MALEVOLENT ACTS

The proponent must identify and describe the probability of possible malfunctions or accidents associated with the project, and the potential adverse environmental effects of these events. Sufficient quantitative information must be provided on all radioactive and hazardous substances that could be released to the environment in significant quantities.

The description must include the safeguards that have been established by the proponent to protect against such occurrences and the contingency procedures in place. Accident management typically relies heavily on the evacuation of personnel and of the population,
as required. The proponent must demonstrate that the requirements for adequate infrastructure external to the DGR site are met. The need for any necessary administrative measures must also be identified together with the responsibilities of organizations other than the proponent.

The proponent must provide a description of any contingency, clean-up or restoration work in the surrounding environment that would be required during, or immediately following, the postulated malfunctions and accidents.

Early in the conduct of the environmental assessment, the accidents and malfunction scenarios to be considered in the environmental assessment will be subject to review and acceptance by the joint review panel or its technical support staff. Expected scenarios include, but are not limited to, container collapse/failure, and various degrees of barrier loss including total loss of barrier.

The proponent must describe:

- Specific malfunction and accident events that have a reasonable probability of occurring during the life of the project, including an explanation of how these events were identified for the purpose of this environmental assessment;
- Source, quantity, mechanism, rate, form and characteristics of contaminants and other materials (physical, chemical and radiological) likely to be released to the surrounding environment during the postulated malfunctions and accidents and the effect this will have on the environment and health and safety of the nuclear energy worker and the general public; and
- Any contingency, clean-up or restoration work in the surrounding environment that would be required during, immediately following, or in the longer term following the postulated malfunction and accident scenarios.

The EIS must address potential environmental effects that could result from intentional malevolent acts. While intentional malevolent acts are not accidents, the proponent must compare the environmental effects resulting from malevolent acts with the effects identified for accidents and malfunctions involving the DGR.

13  LONG-TERM SAFETY OF THE DGR

13.1 Demonstrating the Long term Safety of the DGR

Demonstrating long-term safety consists of providing reasonable assurance that the proposed DGR will perform in a manner that protects human health and the environment. This demonstration is achieved through the development of a safety case. The safety case includes a safety assessment complemented by additional arguments and evidence in order to provide confidence in the long-term safety of the facility.

The safety assessment is central to the safety case. It involves an analysis to evaluate the

### 13.2 Selection of Assessment Scenarios

The first step in conducting a safety assessment is the development of scenarios. A scenario is a postulated or assumed set of future conditions or events to be modeled in an assessment. Long-term assessment scenarios should be sufficiently comprehensive to account for all of the potential future states of the site and the environment. It is common for a safety assessment to include a central scenario of the normal (or expected) evolution of the site and facility with time, and additional scenarios that examine the impacts of disruptive events or modes of containment failure.

A normal evolution scenario should be based on reasonable extrapolation of present-day site features and receptors lifestyles. It should include expected evolution of the site and degradation of the waste disposal system (gradual or total loss of barrier function) as it ages. Disruptive event scenarios postulate the occurrence of low-probability events leading to the possible abnormal degradation and loss of containment. Scenarios should be developed in a systematic, transparent and traceable manner based on current and future conditions of site characteristics, waste properties and receptor characteristics and their lifestyles.

The safety assessment should demonstrate that the set of scenarios developed is credible and comprehensive. Some scenarios may be excluded from the assessment because there is an extremely low likelihood that they would occur or because they would have trivial consequences. The approach and screening criteria used to exclude or include scenarios should be justified and well-documented.

The anticipated evolution of the repository under different scenarios has to be supported by a combination of expert judgment, field data on the past evolution of the site, and also mathematical models that might need to couple chemical, thermal, hydrologic, hydrogeologic and mechanical processes that play key roles in the repository evolution.

### 13.3 Additional Arguments in the Safety Case

Due to increasing uncertainty as predictions are made far into the future, the long-term safety assessment should also be supported by additional arguments and multiple lines of reasoning such as:
Use of different safety assessment strategies: for example by using a combination of assessment approaches such as scoping and bounding calculations, deterministic and probabilistic approaches;

Demonstration of the robustness of the waste disposal system: this entails demonstrating that the waste disposal system will maintain its safety function under extreme conditions, disruptive events or unexpected containment failure. The safety case should illustrate and explain the relative role of the different components of the disposal system that contribute to its overall robustness; and

Use of complementary safety indicators to doses and environmental concentrations that are usually calculated for comparison with regulatory limits. Other parameters that are illustrative of safety include: waste dissolution rates; groundwater age and travel time; fluxes of contaminants; concentrations of contaminants in specific environmental media (e.g., concentration of radium in groundwater); or changes in toxicity of the waste.

13.4 Confidence in Mathematical Models

The proponent should provide adequate confidence in the mathematical models used to support the safety case. The equations of the mathematical models are usually solved numerically with computer codes. Proper verification of these codes has to be demonstrated, to ensure that the codes adequately solve the equations of the mathematical models. In addition, confidence in the mathematical models can be provided by performing any or all of the following activities:

- Performing independent predictions using entirely different assessment strategies and computer tools;
- Demonstrating consistency amongst the results of the long-term assessment model and complementary scoping and bounding assessments;
- Applying the assessment model to an analog of the waste management system to build confidence through a post-audit of the real data available from an analog; and
- Performing model intercomparison studies of benchmark problems.

In particular, the proponent should justify the choice of solute transport modeling codes to be used and provide supporting information on code verification and validation.

In addition, scientific peer review by publication in open literature and widespread use by the scientific and technical community will add to the confidence in the assessment model.

13.5 Interpretation of Assessment Results and Comparison with Acceptance Criteria

Compliance with the acceptance criteria and with regulatory guidance must be evaluated, and the uncertainties associated with the assessment should be analyzed. Acceptance criteria are the numerical values (regulatory limits) used to judge the results of
assessment model calculations. These acceptance criteria ensure compliance with the Nuclear Safety and Control Act and its associated regulations, and by other applicable legislation, including CNSC Regulatory Guide G—320, “Assessing the Long Terms Safety of Radioactive Waste Management” and Regulatory Policy P-290, “Managing Radioactive Waste”. The principal regulatory limits are the radiological dose and environmental concentrations of hazardous substances, and it is expected that these parameters are calculated in long-term assessments as primary indicators of safety.

Acceptance criteria for a long-term assessment are current regulatory limits, standards, objectives and benchmarks. Adopting a fraction of these acceptance criteria (such as dose constraints or factors of safety) for a long-term assessment provides additional assurance that the uncertainty in the predictions and in future human actions would not result in unreasonable risk in the future. It is expected that the proponent will establish and justify the acceptance criteria adopted for any assessment.

When interpreting the assessment results, the applicant should demonstrate a thorough understanding of the underlying science and engineering principles which are controlling the assessment results. The results of the assessment should be analyzed to show they are consistent with expectations of system performance and with the complete set of assumptions and simplifications used in developing the model(s) and scenarios. Any unexpected assessment results or discrepancies should be investigated and explained.

An uncertainty analysis of the predictions should be performed to identify the sources of uncertainty and determine the effects of these uncertainties on safety (e.g., through sensitivity analysis). This analysis should distinguish between uncertainties arising from uncertainties in site characterization data, in the conceptual site description model, in assumptions of the scenario, and in the mathematics of the assessment model. For the uncertainties which have important impacts on long-term safety, follow-up field and laboratory investigation programs in combination with refinement of mathematical models should be proposed.

14. CUMULATIVE EFFECTS

The proponent must identify and assess the cumulative adverse and beneficial environmental effects of the project in combination with other past, present or reasonably foreseeable projects and/or activities within the study area. The management of decommissioning waste, for example, would be a potential future project that would be included in an assessment of cumulative effects. The approach and methods used to identify and assess cumulative effects must be explained. The Canadian Environmental Assessment Act Operational Policy Statement OPS-EPO/2 – 2007, "Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act" provides guidance for assessing cumulative effects.

The assessment of cumulative environmental effects of the project must include the following, but may also address other items:
• Identify the VECs, or their indicators, on which the cumulative effects assessment is focused, including the rationale for their selection. Present spatial and temporal boundaries for the cumulative effect assessment for each VEC selected. Emphasize VECs with special environmental sensitivities or where significant risks are involved.

• Identify the sources of potential cumulative effects. Specify other projects or activities that have been or will be carried out that could produce effects on each selected VEC within the boundaries defined, and whose effects would act in combination with the residual effects of the project.

• Evaluate the likelihood of development by the proponent or others that may appear feasible because of the proximity of the project’s infrastructure. Limit assessment to cumulative effects on the physical, biological, and human environments that are likely and for which measurable or detectable residual effects are predicted.

A reasonable degree of certainty should exist that proposed projects and activities will actually proceed for them to be included. Projects that are conceptual in nature or limited as to available information may be insufficiently developed to contribute to this assessment in a meaningful manner. In either case, provide a rationale for inclusion or exclusion.

The EIS must describe the analysis of the total cumulative effect on a VEC over the life of the project, which requires knowledge of the incremental contribution of all projects and activities, in addition to that of the project. The EIS must include different forms of effects (e.g., synergistic, additive, induced, spatial or temporal) and identify impact pathways and trends.

Potential effects on a VEC are not necessarily the result of one project. While a Project-specific assessment of cumulative effects is not responsible for assessing all external effects; the effect assessment must consider how a project-specific effect, or suite of project-specific effects, would interact with these external factors. The EIS must make clear the contribution of the project to a total potential cumulative effect, and place potential cumulative project effects in an appropriate regional context; consider regional plans, community conservation plans, species recovery plans, management plans, objectives and/or guidelines need in an integrated manner in order to understand the aspirations of people and communities in the region.

In assessing the cumulative environmental effects of the project in combination with other projects and/or activities, the proponent must identify any changes in the original environmental effects and significance predictions for the project. The proponent must also discuss the effectiveness of the proposed mitigation measures and the response to such changes, as well as the implications for monitoring and follow-up programs as described in section 16.

This section should provide a brief historical overview of the timelines of the construction, commissioning and operating periods of various facilities at the Bruce site,
beginning with the first construction in 1960.

15. CAPACITY OF RENEWABLE RESOURCES

The EIS must describe the effects of the project on the capacity of renewable resources to meet the needs of the present and those of the future. The EIS must identify those resources likely to be significantly impacted by the project, and describe how the project could affect their sustainable use. The EIS must also identify and describe any criteria used in considering sustainable use. Sustainable use may be based on ecological considerations such as integrity, productivity, and carrying capacity.

16. FOLLOW-UP PROGRAM

The proponent must include a framework upon which effects monitoring and follow-up actions will be based throughout the life of the project, should the project proceed.

A follow-up program must be designed to verify the accuracy of the environmental assessment and to determine the effectiveness of the measures implemented to mitigate the adverse environmental effects of the project. The follow-up program must be designed to incorporate pre-project information which would provide the baseline data, compliance data such as established benchmarks, regulatory documents, standards or guidelines, and real time data which would consist of observed data gathered in the field. As part of the follow-up program, the proponent must describe the compliance reporting methods to be used, including reporting frequency, methods and format.

Environmental assessment effects predictions, assumptions and mitigation actions that are to be tested in the follow-up monitoring program must be converted into field-testable monitoring objectives. The monitoring design must include a statistical evaluation of the adequacy of existing baseline data to provide a benchmark against which to test for project effects, and the need for any additional pre-construction or pre-operational monitoring to establish a firmer project baseline.

The proponent must propose a schedule for the follow-up program. The schedule should indicate the frequency and duration of effects monitoring. This schedule would be developed after statistical evaluation of the length of time needed to detect effects given estimated baseline variability, likely environmental effect size and desired level of statistical confidence in the results (Type 1 and Type 2 errors).

The description of the follow-up program must include any contingency procedures/plans or other adaptive management provisions as a means of addressing unforeseen effects or for correcting exceedances, as required, so as to comply/conform to benchmarks, regulatory standards or guidelines.
The follow-up program must describe roles and responsibilities for the program and its review process, by both peers and the public.

The EIS should provide discussion on the need for, and requirements of, a follow-up program, and include:

- The need for such a program and its objectives;
- Tabular summary and explanatory text of the main components of the program including a description of each monitoring activity under that component, which of the three generic program objectives the activity is relevant to (e.g., confirm mitigation or assumptions, verify effect) and the specific statement from environmental assessment that goes along with that generic objective and will be the focus for that activity (e.g., program objective: verify predicted effects; environmental assessment effect: no adverse effects at the population level for white-tailed deer because of vehicle strikes due to increased traffic within the site study area), as well as the specific monitoring objective for that activity (e.g., record occurrence of vehicular collisions with deer on-site to verify predicted effects);
- How it would be structured;
- Roles to be played by the proponent, regulatory agencies, Aboriginal people and others in such a program;
- Possible involvement of independent researchers;
- The sources of funding for the program; and
- Information management and reporting.

The follow-up program plan should be described in the EIS in sufficient detail to allow independent judgment as to the likelihood that it will deliver the type, quantity and quality of information required to reliably verify predicted effects (or absence of them), confirm environmental assessment assumptions and confirm the effectiveness of mitigation.

17. ASSESSMENT SUMMARY AND CONCLUSION

This section of the report must summarize the overall findings with emphasis on the main environmental issues identified.
18. REFERENCES


Aboriginal Rights mean those rights of Aboriginal peoples which are not found in treaties or land claims agreements.

Aboriginal Title means the form of land ownership belonging to Aboriginal people and the rights coming from the aboriginal relationship with land.

Aboriginal Traditional Knowledge (ATK) means knowledge that is held by, and unique to Aboriginal peoples. It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs and medicines. It may be considered in the environmental assessment of a proposed project. The term traditional ecological knowledge (TEK) is often used interchangeably with the term Aboriginal traditional knowledge (see, ATK). However, TEK is generally considered to be a subset of ATK that is primarily concerned with knowledge about the environment.

Aquatic Environment means the components related to, living in, or located in or on water or the beds or shores of a water body, including but not limited to all organic and inorganic matter, and living organisms and their habitat, including fish habitat, and their interacting natural systems.

Bounding Assessment means an assessment designed to provide limiting or worst-case predictions, based on simplification of the processes being simulated or the use of data limits (such as maximum possible precipitation, or thermodynamic solubility limits).

CEAA means the Canadian Environmental Assessment Agency.

CNSC means Canadian Nuclear Safety Commission.

Country Food means a diet of local meat and fish and wild plants gained through subsistence harvest.

DGR means deep geologic repository.

Ecological Risk Assessment means the process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors. This definition recognizes that a risk does not exist unless: (1) the stressor has an inherent ability to cause adverse effects, and (2) it is coincident with or in contact with the ecological component long enough and at sufficient intensity to elicit the identified adverse effect(s).

EIS means environmental impact statement.

Environmental Assessment means a process for identifying project and environment interactions, predicting environmental effects, identifying mitigation measures,
evaluating significance, reporting and following-up to verify accuracy and effectiveness. 
Environmental assessment is used as a planning tool to help guide decision making, as well as project design and implementation.

Environmental Effect means as defined in the *Canadian Environmental Assessment Act*. 

Hazardous Substance means a substance, other than a nuclear substance, that is used or produced in the course of carrying on a licensed activity and that may pose a risk to the environment or the health and safety of persons. 

Institutional Control means the control of residual risks at a site after it has been decommissioned. Institutional controls can include active measures (requiring activities on the site such as water treatment, monitoring, surveillance and maintenance) and passive measures (that do not require activities on the site, such as land use restrictions, markers, etc.).

Joint Review Panel means a review panel appointed pursuant to the *Canadian Environmental Assessment Act*. 

Long Term means in radioactive waste disposal, any period of time after active institutional controls can be expected to cease. 

OPG means Ontario Power Generation. 

Project means the proposal to construct and operate a deep geologic repository (DGR) to store low and intermediate level radioactive waste. 

Proponent means Ontario Power Generation. 

Radioactive Waste means any material (liquid, gaseous, or solid) that contains a radioactive “nuclear substance,” as defined in section 2 of the *Nuclear Safety and Control Act*, and which the owner has declared to be waste. 

Safety Case means an integrated collection of arguments and evidence to demonstrate the safety of a facility. This will normally include a safety assessment, but could also typically include information (including supporting evidence and reasoning) on the robustness and reliability of the safety assessment and the assumptions made therein. 

Scenario means a postulated or assumed set of conditions or events. They are most commonly used in analysis or assessment to represent possible future conditions or events to be modeled, such as possible accidents at a nuclear facility, or the possible future evolution of a repository and its surroundings. 

Species at Risk means as defined in the federal *Species at Risk Act*. 

**Terrestrial Environment** means the components related to, living on, or located on the Earth's land areas, including but not limited to all organic and inorganic matter, living organisms and their habitat, and their interacting natural systems.

**Treaty Rights** means rights arising from the terms of a treaty.

**Valued Ecosystem Component (VEC)** means the environmental element of an ecosystem that is identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance.

**Western Waste Management Facility** means the existing interim facility located on the Bruce Nuclear Site to store low and intermediate level radioactive waste.
General Nuclear Safety and Control Regulations and the
Class I Nuclear Facilities Regulations of the
Nuclear Safety and Control Act
Her Excellency the Governor General in Council, on the recommendation of the Minister of Natural Resources, pursuant to section 44 of the Nuclear Safety and Control Act\(^a\), hereby approves the annexed General Nuclear Safety and Control Regulations made by the Canadian Nuclear Safety Commission on May 31, 2000.

\(^a\) S.C. 1997, c. 9
CANADIAN NUCLEAR SAFETY COMMISSION

GENERAL NUCLEAR SAFETY AND CONTROL REGULATIONS

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COMMISSION CANADIENNE DE SÛRETÉ NUCLEAIRE
RÈGLEMENT GÉNÉRAL SUR

LA SÛRETÉ ET LA RÉGLEMENTATION NUCLÉAIRES

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GENERAL NUCLEAR SAFETY AND CONTROL REGULATIONS

INTERPRETATION AND APPLICATION

Interpretation

1. The definitions in this section apply in these Regulations.

“Act” means the Nuclear Safety and Control Act. (Loi)

“brachytherapy machine” means a device that is designed to
place, by remote control, a sealed source inside or in contact
with a person for therapeutic purposes. (appareil de curie-
thérapie)

“effective dose” has the meaning assigned to that term by sub-
section 1(1) of the Radiation Protection Regulations. (dose effi-
cace)

“equivalent dose” has the meaning assigned to that term by sub-
section 1(1) of the Radiation Protection Regulations. (dose équiva-

cente)

“hazardous substance” or “hazardous waste” means a substance
or waste, other than a nuclear substance, that is used or pro-
duced in the course of carrying on a licensed activity and that
may pose a risk to the environment or the health and safety of
persons. (substance dangereuse ou déchet dangereux)

“IAEA” means the International Atomic Energy Agency. (AIEA)

“IAEA Agreement” means the Agreement between the Govern-
ment 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, effective on
February 21, 1972; INFCIRC/164; UNTS vol. 814, R. No. 11596. ( Accord avec l’AIEA)

“irradiator” means a device that is designed to contain a nuclear
substance and to deliver controlled doses of radiation to any
target material except persons. (irradiateur)

“licensed activity” means an activity described in any of para-
graphs 26(a) to (f) of the Act that a licence authorizes the licen-
see to carry on. (activité autorisée)

“licensee” means a person who is licensed to carry on an activity
described in any of paragraphs 26(a) to (f) of the Act. (titulaire de permis)

“prescribed equipment” means the equipment prescribed by sec-
tion 20. (équipement réglementé)

“prescribed information” means the information prescribed by sec-

tion 21. (renseignements réglementés)

“radioactive source teletherapy machine” means a teletherapy
machine that is designed to deliver doses of radiation produced
by a nuclear substance. (appareil de téléthérapie à source radi-
active)

“safeguards” means a verification system that is established in
accordance with a safeguards agreement. (garanties)

“safeguards agreement” means

(a) the IAEA Agreement and any arrangement between
Canada and the IAEA made under that agreement; and
(b) any agreement to which Canada is a party for the estab-
lishment in Canada of a verification system in respect of
nuclear substances, prescribed equipment or prescribed
information, and any arrangements made under such an
agreement. (accord relatif aux garanties)

“safeguards equipment” means equipment that is used in accor-
dance with a safeguards agreement. (équipement de garanties)

RÈGLEMENT GÉNÉRAL SUR LA SÛRETÉ ET LA RÉGLEMENTATION NUCLÉAIRES

DÉFINITIONS ET CHAMP D’APPLICATION

Définitions

1. Les définitions qui suivent s’appliquent au présent règle-
ment.

« Accord avec l’AIEA » L’Accord entre le Gouvernement du
Canada et l’Agence internationale de l’énergie atomique rela-
tif à l’application de garanties dans le cadre du Traité sur la
non-proliferation des armes nucléaires, entré en vigueur le
21 février 1972; INFCIRC/164; UNTS vol. 814, R. n° 11596.
(IAEA Agreement)

« accord relatif aux garanties »

a) L’Accord avec l’AIEA, ainsi que tout arrangement conclu
entre le Canada et l’AIEA dans le cadre de cet accord;

b) toute entente à laquelle le Canada est partie et qui con-
cerne la mise en œuvre au Canada d’un système de vérifica-
tion visant des substances nucléaires, de l’équipement ré-
glementé ou des renseignements réglementés, de même que
tout arrangement conclu dans le cadre d’une telle entente. (safeguards agreement)

« activité autorisée » Activité visée à l’un des alinéas 26(a) à f) de
la Loi que le titulaire de permis est autorisé à exercer. (licensed activity)

« AIEA » L’Agence internationale de l’énergie atomique. (IAEA)

« appareil de curiethérapie » Appareil conçu pour placer par télé-
commande une source scellée dans ou sur le corps humain à des fins thérapeutiques. (brachytherapy machine)

« appareil de téléthérapie » Appareil conçu pour administrer, à des fins thérapeutiques, des doses contrôlées de rayonnement
dans un faisceau aux dimensions délimitées. (teletherapy ma-
chine)

« appareil de téléthérapie à source radioactive » Appareil de télé-
thérapie conçu pour administrer des doses de rayonnement
produites par une substance nucléaire. (radioactive source teletherapy machine)

« dose efficace » S’entend au sens du paragraphe 1(1) du Règ-
lement sur la radioprotection. (effective dose)

« dose équivalente » S’entend au sens du paragraphe 1(1) du Ré-
glement sur la radioprotection. (equivalent dose)

« équipement de garanties » Équipement utilisé conformément à
un accord relatif aux garanties. (safeguards equipment)

« garanties » Système de vérification établi en vertu de l’accord
relatif aux garanties. (safeguards)

« irradiateur » Appareil conçu pour contenir une substance nu-
claire et administrer des doses contrôlées de rayonnement à des cibles non humaines. (irradiator)

« Loi » La Loi sur la sûreté et la réglementation nucléaires. (Act)

« renseignements réglementés » Renseignements visés à l’arti-
cle 21. (prescribed information)

« substance dangereuse » ou « déchet dangereux » Substance ou
déchet, autre qu’une substance nucléaire, qui est utilisé ou pro-
duit au cours d’une activité autorisée et qui peut présenter un
danger pour l’environnement ou pour la santé et la sécurité des
personnes. (hazardous substance or hazardous waste)

« titulaire de permis » Personne autorisée par permis à exercer
toute activité visée à l’un des alinéas 26(a) à f) de la Loi. (licen-
see)

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“teletherapy machine” means a device that is designed to deliver controlled doses of radiation in a collimated beam for therapeutic purposes. (appareil de téléthérapie)

“transit” means the process of being transported through Canada after being imported into and before being exported from Canada, in a situation where the place of initial loading and the final destination are outside Canada. (transit)

“worker” means a person who performs work that is referred to in a licence. (travailleur)

Application

2. These Regulations apply generally for the purposes of the Act.

General Application Requirements

3. (1) An application for a licence shall contain the following information:

(a) the applicant’s name and business address;
(b) the activity to be licensed and its purpose;
(c) the name, maximum quantity and form of any nuclear substance to be encompassed by the licence;
(d) a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence;
(e) the proposed measures to ensure compliance with the Radiation Protection Regulations and the Nuclear Security Regulations;
(f) any proposed action level for the purpose of section 6 of the Radiation Protection Regulations;
(g) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information;
(h) the proposed measures to prevent loss or illegal use, possession or removal of the nuclear substance, prescribed equipment or prescribed information;
(i) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;
(j) the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;
(k) the applicant’s organizational management structure insofar as it may bear on the applicant’s compliance with the Act and the regulations made under the Act, including the internal allocation of functions, responsibilities and authority;
(l) a description of any proposed financial guarantee relating to the activity to be licensed;
(m) any other information required by the Act or the regulations made under the Act for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence; and
(n) at the request of the Commission, any other information that is necessary to enable the Commission to determine whether the applicant

“transit” Transport via the Canada after the importation and before the exportation, where the point of initial loading and the final destination are outside Canada. (transit)

“travailleur” Person who performs a work that is referred to in a licence. (worker)

Champ d’application

2. Le présent règlement s’applique de façon générale aux fins de la Loi.

PERMIS

Dispositions générales

3. (1) La demande de permis comprend les renseignements suivants :

a) le nom et l’adresse d’affaires du demandeur;

b) la nature et l’objet de l’activité visée par la demande;

c) le nom, la quantité maximale et la forme des substances nucléaires visées par la demande;

d) une description de l’installation nucléaire, de l’équipement réglementé ou des renseignements réglementés visés par la demande;

e) les mesures proposées pour assurer l’observation du Règlement sur la radioprotection et du Règlement sur la sécurité nucléaire;

f) tout seuil d’intervention proposé pour l’application de l’article 6 du Règlement sur la radioprotection;

(g) les mesures proposées pour contrôler l’accès aux lieux où se déroulera l’activité visée par la demande et se trouvent les substances nucléaires, l’équipement réglementé ou les renseignements réglementés;

(h) les mesures proposées pour éviter l’utilisation, la possession ou l’enlèvement illégaux ou la perte des substances nucléaires, de l’équipement réglementé ou des renseignements réglementés;

(i) une description et les résultats des épreuves, analyses ou calculs effectués pour corroborer les renseignements compris dans la demande;

(j) le nom, la quantité, la forme, l’origine et le volume des déchets radioactifs ou des déchets dangereux que l’activité visée par la demande peut produire, y compris les déchets qui peuvent être stockés provisoirement ou en permanence, gérés, traités, évacués ou éliminés sur les lieux de l’activité, et la méthode proposée pour les gérer et les stocker en permanence, les évacuer ou les éliminer;

(k) la structure de gestion du demandeur dans la mesure où elle peut influer sur l’observation de la Loi et de ses règlements, y compris la répartition interne des fonctions, des responsabilités et des pouvoirs;

(l) une description de la garantie financière proposée pour l’activité visée par la demande;

(m) tout autre renseignement exigé par la Loi ou ses règles relativement à l’activité, aux substances nucléaires, aux installations nucléaires, à l’équipement réglementé ou aux renseignements réglementés visés par la demande;
(i) is qualified to carry on the activity to be licensed, or
(ii) will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

(2) Subsection (1) does not apply in respect of an application for a licence to import or export for which the information requirements are prescribed by the Nuclear Non-Proliferation Import and Export Control Regulations, or 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.

Application for Licence to Abandon

4. An application for a licence to abandon a nuclear substance, a nuclear facility, prescribed equipment or prescribed information shall contain the following information in addition to the information required by section 3:
   (a) the name and location of the land, buildings, structures, components and equipment that are to be abandoned;
   (b) the proposed time and location of the abandonment;
   (c) the proposed method of and procedure for abandonment; and
   (d) the effects on the environment and the health and safety of persons that may result from the abandonment, and the measures that will be taken to prevent or mitigate those effects.

Application for Renewal of Licence

5. An application for the renewal of a licence shall contain
   (a) the information required to be contained in an application for that licence by the applicable regulations made under the Act; and
   (b) a statement identifying the changes in the information that was previously submitted.

Application for Amendment, Revocation or Replacement of Licence

6. An application for the amendment, revocation or replacement of a licence shall contain the following information:
   (a) a description of the amendment, revocation or replacement and of the measures that will be taken and the methods and procedures that will be used to implement it;
   (b) a statement identifying the changes in the information contained in the most recent application for the licence;
   (c) a description of the nuclear substances, land, areas, buildings, structures, components, equipment and systems that will be affected by the amendment, revocation or replacement and of the manner in which they will be affected; and
   (d) the proposed starting date and the expected completion date of any modification encompassed by the application.

Incorporation of Material in Application

7. An application for a licence or for the renewal, suspension in whole or in part, amendment, revocation or replacement of a licence may incorporate by reference any information that is included in a valid, expired or revoked licence.

n) sur demande de la Commission, tout autre renseignement dont celle-ci a besoin pour déterminer si le demandeur :
   (i) est compétent pour exercer l’activité visée par la demande,
   (ii) prendra, dans le cadre de l’activité, les mesures voulues pour préserver la santé et la sécurité des personnes, protéger l’environnement, maintenir la sécurité nationale et respecter les obligations internationales que le Canada a assumées.

(2) Le paragraphe (1) ne s’applique pas à la demande de permis d’importation ou d’exportation pour laquelle les renseignements exigés sont prévus par le Règlement sur le contrôle de l’importation et de l’exportation aux fins de la non-prolifération nucléaire, ou à la demande de permis de transit pour laquelle les renseignements exigés sont prévus par le Règlement sur l’emballage et le transport des substances nucléaires.

Demande de permis d’abandon

4. La demande de permis pour abandonner des substances nucléaires, des installations nucléaires, de l’équipement réglementé ou des renseignements réglementés comprend les renseignements suivants, outre ceux exigés à l’article 3 :
   a) le nom et l’emplacement des terrains, des bâtiments, des structures, des composants et de l’équipement visés par la demande;
   b) la date et le lieu proposés de l’abandon;
   c) la méthode et les procédures d’abandon proposées;
   d) les effets que l’abandon peut avoir sur l’environnement ainsi que sur la santé et la sécurité des personnes, de même que les mesures qui seront prises pour éviter ou atténuer ces effets.

Demande de renouvellement de permis

5. La demande de renouvellement d’un permis comprend :
   a) les renseignements que doit comprendre la demande pour un tel permis aux termes des règlements applicables pris en vertu de la Loi;
   b) un énoncé des changements apportés aux renseignements soumis antérieurement.

Demande de modification, de révocation ou de remplacement de permis

6. La demande de modification, de révocation ou de remplacement d’un permis comprend les renseignements suivants :
   a) une description de la modification, de la révocation ou du remplacement, de même que les mesures qui seront prises et les méthodes et les procédures qui seront utilisées pour ce faire;
   b) un énoncé des changements apportés aux renseignements contenus dans la demande de permis la plus récente;
   c) une description des substances nucléaires, des terrains, des zones, des bâtiments, des structures, des composants, de l’équipement et des systèmes qui seront touchés, et de la façon dont ils le seront;
   d) les dates de début et de fin proposées pour toute modification visée par la demande.

Incorporation de renseignements dans la demande

7. La demande de permis ou la demande de renouvellement, de suspension en tout ou en partie, de modification, de révocation ou de remplacement d’un permis peut incorporer par renvoi les renseignements compris dans un permis valide, expiré ou révoqué.
Renewal, Suspension, Amendment, Revocation or Replacement of Licence on Commission’s Own Motion

8. (1) For the purpose of section 25 of the Act, the Commission may renew a licence on its own motion if failure to renew the licence could pose an unreasonable risk to the environment, the health and safety of persons or national security.

(2) For the purpose of section 25 of the Act, the Commission may, on its own motion, suspend in whole or in part, amend, revoke or replace a licence under any of the following conditions:

(a) the licensee is not qualified to carry on the licensed activity;
(b) the licensed activity poses an unreasonable risk to the environment, the health and safety of persons or the maintenance of security;
(c) the licensee has failed to comply with the Act, the regulations made under the Act or the licence;
(d) the licensee has been convicted of an offence under the Act;
(e) a record referred to in the licence has been modified in a manner not permitted by the licence;
(f) the licensee no longer carries on the licensed activity;
(g) the licensee has not paid the licence fee prescribed by the Cost Recovery Fees Regulations; or
(h) failure to do so could pose an unreasonable risk to the environment, the health and safety of persons or national security.

Exemptions

Exemptions from Licence Requirement for Inspectors, Designated Officers and Peace Officers

9. (1) An inspector, a designated officer or a peace officer may carry on any of the following activities without a licence to carry on that activity if the activity is carried on by that person to enforce the Act or the regulations made under the Act:

(a) possess, transfer, transport or store a nuclear substance; and
(b) possess or transfer prescribed equipment or prescribed information.

(2) An inspector or a designated officer may service prescribed equipment without a licence to carry on that activity if the servicing is carried on by that person to enforce the Act or the regulations made under the Act.

(3) For greater certainty, the exemptions established in subsections (1) and (2) relate only to the activities specified in those subsections and do not derogate from the licence requirement imposed by section 26 of the Act in relation to other activities.

(4) Every person who carries on an activity without a licence in accordance with subsection (1) or (2) shall immediately notify the Commission of that fact.

Exemption of Naturally Occurring Nuclear Substances

10. Naturally occurring nuclear substances, other than those that are or have been associated with the development, production or use of nuclear energy, are exempt from the application of all provisions of the Act and the regulations made under the Act except the following:

Renouvellement, suspension, modification, révocation ou remplacement de permis par la Commission

8. (1) Pour l’application de l’article 25 de la Loi, la Commission peut, de sa propre initiative, renouveler un permis si le non-renouvellement pourrait créer un danger inacceptable pour l’environnement, la santé et la sécurité des personnes ou la sécurité nationale.

(2) Pour l’application de l’article 25 de la Loi, la Commission peut, de sa propre initiative, suspendre en tout ou en partie, modifier, révoquer ou remplacer un permis dans les cas suivants :

a) le titulaire de permis n’est pas compétent pour exercer l’activité autorisée;

b) l’activité autorisée crée un danger inacceptable pour l’environnement, la santé et la sécurité des personnes ou le maintien de la sécurité;

c) le titulaire de permis ne s’est pas conforme à la Loi, à ses règlements ou au permis;

d) le titulaire de permis a été reconnu coupable d’une infraction à la Loi;

e) un document mentionné dans le permis a été modifié d’une façon non autorisée par celui-ci;

f) le titulaire de permis n’exerce plus l’activité autorisée;

g) le titulaire de permis n’a pas versé les droits prévus pour le permis dans le Règlement sur les droits pour le recouvrement des coûts;

h) le fait de ne pas suspendre, modifier, révoquer ou remplacer le permis pourrait créer un danger inacceptable pour l’environnement, la santé et la sécurité des personnes ou la sécurité nationale.

Exemptions

Exemptions de permis pour l’inspecteur, le fonctionnaire désigné et l’agent de la paix

9. (1) L’inspecteur, le fonctionnaire désigné ou l’agent de la paix peut, sans y être autorisé par un permis, exercer les activités suivantes s’il le fait en vue de faire appliquer la Loi ou ses règlements :

a) avoir en sa possession, transférer, transporter ou stocker provisoirement une substance nucléaire;

b) avoir en sa possession ou transférer de l’équipement réglementé ou des renseignements réglementés.

(2) L’inspecteur ou le fonctionnaire désigné peut, sans y être autorisé par un permis, entretenir de l’équipement réglementé s’il le fait en vue de faire appliquer la Loi ou ses règlements.

(3) Il demeure entendu que les exemptions prévues aux paragraphes (1) et (2) ne visent que les activités qui y sont spécifiées et n’écartent pas l’obligation prévue à l’article 26 de la Loi d’obtenir un permis ou une licence pour exercer d’autres activités.

(4) La personne qui exerce une activité sans y être autorisée par un permis aux termes des paragraphes (1) ou (2) en avise immédiatement la Commission.

Exemption des substances nucléaires naturelles

10. Les substances nucléaires naturelles, autres que celles qui ont été ou sont associées au développement, à la production ou à l’utilisation de l’énergie nucléaire, sont exemptées de l’application de la Loi et de ses règlements à l’exception :
(a) the provisions that govern the transport of nuclear substances; and
(b) in the case of a nuclear substance listed in the schedule to the Nuclear Non-proliferation Import and Export Control Regulations, the provisions that govern the import and export of nuclear substances.

Exemption by the Commission

11. For the purpose of section 7 of the Act, the Commission may grant an exemption if doing so will not
(a) pose an unreasonable risk to the environment or the health and safety of persons;
(b) pose an unreasonable risk to national security; or
(c) result in a failure to achieve conformity with measures of control and international obligations to which Canada has agreed.

OBLIGATIONS

Obligations of Licensees

12. (1) Every licensee shall
(a) ensure the presence of a sufficient number of qualified workers to carry on the licensed activity safely and in accordance with the Act, the regulations made under the Act and the licence;
(b) train the workers to carry on the licensed activity in accordance with the Act, the regulations made under the Act and the licence;
(c) take all reasonable precautions to protect the environment and the health and safety of persons and to maintain security;
(d) provide the devices required by the Act, the regulations made under the Act and the licence and maintain them within the manufacturer’s specifications;
(e) require that every person at the site of the licensed activity use equipment, devices, clothing and procedures in accordance with the Act, the regulations made under the Act and the licence;
(f) take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances within the site of the licensed activity and into the environment as a result of the licensed activity;
(g) implement measures for alerting the licensee to the illegal use or removal of a nuclear substance, prescribed equipment or prescribed information, or the illegal use of a nuclear facility;
(h) implement measures for alerting the licensee to acts of sabotage or attempted sabotage anywhere at the site of the licensed activity;
(i) take all necessary measures to facilitate Canada’s compliance with any applicable safeguards agreement;
(j) instruct the workers on the physical security program at the site of the licensed activity and on their obligations under that program; and
(k) keep a copy of the Act and the regulations made under the Act that apply to the licensed activity readily available for consultation by the workers.

(2) Every licensee who receives a request from the Commission or a person who is authorized by the Commission for the purpose of this subsection, to conduct a test, analysis, inventory

Exemption par la Commission

11. Pour l’application de l’article 7 de la Loi, la Commission peut accorder une exemption si cela :
(a) ne crée pas de danger inacceptable pour l’environnement ou la santé et la sécurité des personnes;
(b) ne crée pas de danger inacceptable pour la sécurité nationale;
(c) n’entraîne pas la non-conformité avec les mesures de contrôle et les obligations internationales que le Canada a assumées.

OBLIGATIONS

Obligations du titulaire de permis

12. (1) Le titulaire de permis :
(a) veille à ce qu’il y ait suffisamment de travailleurs qualifiés pour exercer l’activité autorisée en toute sécurité et conformément à la Loi, à ses règlements et au permis;
(b) forme les travailleurs pour qu’ils exercent l’activité autorisée conformément à la Loi, à ses règlements et au permis;
(c) prend toutes les précautions raisonnables pour protéger l’environnement, préserver la santé et la sécurité des personnes et maintenir la sécurité;
(d) fournit les appareils exigés par la Loi, ses règlements et le permis et les entretient conformément aux spécifications du fabricant;
(e) exige de toute personne se trouvant sur les lieux de l’activité autorisée qu’elle utilise l’équipement, les appareils et les vêtements et qu’elle suive les procédures conformément à la Loi, à ses règlements et au permis;
(f) prend toutes les précautions raisonnables pour contrôler le rejet de substances nucléaires radioactives ou de substances dangereuses que l’activité autorisée peut entraîner là où elle est exercée et dans l’environnement;
(g) met en œuvre des mesures pour être alerté en cas d’utilisation ou d’enlèvement illégal d’une substance nucléaire, d’équipement réglementé ou de renseignements réglementés, ou d’utilisation illégale d’une installation nucléaire;
(h) met en œuvre des mesures pour être alerté en cas d’acte ou de tentative de sabotage sur les lieux de l’activité autorisée;
(i) prend toutes les mesures nécessaires pour aider le Canada à respecter tout accord relatif aux garanties qui s’applique;
(j) donne aux travailleurs de la formation sur le programme de sécurité matérielle sur les lieux de l’activité autorisée et sur leurs obligations aux termes du programme;
(k) conserve un exemplaire de la Loi et de ses règlements applicables à l’activité autorisée à un endroit où les travailleurs peuvent les consulter facilement.

(2) Le titulaire de permis qui reçoit une demande de la Commission ou d’une personne autorisée par elle à agir en son nom pour l’application du présent paragraphe, le priant d’effectuer une
or inspection in respect of the licensed activity or to review or to modify a design, to modify equipment, to modify procedures or to install a new system or new equipment shall file, within the time specified in the request, a report with the Commission that contains the following information:

(a) confirmation that the request will or will not be carried out or will be carried out in part;
(b) any action that the licensee has taken to carry out the request or any part of it;
(c) any reasons why the request or any part of it will not be carried out;
(d) any proposed alternative means to achieve the objectives of the request; and
(e) any proposed alternative period within which the licensee proposes to carry out the request.

Transfers

13. No licensee shall transfer a nuclear substance, prescribed equipment or prescribed information to a person who does not hold the licence, if any, that is required to possess the nuclear substance, prescribed equipment or prescribed information by the Act and the regulations made under the Act.

Notice of Licence

14. (1) Every licensee other than a licensee who is conducting field operations shall post, at the location specified in the licence or, if no location is specified in the licence, in a conspicuous place at the site of the licensed activity,

(a) a copy of the licence, with or without the licence number, and a notice indicating the place where any record referred to in the licence may be consulted; or
(b) a notice containing

(i) the name of the licensee,
(ii) a description of the licensed activity,
(iii) a description of the nuclear substance, nuclear facility or prescribed equipment encompassed by the licence, and
(iv) a statement of the location of the licence and any record referred to in it.

(2) Every licensee who is conducting field operations shall keep a copy of the licence at the place where the field operations are being conducted.

(3) Subsections (1) and (2) do not apply to a licensee in respect of

(a) a licence to import or export a nuclear substance, prescribed equipment or prescribed information;
(b) a licence to transport a nuclear substance; or
(c) a licence to abandon a nuclear substance, a nuclear facility, prescribed equipment or prescribed information.

Representatives of Applicants and Licensees

15. Every applicant for a licence and every licensee shall notify the Commission of

(a) the persons who have authority to act for them in their dealings with the Commission;
(b) the names and position titles of the persons who are responsible for the management and control of the licensed activity.

épreuve, une analyse, un inventaire ou une inspection relative-ment à l’activité autorisée, d’examiner ou de modifier une concep­tion, de modifier de l’équipement, de modifier des procédures ou d’installer un nouveau système ou équipement, déposé auprès de la Commission, dans le délai mentionné dans la demande, un rapport qui comprend les renseignements suivants :

(a) la confirmation qu’il donnera suite ou non à la demande en tout ou en partie;
(b) les mesures qu’il a prises pour donner suite à la demande en tout ou en partie;
(c) tout motif pour lequel il ne donnera pas suite à la demande en tout ou en partie;
(d) toute mesure de rechange proposée pour atteindre les objec-tifs de la demande;
(e) tout autre délai proposé pour donner suite à la demande.

Transferts

13. Il est interdit au titulaire de permis de transférer une sub­stance nucléaire, de l’équipement réglementé ou des renseigne­ments réglementés à une personne qui ne détient pas le permis requis, le cas échéant, par la Loi et ses règlements pour avoir en sa possession la substance, l’équipement ou les renseignements.

Avis de permis

14. (1) Sauf lorsqu’il mène des opérations sur le terrain, le ti­tuulaire de permis affiche à l’endroit spécifié dans le permis ou, à défaut, dans un endroit bien en évidence sur les lieux de l’activité autorisée :

(a) une copie du permis, avec ou sans son numéro, et un avis in­diquant l’endroit où tout document mentionné dans le permis peut être consulté;
(b) un avis sur lequel figurent :

(i) le nom du titulaire de permis,
(ii) une description de l’activité autorisée,
(iii) une description de la substance nucléaire, de l’installation nucléaire ou de l’équipement réglementé visé par le permis,
(iv) une mention de l’endroit où peuvent être consultés le permis et les documents qui y sont mentionnés.

(2) Le titulaire de permis qui mène des opérations sur le terrain y conserve une copie du permis.

(3) Les paragraphes (1) et (2) ne s’appliquent pas au titulaire d’un permis :

(a) d’importation ou d’exportation d’une substance nucléaire, d’équipement réglementé ou de renseignements réglementés;
(b) de transport d’une substance nucléaire;
(c) d’abandon d’une substance nucléaire, d’une installation nu­cléaire, d’équipement réglementé ou de renseignements régle­mentés.

Mandataires du demandeur et du titulaire de permis

15. Le demandeur de permis et le titulaire de permis aviseront la Commission :

(a) des personnes qui ont le pouvoir d’agir en leur nom auprès de la Commission;
(b) des noms et titres des personnes qui sont chargées de gérer et de contrôler l’activité autorisée ainsi que la substance.
and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence; and
(c) any change in the information referred to in paragraphs (a) and (b), within 15 days after the change occurs.

Publication of Health and Safety Information

16. (1) Every licensee shall make available to all workers the health and safety information with respect to their workplace that has been collected by the licensee in accordance with the Act, the regulations made under the Act and the licence.
(2) Subsection (1) does not apply in respect of personal dose records and prescribed information.

Obligations of Workers

17. Every worker shall
(a) use equipment, devices, facilities and clothing for protecting the environment or the health and safety of persons, or for determining doses of radiation, dose rates or concentrations of radioactive nuclear substances, in a responsible and reasonable manner and in accordance with the Act, the regulations made under the Act and the licence;
(b) comply with the measures established by the licensee to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of radioactive nuclear substances and hazardous substances into the environment;
(c) promptly inform the licensee or the worker’s supervisor of any situation in which the worker believes there may be
   (i) a significant increase in the risk to the environment or the health and safety of persons,
   (ii) a threat to the maintenance of security or an incident with respect to security,
   (iii) a failure to comply with the Act, the regulations made under the Act or the licence,
   (iv) an act of sabotage, theft, loss or illegal use or possession of a nuclear substance, prescribed equipment or prescribed information, or
   (v) a release into the environment of a quantity of a radioactive nuclear substance or hazardous substance that has not been authorized by the licensee;
(d) observe and obey all notices and warning signs posted by the licensee in accordance with the Radiation Protection Regulations; and
(e) take all reasonable precautions to ensure the worker’s own safety, the safety of the other persons at the site of the licensed activity, the protection of the environment, the protection of the public and the maintenance of security.

Presentation of Licence to Customs Officer

18. On importing or exporting a nuclear substance, prescribed equipment or prescribed information, the licensee shall present the required import or export licence to a customs officer.

Publication des renseignements sur la santé et la sécurité

16. (1) Le titulaire de permis met à la disposition de tous les travailleurs les renseignements sur la santé et la sécurité qu’il a recueillis concernant leur lieu de travail conformément à la Loi, à ses règlements et au permis.
(2) Le paragraphe (1) ne s’applique pas aux dossiers de doses personnelles et aux renseignements réglementés.

Obligations du travailleur

17. Le travailleur :
(a) utilise d’une manière responsable, raisonnable et conforme à la Loi, à ses règlements et au permis, l’équipement, les appareils, les installations et les vêtements pour protéger l’environnement, préserver la santé et la sécurité des personnes, ou déterminer les doses de rayonnement, les débits de dose ou les concentrations de substances nucléaires radioactives;
(b) se conforme aux mesures prévues par le titulaire de permis pour protéger l’environnement, préserver la santé et la sécurité des personnes, maintenir la sécurité et contrôler les niveaux et les doses de rayonnement, ainsi que le rejet de substances nucléaires radioactives et de substances dangereuses dans l’environnement;
(c) signale sans délai à son supérieur ou au titulaire de permis toute situation où, à son avis, il pourrait y avoir :
   (i) une augmentation considérable du niveau de risque pour l’environnement ou pour la santé et la sécurité des personnes,
   (ii) une menace pour le maintien de la sécurité ou un incident en matière de sécurité,
   (iii) un manquement à la Loi, à ses règlements ou au permis,
   (iv) un acte de sabotage à l’égard d’une substance nucléaire, d’équipement réglementé ou de renseignements réglementés, ou leur vol, leur perte ou leur utilisation ou possession illégales,
   (v) le rejet, non autorisé par le titulaire de permis, d’une quantité d’une substance nucléaire radioactive ou d’une substance dangereuse dans l’environnement;
   (vi) observe et respecte tous les avis et mises en garde affichés par le titulaire de permis conformément au Règlement sur la radioprotection;
   (vii) prend toutes les précautions raisonnables pour veiller à sa propre sécurité et à celle des personnes se trouvant sur les lieux de l’activité autorisée, à la protection de l’environnement et du public ainsi qu’au maintien de la sécurité.
19. The following facilities are prescribed as nuclear facilities for the purpose of paragraph (i) of the definition “nuclear facility” in section 2 of the Act:

(a) a facility for the management, storage or disposal of waste containing radioactive nuclear substances at which the resident inventory of radioactive nuclear substances contained in the waste is $10^{15}$ Bq or more;

(b) a plant for the production of deuterium or deuterium compounds using hydrogen sulphide; and

(c) a facility that consists of

(i) an irradiator that uses more than $10^{15}$ Bq of a nuclear substance,

(ii) an irradiator that requires shielding which is not part of the irradiator and that can deliver radiation at a dose rate exceeding 1 centigray per minute at 1 m,

(iii) a radioactive source teletherapy machine, or

(iv) a brachytherapy machine.

PRESCRIBED EQUIPMENT

20. Each of the following items is prescribed equipment for the purposes of the Act:

(a) a package and special form radioactive material, as defined in subsection 1(1) of the Packaging and Transport of Nuclear Substances Regulations;

(b) a radiation device and a sealed source, as defined in section 1 of the Nuclear Substances and Radiation Devices Regulations;

(c) Class II prescribed equipment, as defined in section 1 of the Class II Nuclear Facilities and Prescribed Equipment Regulations; and

(d) equipment that is capable of being used in the design, production, operation or maintenance of a nuclear weapon or nuclear explosive device.

PRESCRIBED INFORMATION

Prescription

21. (1) Information that concerns any of the following, including a record of that information, is prescribed information for the purposes of the Act:

(a) a nuclear substance that is required for the design, production, operation or maintenance of a nuclear weapon or nuclear explosive device, including the properties of the nuclear substance;

(b) the design, production, use, operation or maintenance of a nuclear weapon or nuclear explosive device;

(c) the security arrangements, security equipment, security systems and security procedures established by a licensee in accordance with the Act, the regulations made under the Act or the licence, and any incident relating to security; and

(d) the route or schedule for the transport of Category I, II or III nuclear material, as defined in section 1 of the Nuclear Security Regulations.

INSTALLATIONS NUCLEAIRES RÉGLEMENTÉES

19. Sont désignées comme installations nucléaires pour l’application de l’alinéa i) de la définition de « installation nucléaire » à l’article 2 de la Loi :

a) une installation pour la gestion, le stockage, temporaire ou permanent, l’évacuation ou l’élimination des déchets qui contiennent des substances nucléaires radioactives et dont l’inventaire fixe en substances nucléaires radioactives est d’au moins $10^{15}$ Bq;

b) une usine produisant du deutérium à l’aide d’hydrogène sulfuré;

c) une installation qui consiste en un :

(i) irradiateur qui utilise plus de $10^{15}$ Bq d’une substance nucléaire,

(ii) irradiateur qui nécessite un blindage qui n’en fait pas partie et qui peut produire une dose de rayonnement à un débit dépassant 1 centigray par minute à 1 m,

(iii) appareil de téléthérapie à source radioactive,

(iv) appareil de curiethérapie.

ÉQUIPEMENT RÉGLEMENTÉ

20. Sont désignés comme de l’équipement réglementé pour l’application de la Loi :

a) les colis et les matières radioactives sous forme spéciale au sens du paragraphe 1(1) du Règlement sur l’emballage et le transport des substances nucléaires;

b) les appareils à rayonnement et les sources scellées au sens de l’article 1 du Règlement sur les substances nucléaires et les appareils à rayonnement;

c) l’équipement réglementé de catégorie II au sens de l’article 1 du Règlement sur les installations nucléaires et l’équipement réglementé de catégorie II;

d) l’équipement qui peut servir à concevoir, produire, utiliser, faire fonctionner ou entretenir des armes nucléaires ou des engins explosifs nucléaires.

RENSEIGNEMENTS RÉGLEMENTÉS

Désignation

21. (1) Pour l’application de la Loi, sont désignés comme renseignements réglementés les renseignements qui portent sur ce qui suit, y compris les documents sur ces renseignements :

a) les substances nucléaires, y compris leurs propriétés, qui sont nécessaires à la conception, la production, l’utilisation, le fonctionnement ou l’entretien des armes nucléaires ou des engins explosifs nucléaires;

b) la conception, la production, l’utilisation, le fonctionnement ou l’entretien des armes nucléaires ou des engins explosifs nucléaires;

c) les arrangements, l’équipement, les systèmes et les procédures en matière de sécurité que le titulaire de permis a mis en place conformément à la Loi, à ses règlements ou au permis, y compris tout incident relatif à la sécurité;

d) l’itinéraire ou le calendrier de transport des matières nucléaires de catégorie I, II ou III au sens de l’article 1 du Règlement sur la sécurité nucléaire.
22. (1) Les personnes suivantes peuvent avoir en leur possession des renseignements réglementés ou les transférer, importer, exporter ou utiliser, sans y être autorisées par un permis :

a) un ministre, un employé ou un mandataire du gouvernement du Canada ou d’une province, ou de l’un de ses organismes, pour s’aider à exercer une attribution qui lui est dûment conférée;

b) le représentant d’un gouvernement étranger ou d’une organisation internationale, pour assurer le respect des obligations d’une entente conclue par le gouvernement du Canada et ce gouvernement ou cette organisation.

(2) Les renseignements qui sont rendus publics conformément à la Loi, à ses règlements et au permis ne sont pas renseignements réglementés pour l’application de la Loi.

Exemption de permis

22. (1) No person shall transfer or disclose prescribed information without a licence to carry on that activity:

a) a minister, employee or other person acting on behalf of or under the direction of the Government of Canada, the government of a province or any of their agencies, for the purpose of assisting themselves in exercising a power or performing a duty or function lawfully conferred or imposed on them; and

b) an official of a foreign government or an international agency, for the purpose of meeting obligations imposed by an arrangement made between the Government of Canada and the foreign government or international agency.

(2) The following persons may possess, transfer or use prescribed information without a licence to carry on that activity:

a) a worker, for the purpose of enabling the worker to perform duties assigned by the licensee; and

b) a person who is legally required or legally authorized to obtain or receive the information.

(3) For greater certainty, the exemptions established in subsections (1) and (2) relate only to the activities specified in those subsections and do not derogate from the licence requirement imposed by section 26 of the Act in relation to other activities.

Transfer and Disclosure

23. (1) No person shall transfer or disclose prescribed information unless the person

(a) is legally required to do so; or

(b) transfers or discloses it to

(i) a minister, employee or other person acting on behalf or under the direction of the Government of Canada, the government of a province or any of their agencies, for the purpose of assisting themselves in exercising a power or performing a duty or function lawfully conferred or imposed on them,

(ii) an official of a foreign government or an international agency, for the purpose of meeting obligations imposed by an arrangement made between the Government of Canada and the foreign government or international agency,

(iii) a worker, for the purpose of enabling the worker to perform duties assigned by the licensee, or

(iv) a person who is legally required or legally authorized to obtain or receive the information.

(2) A person who possesses or has knowledge of prescribed information shall take all necessary precautions to prevent any transfer or disclosure of the prescribed information that is not authorized by the Act and the regulations made under the Act.

CONTAMINATION

Prescribed Limits

24. For the purposes of paragraph 45(a) and subsection 46(1) of the Act, the prescribed limit of contamination for a place or vehicle where no licensed activity is being carried on is any quantity of a radioactive nuclear substance that may, based on the

Seuil réglementaire

24. Pour l’application de l’article 45 et du paragraphe 46(1) de la Loi, le seuil réglementaire de contamination à l’égard d’un lieu ou d’un véhicule où n’est exercée aucune activité autorisée s’entend de toute quantité d’une substance nucléaire radioactive.
circumstances, increase a person’s effective dose by 1 mSv or more per year in excess of the background radiation for the place or vehicle.

**Prescribed Public Offices**

25. For the purpose of subsection 46(2) of the Act, a municipal office, a public library and a public community centre are prescribed public offices.

**Prescribed Measures**

26. For the purpose of subsection 46(3) of the Act, the prescribed measures to reduce the level of contamination are any measures to control access to or clean the place, or to cover or remove the contamination, that are appropriate for the substance and location and that will reduce the level of contamination to below the limit prescribed by section 24.

**RECORDS AND REPORTS**

**Record of Licence Information**

27. Every licensee shall keep a record of all information relating to the licence that is submitted by the licensee to the Commission.

**Retention and Disposal of Records**

28. (1) Every person who is required to keep a record by the Act, the regulations made under the Act or a licence shall retain the record for the period specified in the applicable regulations made under the Act or, if no period is specified in the regulations, for the period ending one year after the expiry of the licence that authorizes the activity in respect of which the records are kept.

(2) No person shall dispose of a record referred to in the Act, the regulations made under the Act or a licence unless the person

(a) is no longer required to keep the record by the Act, the regulations made under the Act or the licence; and

(b) has notified the Commission of the date of disposal and of the nature of the record at least 90 days before the date of disposal.

(3) A person who notifies the Commission in accordance with subsection (2) shall file the record, or a copy of the record, with the Commission at its request.

**General Reports**

29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:

(a) a situation referred to in paragraph 27(b) of the Act;

(b) the occurrence of an event that is likely to result in the exposure of persons to radiation in excess of the applicable radiation dose limits prescribed by the Radiation Protection Regulations;

(c) a release, not authorized by the licence, of a quantity of radioactive nuclear substance into the environment;

(d) a situation or event that requires the implementation of a contingency plan in accordance with the licence;

(e) an attempted or actual breach of security or an attempted or actual act of sabotage at the site of the licensed activity;

who is susceptible, compte tenu des circonstances, d’augmenter la dose efficace d’une personne de 1 mSv ou plus par année au-delà du rayonnement de fond à l’égard du lieu ou du véhicule.

**Bureaux ouverts au public et désignés**

25. Pour l’application du paragraphe 46(2) de la Loi, sont des bureaux ouverts au public et désignés les bureaux municipaux, les bibliothèques publiques et les centres communautaires publics.

**Mesures réglementaires**

26. Pour l’application du paragraphe 46(3) de la Loi, les mesures réglementaires de décontamination sont celles servant à nettoyer un lieu, en contrôler l’accès ou couvrir ou enlever la contamination, qui ramèneront la contamination à un niveau inférieur au seuil prévu à l’article 24, et qui conviennent à la substance et au lieu en cause.

**DOCUMENTS ET RAPPORTS**

**Document sur les renseignements liés au permis**

27. Le titulaire de permis conserve un document sur tous les renseignements liés au permis qu’il présente à la Commission.

**Conservation et aliénation des documents**

28. (1) La personne qui est tenue de conserver un document aux termes de la Loi, de ses règlements ou d’un permis, le fait pour la période indiquée dans le règlement applicable ou, à défaut, pendant une année suivant l’expiration du permis qui autorise l’activité pour laquelle les documents sont conservés.

(2) Il est interdit à quiconque d’aliéner un document mentionné dans la Loi, ses règlements ou un permis à moins :

a) de ne plus être tenu de le conserver aux termes de la Loi, de ses règlements ou du permis;

b) de donner à la Commission un préavis d’au moins 90 jours indiquant la date d’aliénation et la nature du document.

(3) La personne qui avise la Commission conformément au paragraphe (2) dépose l’original ou une copie du document auprès d’elle sur demande.

**Rapports généraux**

29. (1) Le titulaire de permis qui a connaissance de l’un des faits suivants présente immédiatement à la Commission un rapport préliminaire faisant état du lieu où survient ce fait et des circonstances l’entourant ainsi que des mesures qu’il a prises ou compte prendre à cet égard :

a) une situation mentionnée à l’alinéa 27b) de la Loi;

b) la survenance d’un événement susceptible d’ entraîner l’exposition des personnes à des rayonnements dépassant les limites de dose applicables prévues par le Règlement sur la radioprotection;

c) le rejet, non autorisé par le permis, d’une quantité d’une substance nucléaire radioactive dans l’environnement;

d) une situation ou un événement nécessitant la mise en œuvre d’un plan d’urgence conformément au permis;

e) un manquement ou une tentative de manquement à la sécurité ou un acte ou une tentative de sabotage sur le lieu de l’activité autorisée;
(f) information that reveals the incipient failure, abnormal degradation or weakening of any component or system at the site of the licensed activity, the failure of which could have a serious adverse effect on the environment or constitutes or is likely to constitute or contribute to a serious risk to the health and safety of persons or the maintenance of security;

(g) an actual, threatened or planned work disruption by workers;

(h) a serious illness or injury incurred or possibly incurred as a result of the licensed activity;

(i) the death of any person at a nuclear facility; or

(j) the occurrence of any of the following events:

(i) the making of an assignment by or in respect of the licensee under the Bankruptcy and Insolvency Act,

(ii) the making of a proposal by or in respect of the licensee under the Bankruptcy and Insolvency Act,

(iii) the filing of a notice of intention by the licensee under the Bankruptcy and Insolvency Act,

(iv) the filing of a petition for a receiving order against the licensee under the Bankruptcy and Insolvency Act,

(v) the enforcement by a secured creditor of a security on all or substantially all of the inventory, accounts receivable or other property of the licensee that was acquired for, or used in relation to, a business carried on by the licensee,

(vi) the filing in court by the licensee of an application to propose a compromise or an arrangement with its unsecured creditors or any class of them under section 4 of the Companies’ Creditors Arrangement Act,

(vii) the filing in court by the licensee of an application to propose a compromise or an arrangement with its secured creditors or any class of them under section 5 of the Companies’ Creditors Arrangement Act,

(viii) the making of an application for a winding-up order by or in respect of the licensee under the Winding-up and Restructuring Act,

(ix) the making of a liquidation, bankruptcy, insolvency, reorganization or like order in respect of the licensee under provincial or foreign legislation, or

(x) the making of a liquidation, bankruptcy, insolvency, reorganization or like order in respect of a body corporate that controls the licensee under provincial or foreign legislation.

(2) Every licensee who becomes aware of a situation referred to in subsection (1) shall file a full report of the situation with the Commission within 21 days after becoming aware of it, unless some other period is specified in the licence, and the report shall contain the following information:

(a) the date, time and location of becoming aware of the situation;

(b) a description of the situation and the circumstances;

(c) the probable cause of the situation;

(d) the effects on the environment, the health and safety of persons and the maintenance of security that have resulted or may result from the situation;

(2) Le titulaire de permis qui a connaissance d’un fait mentionné au paragraphe (1) dépose auprès de la Commission, dans les 21 jours après en avoir pris connaissance, sauf si le permis précise un autre délai, un rapport complet sur le fait qui comprend les renseignements suivants :

(a) la date, l’heure et le lieu où il a eu connaissance du fait;

(b) une description du fait et des circonstances;

(c) la cause probable du fait;

(d) les effets que le fait a entraînés ou est susceptible d’entraîner sur l’environnement, la santé et la sécurité des personnes ainsi que le maintien de la sécurité;
(e) the effective dose and equivalent dose of radiation received by any person as a result of the situation; and
(f) the actions that the licensee has taken or proposes to take with respect to the situation.

(3) Subsections (1) and (2) do not require a licensee to report a situation referred to in paragraphs (1)(a) to (j) if the licence contains a term or condition requiring the licensee to report that situation, or any situation of that nature, to the Commission.

Safeguards Reports

30. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the situation and of any action that the licensee has taken or proposes to take with respect to it:

(a) interference with or an interruption in the operation of safeguards equipment or the alteration, defacement or breakage of a safeguards seal, other than in accordance with the safeguards agreement, the Act, the regulations made under the Act or the licence; and
(b) the theft, loss or sabotage of safeguards equipment or samples collected for the purpose of a safeguards inspection, damage to such equipment or samples, or the illegal use, possession, operation or removal of such equipment or samples.

(2) Every licensee who becomes aware of a situation referred to in subsection (1) shall file a full report of the situation with the Commission within 21 days after becoming aware of it, unless some other period is specified in the licence, and the report shall contain the following information:

(a) the date, time and location of becoming aware of the situation;
(b) a description of the situation and the circumstances;
(c) the probable cause of the situation;
(d) the adverse effects on the environment, the health and safety of persons and the maintenance of national and international security that have resulted or may result from the situation;
(e) the effective dose and equivalent dose of radiation received by any person as a result of the situation; and
(f) the actions that the licensee has taken or proposes to take with respect to the situation.

Report of Deficiency in Record

31. (1) Every licensee who becomes aware of an inaccuracy or incompleteness in a record that the licensee is required to keep by the Act, the regulations made under the Act or the licence shall file a report of the inaccuracy or incompleteness with the Commission within 21 days after becoming aware of it, and the report shall contain the following information:

(a) the details of the inaccuracy or incompleteness; and
(b) any action that the licensee has taken or proposes to take with respect to the inaccuracy or incompleteness.

(2) Subsection (1) does not apply to a licensee if
(a) the licence contains a term or condition that requires the licensee to report inaccuracies or incompleteness in a record to the Commission; or
(b) the inaccuracy or incompleteness in the record could not reasonably be expected to lead to a situation in which the environment, the health and safety of persons or national security is adversely affected.

e) la dose efficace et la dose équivalente de rayonnement reçues par toute personne en raison du fait;
f) les mesures que le titulaire de permis a prises ou compte prendre relativement au fait.

(3) Le titulaire de permis n’est pas tenu, aux termes des paragraphes (1) et (2), de signaler un fait mentionné aux alinéas (1) à (j) si le permis est assorti d’une condition exigeant qu’il signale le fait, ou tout fait de cette nature, à la Commission.

Rapport relatif aux garanties

30. (1) Le titulaire de permis qui a connaissance de l’un ou l’autre des faits suivants présente immédiatement à la Commission un rapport préliminaire faisant état du fait et des mesures qu’il a prises ou compte prendre à cet égard :
a) une ingérence ou une interruption affectant le fonctionnement de l’équipement de garanties, ou la modification, la dégradation ou le bris d’un sceau de garanties, sauf aux termes de l’accord relatif aux garanties, de la Loi, de ses règlements ou du permis;
b) le vol, la perte ou le sabotage de l’équipement de garanties ou des échantillons prélevés aux fins d’une inspection de garanties, leur endommagement ainsi que leur utilisation, leur possession ou leur enlèvement illégaux.

(2) Le titulaire de permis qui a connaissance d’un fait mentionné au paragraphe (1) dépose auprès de la Commission, dans les 21 jours après en avoir pris connaissance, sauf si le permis précise un autre délai, un rapport complet sur le fait qui comprend les renseignements suivants :
a) la date, l’heure et le lieu où il a eu connaissance du fait;
b) une description du fait et des circonstances;
c) la cause probable du fait;
d) les effets négatifs que le fait a entraînés ou est susceptible d’entraîner sur l’environnement, la santé et la sécurité des personnes ainsi que le maintien de la sécurité nationale et internationale;
e) la dose efficace et la dose équivalente de rayonnement reçues par toute personne en raison du fait;
f) les mesures que le titulaire de permis a prises ou compte prendre relativement au fait.

Renseignements inexacts ou incomplets dans les documents

31. (1) Le titulaire de permis qui relève des renseignements inexacts ou incomplets dans un document qu’il est tenu de conserver aux termes de la Loi, de ses règlements ou du permis dépose auprès de la Commission, dans les 21 jours qui suivent, un rapport à cet égard qui :
a) indique de façon précise les renseignements qui sont inexacts ou incomplets;
b) identifie les mesures qu’il a prises ou compte prendre pour remédier à la situation.

(2) Le paragraphe (1) ne s’applique pas au titulaire de permis dans les cas suivants :
a) son permis est assorti d’une condition exigeant qu’il fasse rapport à la Commission des renseignements inexacts ou incomplets qui contiennent les documents;
b) le fait que le document contient des renseignements inexacts ou incomplets ne risquerait pas, selon toute vraisemblance, de donner lieu à une situation qui entraîne des effets négatifs sur
Filing of Reports

32. (1) Every report shall include the name and address of its sender and the date on which it was completed.

(2) The date of filing of a report is the date on which it is received by the Commission.

Notification and Surrender of Certificate

35. (1) An inspector and a designated officer shall notify the Commission of any of the following situations:

(a) the loss or theft of their certificate;

(b) any change in their employment that results in their no longer exercising a function that relates to the purpose of the certificate; and

(c) the suspension or termination of their employment with the employer named in the certificate.

(2) An inspector and a designated officer shall surrender their certificate to the Commission

(a) if the information contained in the certificate is not accurate;

(b) when the certificate expires; or

(c) on termination by the Commission of their designation as an inspector or a designated officer, as the case may be.

Dépôt des rapports

32. (1) Le rapport comprend les nom et adresse de l’expéditeur ainsi que la date d’achèvement.

(2) La date de dépôt est la date de réception par la Commission.

Avis et remise du certificat

35. (1) L’inspecteur et le fonctionnaire désigné aviseront la Commission de l’un ou l’autre des faits suivants :

(a) la perte ou le vol de leur certificat;

(b) tout changement concernant leur emploi à la suite duquel ils n’exercent plus des fonctions liées à l’objet du certificat;

(c) la suspension ou la fin de leur emploi chez l’employeur nommé au certificat.

(2) L’inspecteur et le fonctionnaire désigné remettent leur certificat à la Commission dans les cas suivants :

(a) les renseignements figurant sur le certificat ne sont plus exacts;

(b) le certificat est expiré;

(c) la Commission met un terme à leur désignation à titre d’inspecteur ou de fonctionnaire désigné.
REPEAL

36. The Atomic Energy Control Regulations¹ are repealed.

37. The Transport Packaging of Radioactive Materials Regulations² are repealed.

38. The Uranium and Thorium Mining Regulations³ are repealed.

39. The Physical Security Regulations⁴ are repealed.

ABROGATIONS

36. Le Règlement sur le contrôle de l’énergie atomique¹ est abrogé.

37. Le Règlement sur l’emballage des matières radioactives destinées au transport² est abrogé.

38. Le Règlement sur les mines d’uranium et de thorium³ est abrogé.

39. Le Règlement sur la sécurité matérielle⁴ est abrogé.

COMING INTO FORCE

40. These Regulations come into force on the day on which they are approved by the Governor in Council.

ENTRÉE EN VIGUEUR

40. Le présent règlement entre en vigueur à la date de son agrément par le gouverneur en conseil.

ANNEXE

(Section 33)

CERTIFICATE OF INSPECTOR

This is to certify that Le présent certificat atteste que

employed by employé de

is designated as an inspector by the Canadian Nuclear Safety Commission pursuant to section 29 of the Nuclear Safety and Control Act. est un inspecteur désigné par la Commission canadienne de sûreté nucléaire conformément à l’article 29 de la Loi sur la sûreté et la réglementation nucléaires.

This certificate expires on Ce certificat expire le

Signature

Inspector / Inspecteur

Secretary, CNSC / Secrétaire, CCSN

Canadian Nuclear Safety Commission Commission canadienne de sûreté nucléaire

CERTIFICAT DE L’INSPECTEUR

La personne identifiée sur ce certificat peut exercer les pouvoirs d’un inspecteur prévu à la Loi sur la sûreté et la réglementation nucléaires dans les lieux ou véhicules suivants : Le certificat est incessible et doit être remis lorsque la désignation prend fin.

Signature

Inspector / Inspecteur

Secretary, CNSC / Secrétaire, CCSN

Canadian Nuclear Safety Commission Commission canadienne de sûreté nucléaire

REGULATORY IMPACT ANALYSIS STATEMENT

(This statement is not part of the Regulations nor the Rules.)

1. Description

This Regulatory Impact Analysis Statement (RIAS) pertains to the regulations and rules made under the Nuclear Safety and Control Act (NSC Act). A draft version of nine technical regulations was published for comment in the Canada Gazette, Part I on October 10, 1998, and the Canadian Nuclear Safety Commission Rules of Procedure were similarly published on February 13, 1999. Changes have been made to the draft version of the RIAS, regulations and rules based on comments received during the consultation phase.

RÉSUMÉ DE L’ÉTUDE D’IMPACT DE LA RÉGLEMENTATION

(Ce résumé ne fait pas partie des règlements ni des règles.)

1. Description

Le présent Résumé de l’étude d’impact de la réglementation (RÉIR) se rapporte aux règlements et aux règles pris aux termes de la Loi sur la sûreté et la réglementation nucléaires. Une version provisoire de neuf règlements techniques a été publiée aux fins de commentaires dans la Gazette du Canada Partie I le 10 octobre 1998, tout comme les Règles de procédures de la Commission canadienne de sûreté nucléaire, qui ont paru le 13 février 1999. La version provisoire du RÉIR, les règles et les règlements ont été modifiés à partir des commentaires recueillis au cours de la période de consultation.

¹ C.R.C., c. 365
² SOR/83-740
³ SOR/88-243
⁴ SOR/83-77
Nuclear activities in Canada are regulated by the Atomic Energy Control Board (AECB) under the Atomic Energy Control Act (AEC Act) of 1946. These activities are carried out by approximately 3,700 licensees and occur, for example, in power and research reactors, uranium mines and mills, accelerators, waste management facilities, nuclear medicine, packaging and transport of radioactive materials, industrial gauges and research involving radioisotopes. The AEC Act is out of date in many significant areas and to correct the situation, Parliament passed the NSC Act on March 20, 1997. This new legislation is intended to come into force when new regulations, based on the powers set out in the NSC Act, have been finalized. This will allow continuation of the regulatory system administered by the AECB. Under the provisions of the NSC Act, the AECB will be replaced by the Canadian Nuclear Safety Commission (CNSC) and, with the exception of the ex officio position on the Board, the members and staff of the AECB will become the members and staff of the CNSC.

In order to simplify the transition to the new regulatory system under the NSC Act, the AECB has minimized the number of substantive changes in the new regulations. For the most part, the new regulations consist of the requirements in the AEC Act, AEC Regulations and licence conditions, but in a format compatible with the NSC Act. These unchanged requirements are not discussed in this document. Some new regulatory requirements have been added and these are discussed in detail below.

Under the AEC Act, the technical requirements are specified in the Atomic Energy Control Regulations, the Transport Packaging of Radioactive Materials Regulations and the Uranium and Thorium Mining Regulations. Under the NSC Act, these requirements are specified in nine regulations, each of which is described separately in section 3 below. Where significant changes are made, the alternatives, costs and benefits of the changes are described under the specific regulation. Consultation and compliance issues that are common to all of the new regulations are addressed in sections 5 and 6, rather than under each separate regulation. Consultations on a specific issue however, are described in the section dealing with the issue.

The regulations continue the practice of allowing licensees considerable flexibility in how they comply with the requirements. With some exceptions, such as the dose limits, transport packaging and licence exemption criteria for certain devices, the regulations do not specify in detail the criteria that will be used in assessing a licence application or judging compliance. The regulations provide licence applicants with general performance criteria and lists of information that they must supply. If the information is acceptable, it may be referenced in the licence, thus making it a legal requirement for the licensee in question. This approach to nuclear regulation is consistent with the practice followed to date in Canada.

The CNSC intends to continue the use of regulatory documents to inform applicants of its regulatory expectations. Not all documents have been completed but those with an immediate or significant impact on licensees’ operations have been identified. High priority has been given to their completion and many have been approved or have been published in draft form for comments. Those that are unavailable are expected in the near future and where necessary, their lack is addressed in the CNSC’s plan for transition to the new regulatory regime. During development

La Commission de contrôle de l’énergie atomique (CCEA) réglemente toutes les activités nucléaires au Canada aux termes de la Loi sur le contrôle de l’énergie atomique (LCEA) de 1946. Environ 3 700 titulaires de permis exercent ces activités dans les domaines suivants : réacteurs de puissance ou de recherche, mines ou installations de concentration d’uranium, accélérateurs, installations de gestion des déchets, médecine nucléaire, emballage et transport de matières radioactives, utilisation d’instruments industriels calibrés et recherche impliquant des radioisotopes. La LCEA étant périmée dans nombre de domaines importants, le Parlement a adopté le 20 mars 1997 la Loi sur la sûreté et la réglementation nucléaires (LSRN). La nouvelle loi entrera en vigueur lorsque ses règlements d’application seront complets, assurant ainsi la continuité du régime de réglementation administré par la CCEA. Aux termes de la LSRN, la CCEA sera remplacée par la Commission canadienne de sûreté nucléaire (CCSN) et, à l’exception du poste de membre d’office de la Commission, les commissaires et le personnel de la CCEA passeront au service de la CCSN.

Afin de simplifier la transition au nouveau régime de réglementation de la LSRN, la CCEA a réduit au minimum le nombre de changements réglementaires significatifs apportés à la nouvelle réglementation, qui reprend essentiellement les exigences, les règlements et les conditions de permis stipulées dans la LCEA, et les rend compatibles avec la LSRN. Nous n’aborderons pas ici les exigences réglementaires qui demeurent inchangées, mais nous expliquerons en détail celles qui viennent s’ajouter.

Aux termes de la LCEA, les exigences techniques étaient énoncées dans le Règlement sur le contrôle de l’énergie atomique, le Règlement sur l’emballage des matières radioactives destinées au transport et le Règlement sur les mines d’uranium et de thorium. Aux termes de la LSRN, ces exigences figurent dans neuf règlements, décrits plus loin à la rubrique 3. Lorsque des modifications importantes ont été apportées, les coûts et les avantages qui en découlent ainsi que les solutions de rechange qui ont été envisagées sont décrites. Les questions de consultation et de conformité communes à tous les nouveaux règlements sont traitées aux rubriques 5 et 6. Par contre, les consultations entreprises sur une question particulière sont rapportées dans la rubrique qui s’y rattache.

Les règlements continuent de laisser aux titulaires de permis une souplesse considérable quant à la façon de satisfaire aux exigences. Mises à part quelques exceptions comme les limites de dose, l’emballage destiné au transport et les critères d’exemption de permis pour certains appareils, ils ne précisent pas en détail les critères qui serviront à l’évaluation d’une demande de permis ou de la conformité au règlement. Ils indiquent aux demandeurs de permis les critères généraux de rendement et les renseignements qu’ils doivent fournir. Si les renseignements fournis sont jugés acceptables, ils pourront être cités au permis, devenant ainsi exigence légale pour ce titulaire de permis. Cette approche de la réglementation nucléaire est conforme aux pratiques courantes au Canada.

La CCSN souhaite continuer d’utiliser les documents d’application de la réglementation pour informer les demandeurs de permis de ses attentes en matière de réglementation. Ces documents ne sont pas entièrement achevés, mais tous ceux qui ont une incidence directe ou importante sur les activités des titulaires de permis ont été cernés. Plusieurs documents, qui font l’objet d’une attention prioritaire, ont déjà été soit approuvés, soit publiés en version provisoire aux fins de commentaires. Les documents qui ne sont pas achevés sont attendus dans un proche avenir et,
of each regulatory document, the CNSC is committed to extensive consultation on all aspects of the document and the Act provides an opportunity for those affected by CNSC actions to be heard by the Commission.

2. Alternatives to New Regulations

Since the nuclear regulatory control system must function after the transition from the AEC Act to the NSC Act, new compatible regulations must be issued simultaneously with the introduction of the new NSC Act to allow the scheme to operate. Therefore, there are no alternatives to passage of new regulations.

3. Regulatory Initiatives

This section describes the significant new requirements of the regulations together with their impact on licensees and the significant changes that were made to the regulations as a result of comments received following publication in the *Canada Gazette*, Part I. Many changes were also made to improve clarity but these are not described in this document unless they had a significant effect on the requirements.

3.1 General Nuclear Safety and Control Regulations

The *General Nuclear Safety and Control Regulations* contain the general requirements that apply to all licensees. They consist primarily of the regulatory requirements contained in the AEC Regulations and licence conditions. They also continue the exemption for naturally occurring radioactive materials that have not been associated with the development, production or use of nuclear energy. As authorized by the NSC Act, a requirement to provide information on any proposed financial guarantees has been added. Except for section 12 as described below, there were no major changes to these Regulations as a result of comments received following publication in the *Canada Gazette*, Part I.

3.1.1 Financial Guarantees

Under the AEC Act and Regulations, only a few licensees were required to provide financial assurances for decommissioning and waste management. A possible consequence of this was the costs associated with these activities would fall on the taxpayer if the licensee had not set aside sufficient funds for their completion. To address this, subsection 24(5) of the NSC Act provides the CNSC with the authority to include a licence condition requiring financial guarantees in a form that is acceptable to the Commission. The financial guarantees section of the NSC Act is being implemented by regulations requiring licence applicants to provide information on proposed financial guarantees and to describe their plans for decommissioning and waste management at the end of the life of the nuclear facility. The estimated costs of these plans and the financial guarantees proposed to cover these costs will be reviewed by the Commission. The resulting requirements would be imposed by licence condition.

The regulations permit substantial flexibility in the ways that licensees can meet the financial requirements. Options acceptable to the Commission are described in a draft regulatory document.
(a) Alternatives to Financial Guarantees

It was clearly the intent of Parliament to authorize the CNSC to require financial guarantees, and consequently, the consideration of alternatives does not apply.

(b) Costs

Licensees have always been responsible for the costs associated with decommissioning their facilities. Therefore, the cost resulting from the application of subsection 24(5) of the NSC Act is limited to the incremental cost of providing a financial guarantee. Financial guarantees are already required under the *Uranium and Thorium Mining Regulations* so for these licensees, there are no incremental costs. There will be several types of mechanisms that a licensee may use to satisfy the CNSC requirement for a financial guarantee, but there are factors outside the control of the CNSC that can significantly affect the cost of providing a financial guarantee. The most important of these factors is the willingness of governments (federal and provincial) to underwrite the decommissioning costs of facilities they own or that operate within the province. Depending on these decisions, the cost of financial guarantees could range from zero if there is a commitment from government to millions of dollars in the case of major facilities with high decommissioning costs. It is therefore difficult to estimate the actual financial impact of this requirement.

The AECCB is currently reviewing the comments received on the draft regulatory document on financial guarantees. Until this document is finalized and until other decisions are made, in particular those referred to above, it will not be possible to estimate with any degree of accuracy, the total cost resulting from implementing subsection 24(5) of the NSC Act. For this reason, no costs are included in this document.

(c) Benefits

Requiring financial guarantees will reduce the risk that taxpayers will eventually have to pay the decommissioning costs.

### 3.1.2 Obligations of Licensees

In the version of the regulations published in the *Canada Gazette*, Part I, subsection 12(2) required licensees to take certain actions, such as conducting a test or modifying equipment, when requested to do so by the Commission. It was pointed out that these requests were in effect the same as orders under section 35 of the NSC Act, without the appeal mechanisms provided by the Act. Subsection 12(2) of the regulations has been changed to require only that licensees provide a response to a request from the Commission within the time period specified. A request will therefore not have the effect of an order.

### 3.2 Radiation Protection Regulations

These Regulations contain the radiation protection requirements and as such, they apply to all licensees and others who fall within the mandate of the Commission. Medical doses, doses to caregivers who do not do this as a profession and doses to

dans une version provisoire d’un document d’application de la réglementation.

(a) Solutions de rechange aux garanties financières

Le Parlement avait clairement l’intention d’autoriser la CCSN à exiger des garanties financières. Aucune solution de rechange n’a donc été envisagée.

(b) Coûts

Le titulaire de permis a toujours été responsable des coûts relatifs au déclassement de ses installations. Le coût résultant de l’application du paragraphe 24(5) de la LSRN est donc limité au coût additionnel de la garantie financière. Des garanties financières sont déjà exigées aux termes du *Règlement sur les mines d’uranium et de thorium*. Par conséquent, les titulaires de permis concernés n’auront pas à engager de coûts additionnels. Un titulaire de permis aura le choix parmi plusieurs mécanismes pour satisfaire aux exigences de garantie financière de la CCSN. Il existe cependant des facteurs hors du contrôle de la CCSN qui peuvent affecter le coût d’une garantie financière, le principal étant le consentement des pouvoirs publics (fédéraux et provinciaux) de soutenir financièrement les coûts de déclassement des installations qu’ils possèdent ou qui sont exploitées dans leur province. Selon ces décisions, le coût des garanties financières pourrait varier entre zéro, s’il y a engagement gouvernemental, et plusieurs millions de dollars dans le cas d’installations importantes dont les coûts de déclassement sont élevés. Il est donc difficile d’estimer l’ampleur des répercussions financières de cette exigence.

La CCEA étudie actuellement les commentaires recueillis sur la version provisoire d’un document d’application de la réglementation traitant des garanties financières. Il sera impossible d’estimer avec précision le coût total que représente la mise en application du paragraphe 24(5) de la LSRN tant que ce document ne sera pas achevé et que d’autres décisions n’auront pas été prises, notamment celles qui sont mentionnées plus haut. C’est pour cette raison que les coûts ne figurent pas ici.

(c) Avantages

En imposant des garanties financières, on réduit considérablement le risque pour les contribuables d’avoir à payer les coûts de déclassement.

### 3.1.2 Obligations du titulaire de permis

Le paragraphe 12(2) de la version du règlement publiée dans la *Gazette du Canada* Partie I stipulait que, sur demande de la Commission, le titulaire de permis est tenu de prendre certaines mesures comme la mise à l’essai ou la modification d’équipement. Il est apparu qu’une telle demande est, en fait, identique à l’ordre mentionné à l’article 35 de la LSRN, sans les mécanismes d’appel que prévoit la loi. On a donc modifié le paragraphe 12(2) du règlement de façon à exiger du titulaire de permis uniquement une réponse à la demande de la Commission dans le délai donné. Une demande n’aura donc plus l’effet d’un ordre.

### 3.2 Radiation Protection Regulations

Ce règlement stipule les exigences en matière de radioprotection et, à ce titre, il s’applique à tous les titulaires de permis et autres organismes assujettis à la réglementation de la CCSN. Les doses médicales, les doses reçues par les bénévoles qui dispensent
volunteers in biomedical research are specifically excluded from the regulations.

As a result of comments received following publication in the Canada Gazette, Part I, changes were made to the definitions in sections 1 and 12 and to the application of ALARA (as low as reasonably achievable) in paragraph 4(a) to improve clarity and make these Canadian requirements consistent with international practice.

The Radiation Protection Regulations represent regulatory requirements under the AEC Act with revised dose limits and the addition of action levels.

### 3.2.1 New Dose Limits

The new dose limits in most countries are based on the recommendations of the International Commission on Radiation Protection (ICRP). Using the most recent data on the effects of radiation, the ICRP recommended lowering the dose limits in 1991 as follows:

- for nuclear energy workers, from 50 millisievert\(^*\) (mSv/year to 100 mSv/year);  
- for pregnant nuclear energy workers, from 10 mSv/year to 2 mSv/year; and  
- for members of the public, from 5 mSv/year to 1 mSv/year.

Except for pregnant workers as described below, the new regulations reflect these recommendations.

* A millisievert is the unit used to measure the dose equivalents from different types of radiation. Typically, Canadians receive between 2 and 3 mSv per year from background radiation.

In July 1991, the AEBC published a consultative document C-122, which contained the basic proposal for reduction of the dose limits. Based on the comments received, it was clear that the dose limit for pregnant workers required special consideration since it was a significant decrease from existing practice and could affect employment opportunities for women in the nuclear industry. In 1992, a series of eight workshops was held across Canada specifically on the topic of dose limits for pregnant workers. A total of 338 persons attended the meetings and based on these consultations and a thorough review of the risks of radiation, the maximum effective dose to the worker during the period of the pregnancy was set at 4 mSv in the new regulations. The new regulations also require licensees to take any measure that does not constitute undue hardship to the licensee, to continue to employ the pregnant worker and meet the dose limit. In 1997, the ICRP also recognized the possibility of employment discrimination and as a result, stated that its recommended dose limit for pregnant workers should not be interpreted too rigidly.

Since 1992, the AEBC has consulted extensively with the nuclear industry and the Canadian public on the issue of implementing ICRP 60 recommendations as the standard for the Canadian dose limits. The AEBC has also been working closely with workers and the industry to lower exposures and thus make introduction of the proposed dose limits less of a burden.

Les définitions des articles 1 et 12 et l’application du principe ALARA (le niveau le plus faible qu’il soit raisonnablement possible d’atteindre) du paragraphe 4a) ont été modifiées en fonction des commentaires qui ont suivi la publication du règlement dans la Gazette du Canada Partie I afin de les rendre plus claires et d’harmoniser les exigences canadiennes avec les pratiques internationales.

À l’exception des nouvelles limites de dose et des nouveaux seuils d’intervention, le Règlement sur la radioprotection reprend les exigences réglementaires de la LCEA.

### 3.2.1 Nouvelles limites de dose

Dans la plupart des pays, les limites de dose sont fondées sur les recommandations de la Commission internationale de protection radiologique (CIPR). D’après les données les plus récentes sur les effets des rayonnements, la CIPR a recommandé en 1991 que ces limites soient réduites et passent:

- pour le travailleur du secteur nucléaire, de 50 mSv\(^*\) par année à 100 mSv pour cinq ans (soit une moyenne de 20 mSv par année);  
- pour la travailleuse enceinte du secteur nucléaire, de 10 à 2 mSv;  
- pour le public, de 5 à 1 mSv par année.

Les nouveaux règlements reflètent ces recommandations, sauf en ce qui concerne la travailleuse enceinte.

* Un millisievert est l’unité de mesure la plus communément utilisée pour évaluer les doses équivalentes des différents types de rayonnement. En général, un Canadien reçoit entre 2 et 3 mSv par année de rayonnement naturel.

En juillet 1991, la CCEA publiait le document de consultation C-122, qui contenait la proposition de base pour la réduction des limites de doses. À la lumière des commentaires reçus, il était clair qu’il fallait accorder une attention particulière à la limite de dose pour la travailleuse enceinte puisqu’il s’agissait d’une diminution importante par rapport à la pratique existante et que cette mesure pouvait avoir des répercussions sur les perspectives d’emploi des femmes dans l’industrie nucléaire. En 1992, 338 personnes ont participé à huit ateliers organisés partout au Canada sur ce sujet particulier de la limite de dose pour la travailleuse enceinte. À la suite de ces consultations et d’un examen complet des risques du rayonnement, la dose maximale efficace pour la travailleuse enceinte a été fixée dans le nouveau règlement à 4 mSv. Le nouveau règlement exige aussi du titulaire de permis qu’il prenne toutes les mesures qui ne représentent pas pour lui des contraintes excessives afin de garder la travailleuse enceinte comme employée tout en respectant la limite de dose fixée. En 1997, ayant également reconnu la possibilité de discrimination dans l’emploi, la CIPR a par la suite déclaré que la limite de dose recommandée pour la travailleuse enceinte ne devrait pas être interprétée de façon trop rigoureuse.

Depuis 1992, la CCEA mène de vastes consultations auprès des représentants de l’industrie nucléaire et du public canadien au sujet de l’adoption des recommandations de la CIPR (Publication 60) à titre de norme visant les limites de
(a) Alternatives to New Dose Limits

The ICRP recommendations are becoming the world standard for radiation exposure. These values represent a risk level that is recognized as “acceptably low” by the international scientific community, and there is no sound rationale to adopt different limits, with the exception of the pregnant worker dose limit described above.

(b) Costs

The proposal to reduce the dose limits for workers has been under discussion since the publication of AECB consultative document C-122 in 1991. To avoid problems associated with dose averaging, this document proposed a dose limit of 20 mSv/year for workers in the nuclear energy industries. In the same year, an AECB-funded study by Price-Waterhouse concluded the costs associated with this lower limit would be very significant, increasing overall costs by approximately 17% for reactor operations and 4% for mining operations. Since then, a number of changes have occurred that have convinced the AECB that the flexibility of the ICRP’s five-year limit should be introduced in Canada. These changes include modification of the National Dose Registry to accommodate averaging and reductions in the average exposure of Canadian workers.

In 1997, Health Canada reported that for the five-year period ending in 1995, no nuclear worker at a reactor site received a dose that exceeded 100 mSv. Therefore, the new dose limit should have no significant effect on reactor operations or costs. For the uranium mining industry during the same five-year period, 72 underground miners and support workers from a total of 1,485 in these categories exceeded 100 mSv by an average of 22%. During the 10-year period ending in 1995, the average dose for these categories decreased by approximately 4% per year and if this trend continues, the excess should be eliminated within several years. A preliminary analysis by Health Canada of the dosimetry data for 1998 indicates that no reactor or mining worker received a dose that exceeded 20 mSv/year as compared with 9 reactor workers and 37 mining workers who exceeded that limit in 1997.

For both reactor and mining licensees, some new costs will be associated with increased surveillance caused by the new dose limits and averaging. Some greater attention will need to be paid to work scheduling and dose monitoring to reduce exposures. The incremental cost is estimated to be less than $200,000 annually for all reactor licensees. Based on information from the mining industry, the annual incremental costs will be approximately $100,000 per mining facility for a total industry cost estimated to be $600,000 per year.

Thirty-seven from a total of 3,444 industrial radiographers received a dose that exceeded 100 mSv during the five-year period ending in 1995. The average dose for the 37 workers must be decreased by 40% using a combination of retraining, better supervision, rearranged workloads, and better use of time, distance and shielding. Reducing by an average of 40% the dose received by 1% of the workers in this industry is estimated to cost $200,000 per year.

The new public dose limits will result in a number of licensees’ staff being designated as nuclear energy workers who were not considered atomic radiation workers under the AEC Act. Data from the National Dose Registry shows that, approximately 6,000 workers received doses between dose au Canada. La CCEA a également collaboré étroitement avec les travailleurs et l’industrie afin de diminuer les expositions pour ainsi faciliter l’instauration des limites de dose proposées.

(a) Solutions de rechange aux nouvelles limites de dose

Les recommandations de la CIPR sont en train de s’imposer comme norme mondiale en matière d’exposition aux rayonnements. Ces valeurs représentent ce que la communauté scientifique internationale considère comme un niveau de risque « assez faible pour être acceptable » et, sauf en ce qui concerne la travailleuse enceinte tel qu’expliqué plus haut, il n’y a aucune raison valable d’adopter des limites différentes.

(b) Coûts

La proposition visant à abaisser la limite de dose des travailleurs a fait l’objet de discussions depuis la publication en 1991 du document de consultation C-122 de la CCEA. Pour éviter les problèmes liés à l’utilisation d’une dose moyenne, ce document préconisait un maximum de 20 mSv par année pour le travailleur des industries utilisant l’énergie nucléaire. Au cours de la même année, à la suite d’une étude financée par la CCEA, Price-Waterhouse a conclu que les coûts de cette réduction de la limite de dose seraient très élevés puisqu’ils se traduiraient par une augmentation des coûts globaux d’environ 17 % pour les centrales nucléaires et de 4 % pour les mines d’uranium. De plus, un certain nombre de changements, comme les modifications apportées au Fichier dosimétrique national pour permettre l’utilisation de doses moyennes et incorporer la réduction de l’exposition moyenne du travailleur canadien, ont convaincu la CCEA que la souplaisie de la limite de cinq ans de la CIPR méritait d’être introduite au Canada.

En 1997, Santé Canada a rapporté que, pour la période de cinq ans se terminant en 1995, aucun travailleur de centrale nucléaire n’avait été soumis à un rayonnement de plus de 100 mSv. La nouvelle limite ne devrait donc pas affecter les opérations ou les coûts des centrales de façon notable. Pour la même période dans l’industrie minière de l’uranium, 72 mineurs de fond et travailleurs auxiliaires sur un total de 1 485 ont reçu plus de 100 mSv dans 22 % des cas. Pendant la période de dix ans se terminant en 1995, la dose moyenne pour ces catégories a diminué d’environ 4 % par année et, si cette tendance se maintient, le dépassement devrait être éliminé d’ici à plusieurs années. Une analyse préliminaire des données dosimétriques réalisée par Santé Canada pour 1998 indique qu’aucun travailleur de centrale ou de mine n’a reçu de dose supérieure à 20 mSv par an alors qu’en 1997, cette limite avait été dépassée dans le cas de neuf travailleurs de centrale et de 37 mineurs.

Les titulaires de permis de centrales et de mines devront exercer une surveillance accrue quant aux nouvelles limites de dose et au calcul de la moyenne et porter plus d’attention à l’établissement des horaires de travail et à la surveillance des doses afin de réduire les expositions. On estime à moins de 200 000 $ par année pour l’ensemble des titulaires de permis de centrales le coût additionnel qui sera associé à ces mesures. Des renseignements recueillis auprès des industries minières indiquent qu’elles devront pour leur part envisager des coûts d’environ 100 000 $ pour chacune des installations, pour un coût total estimé à 600 000 $ par année.
1 mSv and 5 mSv during 1997. People occupying these positions will have to be notified that they are nuclear energy workers and provided with information about the risks of radiation. This information can be obtained from sources such as the CNSC and the International Atomic Energy Agency (IAEA). The majority of affected licensees are involved with power reactors or uranium mining, and in such cases, programs and procedures already exist for their atomic radiation workers. Incremental costs therefore should be minimal. Approximately 1,000 licensees primarily involved with medical or research uses will have to establish a notification program. The average cost per licensee is estimated to be $1,000. The one-time cost to the industry is therefore estimated to be $1 million.

(c) Benefits
The basic benefit from lower dose limits is the reduced risk to workers and members of the public from radiation resulting from the nuclear industry. This will make Canada’s dose limits consistent with international standards. Providing nuclear energy workers with information about radiation protection and risks will tend to reduce exposures.

3.2.2 Action Levels
An action level is a specific dose or other parameter which, if reached, may indicate a partial loss of control of the radiation protection program. The General Nuclear Safety and Control Regulations require applicants to submit information on any action level they use or propose to use. If an action level is referred to in a licence, the Radiation Protection Regulations require the licensee to investigate, take appropriate actions and notify the Commission when an action level is exceeded.

The establishment of action levels is consistent with the recommendations of the ICRP. Most major licensees have action levels, but they may be identified as reference levels, investigation levels, etc. Reporting when one of these levels is exceeded was not a regulatory requirement under the AEC Act or Regulations.

Chez les opérateurs de gammatomographie, 37 travailleurs sur un total de 3 444 ont reçu des doses dépassant 100 mSv pendant cette même période de cinq ans se terminant en 1995. La dose moyenne pour ces travailleurs devrait donc diminuer de 40 % grâce à l’effet combiné des mesures suivantes : perfectionnement des connaissances, amélioration de la supervision, réaménagement des horaires et utilisation efficace du temps, de la distance et du blindeage. La hausse des coûts correspondant à une réduction en moyenne de 40 % de la dose pour 1 % des travailleurs de cette industrie ne devrait pas se chiffrer à plus de 200 000 $.

En raison des nouvelles limites de dose pour le public, un grand nombre de personnes employées par des titulaires de permis seront désignées comme travailleurs de l’industrie nucléaire alors qu’aux termes de la LCEA ces personnes n’étaient pas considérées comme travailleurs sous rayonnements. Les données du Fichier dosimétrique national montrent qu’environ 6 000 travailleurs ont reçu en 1997 des doses variant entre 1 mSv et 5 mSv. Les personnes qui occupaient ces postes devront être informées qu’elles sont dorénavant considérées comme des travailleurs de l’industrie nucléaire et devront recevoir de l’information sur les risques de l’exposition aux rayonnements. On peut obtenir cette information à la CCSN et à l’Agence internationale de l’énergie atomique (AIEA). Comme la majorité des titulaires de permis concernés appartiennent au secteur des centrales nucléaires ou à celui des mines d’uranium, ils possèdent déjà des programmes et des procédures visant leurs travailleurs sous rayonnements. Les coûts supplémentaires associés à cette mesure devraient donc être mineurs. Environ 1 000 titulaires de permis, notamment dans les secteurs de la médecine et de la recherche, devront mettre sur pied un programme de notification dont le coût moyen est estimé à 1 000 $ par titulaire de permis. On prévoit donc que l’industrie aura à assumer un coût ponctuel d’environ 1 million de dollars.

c) Avantages
Le principal avantage des nouvelles limites de dose est de réduire les risques d’exposition aux rayonnements pour les travailleurs et les membres du public provenant de l’industrie nucléaire. Les limites de dose en vigueur au Canada seront dorénavant conformes aux normes internationales. De plus, les expositions devraient être diminuées grâce à l’information qui sera distribuée aux travailleurs du secteur de l’énergie nucléaire au sujet de la radioprotection et des risques reliés aux rayonnements.

3.2.2 Seuils d’intervention
Un seuil d’intervention peut être une dose particulière ou un autre paramètre qui, une fois atteint, pourrait indiquer la perte de contrôle d’une partie du programme de radioprotection. Le Règlement général sur la sûreté et la réglementation nucléaires exige que le demandeur présente des renseignements sur les seuils d’intervention qu’il utilise ou se propose d’utiliser; si un seuil d’intervention indiqué dans un permis est dépassé, le Règlement sur la radioprotection exige que le titulaire de permis fasse enquête, prenne les mesures voulues et avise la Commission.

L’établissement de seuils d’intervention correspond aux recommandations de la CIPR. La plupart des titulaires de permis importants possèdent déjà des seuils d’intervention, parfois désignés sous le nom de seuils de référence,
3.3 Class I Nuclear Facilities Regulations

The Atomic Energy Control Regulations include reactors, particle accelerators, uranium processing plants and waste management facilities in the definition of “nuclear facilities.” Under the NSC Act, the definition has been expanded to include those plants that possess, process or use large quantities of radioactive material because their level of risk falls within the range of other nuclear facilities. Since the licensing criteria vary significantly for this expanded list of nuclear facilities, it was decided to separate the group of licensees into two classes of facilities that better reflect their operations and the risks associated with them. Class II nuclear facilities therefore consist of low-energy particle accelerators and equipment containing only sealed sources because of the lower risk these types of facilities represent.

The requirements specified in the Class I Nuclear Facilities Regulations for major facilities such as reactors, high-energy accelerators and uranium processing facilities are essentially the same as those under the AEC Act, regulations and licence conditions. The impact of the new regulations on operator recertification and uranium or large radioisotope processing plants that are included as class I nuclear facilities, are discussed below.

The only major change to these Regulations resulting from the comments received following publication in the Canada Gazette, Part I concerned the subdivision of the class I nuclear facilities into class IA and class IB. The rationale for this change is explained as part of section 3.3.2.

(a) Alternatives to Action Levels

One alternative to action levels is to allow licensees to delay any response to an anomaly until a regulatory limit is reached, thus increasing the risk that a person may be exposed to doses in excess of the limits before the problem is identified and corrected. This is not considered acceptable in protecting persons and the environment.

Allowing licensees complete flexibility in the establishment of action levels and in notification to the CNSC has been effective for some licensees but such flexibility is not considered acceptable for the industry as a whole.

(b) Costs

Most licensees already have established levels and take actions before regulatory limits are reached, so no major costs are anticipated. Some additional documentation and reporting may be necessary, but the associated incremental costs per licensee are not considered to be significant (i.e., approximately $100,000 per year for all licensees).

(c) Benefits

By taking action before regulatory limits are reached, the frequency and severity of noncompliance with regulatory limits will be minimized.

3.3 Reglement sur les installations nucléaires de catégorie I

La définition d’« installation nucléaire » figurant dans le Règlement sur le contrôle de l’énergie atomique désigne les réacteurs, les accélérateurs de particules, les usines de traitement d’uranium et les installations de gestion des déchets. Aux termes de la LSRN, cette définition a été élargie pour inclure les usines qui possèdent, traitent ou utilisent de grandes quantités de matière radioactive, car leur seuil de risque est semblable à celui d’autres installations nucléaires. Puisque les critères menant à l’obtention du permis varient considérablement entre les installations nucléaires apparaissant sur cette nouvelle liste élargie, ces installations ont été regroupées en deux catégories, qui reflètent mieux leurs activités et les risques qu’elles représentent. Dans la catégorie II se trouvent réunis les accélérateurs de particules à faible énergie et les équipements n’utilisant que des sources scellées, vu le moindre risque que représente ce type d’installation.

Le Règlement sur les installations nucléaires de catégorie I, qui précise les exigences applicables aux grandes installations comme les centrales, les accélérateurs à haute énergie et les usines de traitement d’uranium, reprend essentiellement les termes de la LCEA, de ses règlements et des conditions de permis. Nous décrirons plus loin l’effet du nouveau règlement, en ce qui a trait au renouvellement de l’accréditation des opérateurs et aux usines de traitement d’uranium ou aux grandes usines de traitement des radio-isotopes, qui font partie des installations nucléaires de catégorie I.

La seule modification importante apportée à ce règlement à la lumière des commentaires reçus à la suite de la publication dans la Gazette du Canada Partie I a trait à la subdivision des installations nucléaires de catégorie I en catégories IA et IB. Les motifs de ce changement sont expliqués à la section 3.3.2.
### 3.3.1 Operator Certification

The AECB required the senior control room staff of nuclear power reactors to pass examinations administered by the AECB that tested their competence to operate nuclear reactor operators safely. Only examinations for initial certification were required, but licensees were expected to maintain the competence of their staff through regular training. For some time, the AECB has considered that a mechanism for verifying continuing competence is necessary and under the AEC Act, it began the process by adding an expiry date to all existing certifications.

Under the Class I Nuclear Facilities Regulations, certifications issued by the CNSC expire after five years, and in order to be recertified, senior control room staff will be required to successfully complete a continuing training program and requalification tests administered by the licensee to demonstrate continuing competence. The licensee’s continuing training program and tests will be evaluated regularly by Commission staff.

A recertification process, which has been under discussion with the industry for more than five years, was started under the AEC Act and Regulations. A series of meetings was held with the power reactor operators on implementation of a five-year recertification program. The power utilities made presentations to the Board at its August 12, 1999, meeting in which they expressed concern about the proposed recertification program. The Board concluded that further consultation was necessary, and at its November 4, 1999, meeting, it received five presentations from union and other groups representing affected workers at the three power generation licensees. The Board confirmed the decision to implement a five-year recertification process.

#### (a) Alternatives to Operator Recertification

There are no alternatives to recertification to provide the regulator with adequate assurance of continuing competency. High standards of performance are expected and as with safety-critical jobs in other industries, a formal demonstration that those standards continue to be met is considered essential. Periodic renewal of certification is consistent with the practices in many other countries where nuclear power plants operate.

#### (b) Costs

It is estimated that reactor licensees will need to invest about $500,000 in total to develop recertification training programs for their nuclear operators. The continued management and conduct of this training are expected to require additional staff for a total cost of $350,000 per year. Additional staff will be required at the Commission to monitor these requalification programs conducted by the licensees. This cost, which is estimated to be approximately $200,000 per year, is expected to be reflected in licensing fees charged to the affected licensees. The incremental operating cost to the industry for this new regulatory requirement is therefore estimated to be $550,000 per year.

#### (c) Benefits

The safe operation of nuclear power plants in Canada is dependent upon highly trained and competent staff. The initial training and examination programs for senior control room operators are comprehensive to allow the regulator to be satisfied that staff can meet the high standards required to perform their duties. The continuing training programs

### 3.3.1 Accréditation des opérateurs

La CCEA a exigé que les membres supérieurs du personnel de la salle de commande d’une centrale nucléaire passent des exams administrés par la CCEA et ce, pour permettre d’évaluer leur compétence à exploiter des réacteurs nucléaires en toute sûreté. Jusqu’à présent, les examens n’étaient exigés que pour l’accréditation initiale, et il n’existait pour accroître la compétence de son personnel grâce à une formation régulière. Depuis un certain temps, la CCEA est d’avis qu’il faut planifier un mécanisme visant à vérifier le maintien du niveau de compétence. Ce processus a été amorcé avec l’adoption de LCEA qui prévoit que toutes les accréditations existantes sont limitées par une date d’expiration.

Le Règlement sur les installations nucléaires de catégorie I stipule que l’accréditation accordée par la CCSN expirera après une période de cinq ans et que, pour obtenir le renouvellement de leur accréditation, les membres supérieurs du personnel de la salle de commande doivent suivre et réussir un programme de formation et des examens de requalification administrés par le titulaire de permis afin de démontrer que leurs compétences sont maintenues à niveau. La CCSN évaluera régulièrement les programmes de formation continue et les examens utilisés par les titulaires de permis.

Un processus de renouvellement de l’accréditation, à l’étude avec les représentants de l’industrie depuis plus de cinq ans, a débuté sous le régime de la LCEA et de ses règlements. La mise sur pied d’un programme de renouvellement de l’accréditation de cinq ans a été l’objet d’une série de réunions tenues avec des exploitants de centrales. Lors de la réunion de l’actuelle Commission du 12 août l’année dernière, les services publics de l’électricité ont fait des présentations dans lesquelles ils exprimaient leurs inquiétudes par rapport au programme proposé de renouvellement de l’accréditation. La CCSN a conclu que des consultations supplémentaires s’imposaient et a entendu les présentations des syndicats et d’autres groupes qui représentaient les travailleurs concernés chez les trois titulaires de permis centrales nucléaires. La CCSN a confirmé par la suite sa décision d’implanter un processus de réaccréditation de cinq ans.

#### (a) Solutions de rechange au renouvellement de l’accréditation

Aucune solution de rechange au renouvellement de l’accréditation ne permettrait d’assurer un maintien adéquat des compétences. On s’attend à ce que le rendement d’un exploitant d’installation nucléaire satisfasse à des normes élevées et, à l’instar d’autres industries où certains emplois ont une grande incidence sur la sûreté, on juge essentiel qu’il soit formellement démontré que ces normes sont respectées en permanence. Le renouvellement périodique de l’accréditation fait partie des pratiques en vigueur dans de nombreux pays où sont exploitées des centrales nucléaires.

#### (b) Coûts

On estime que les titulaires de permis de centrales nucléaires devront investir environ 500 000 $ pour mettre sur pied des cours et des programmes pour assurer le renouvellement de l’accréditation de leurs opérateurs. La gestion de la formation et la formation elle-même pourraient exiger du personnel supplémentaire, ce qui représente un coût de 350 000 $ par année. En outre, la CCSN aura besoin de personnel supplémentaire pour assurer la surveillance des
and periodic requalification tests by this new initiative will provide confidence that operators will maintain the competen
cess required for safe reactor operation.

3.3.2 Reclassification

Based on the definition of a class I nuclear facility, the large processors of radioactive material will become class I nuclear facilities. They have expressed concerns that because of this new categorization, they would be subjected to the same standards as applied to reactors which are also class I facilities and that these standards are not commensurate with the level of risk associated with the operation of their facilities. The AECB has provided assurances that this will not be the case. The regulatory requirements will reflect the risk and not the classification of the facility. Alternatives to and the impact of reclassification have been discussed at a series of meetings with industry.

The uranium processing facilities have suggested that it would be more appropriate if they were included in the Uranium Mines and Mills Regulations rather than the Class I Nuclear Facilities Regulations. As discussed below, the AECB does not believe that such a change is appropri
ate.

The same processors of radioactive material have also commented that these Regulations were not as clear as they could be with respect to the application of operator certification to their facilities. To clarify the AECB’s intentions on this matter, the definition of class I nuclear facilities has been modified. Class I nuclear facilities have been subdivided into class IA and class IB and the text of section 9 has been modified to state that sections 9-13, which deal with certification of persons, do not apply to class IB nuclear facilities.

(a) Alternatives to Reclassification

The AECB has undertaken an initiative to promote greater consistency in the application of regulatory tools to all licensees, and in particular, to adjust AECB activities to relate more closely to the risk associated with each facility. This initiative is consistent with the 1994 recommendations of the Office of the Auditor General concerning the need for a clearly documented regulatory strategy and formal program evaluation. A review indicated that the risks associated with three large processors of radioactive material and the uranium processing facilities more closely match those of class I nuclear facilities than those associated with radioisotope licences, uranium mines or class II nuclear facilities. Therefore, in the interest of a consistent risk-based programmes of renewalment of the accreditation of the titu
laire’s permits, enrolling new fees supplementary of d’environ 200 000 $ par année, qui se refléteront dans les droits de permis des titulaires concernés. Cette nouvelle exigence réglementaire représentera donc pour l’industrie des coûts supplémentaires de 550 000 $ par année.

c) Avantages

L’exploitation sûre des centrales nucléaires au Canada dé
pend étroitement de la compétence et de la bonne formation de leur personnel. La formation initiale et les programmes d’examen des membres supérieurs du personnel des salles de commande sont exhaustifs, et la CCSN peut ainsi être convaincue que le personnel peut satisfaire à la norme éle
vée de compétence nécessaire pour effectuer ses tâches. La formation continue et les examens périodiques de renou
vellement de l’accréditation apporteront l’assurance que les opérateurs maintiennent le niveau de compétence exigé pour une exploitation sûre des centrales nucléaires.

3.3.2 Reclassification

La définition d’une installation nucléaire de catégorie I en
traînera la reclassification des grandes installations de transformation des matières radioactives dans cette catégo
rie. Ces industries ont des réserves, car ces nouvelles classi
fications les assujettissent aux mêmes normes que les cen
trales nucléaires, qui sont aussi classées dans la catégorie I, alors que leur seuil de risque n’est pas comparable. À cè
gard, elles ont reçu l’assurance de la CCEA que ce ne se
rait pas le cas. Les exigences réglementaires correspondront au seuil de risque de chacun et non à la classification des installations. Les solutions de rechange à la reclassification et les répercussions de la reclassification ont fait l’objet de discussions au cours d’une série de réunions tenues avec les représentants de l’industrie.

Les représentants des installations de traitement de l’ura
nium estiment qu’il serait plus approprié de les régir par l’application du Règlement sur les mines et les usines de concentration d’uranium plutôt que du Règlement sur les installations nucléaires de catégorie I. Or, comme il a été expliqué plus haut, la CCEA ne croit pas qu’un tel chan
gement est approprié.

Les mêmes installations de transformation de matières ra
dioactives ont aussi fait observer que le règlement pourrait mieux préciser si les dispositions visant l’accréditation du personnel s’appliquent également à leurs installations. Pour clarifier son intention à ce sujet, la CCEA a modifié la dé
finition des installations nucléaires de catégorie I. Ces ins
llations ont été subdivisées en deux catégories, soit la ca
atégorie IA et la catégorie IB. De plus, l’énoncé de l’arti
cle 9 a été modifié pour indiquer que les articles 9 à 13 in
clusivement, portant sur l’accréditation des personnes, ne s’appliquent pas aux installations nucléaires de catégo
rie IB.

a) Solutions de rechange à la reclassification

La CCEA a entrepris une initiative visant à promouvoir une plus grande uniformité dans l’application des outils de ré
glementation envers tous les titulaires de permis et surtout à adapter les activités de la CCEA de façon à ce qu’elles cor
respondent plus étroitement aux risques associés à chacune des installations. Cette initiative s’inscrit dans la perspec
tive des recommandations faites en 1994 par le Bureau du vérificateur général concernant la nécessité d’une stratégie
An alternative to classifying the large processors as class I nuclear facilities is to create a separate class of facility regulations to clearly differentiate them from reactors. The AECB has systematically reviewed each section of the Class I Nuclear Facilities Regulations with a view to identifying any changes in regulatory requirements that would be appropriate for a new set of regulations. The AECB concluded that a new set of regulations would be identical to the existing draft except for the operator certification requirement. Therefore, from a regulation drafting point of view, another class of nuclear facility would serve no useful purpose. However, the subdivision of class I nuclear facilities into classes IA and IB permits a clearer identification of which facilities are not subject to the requirements relating to the certification of personnel.

The uranium processing facilities have suggested that it would be more appropriate if they were included in the Uranium Mines and Mills Regulations. This would be a change from their status under the AEC Act. A similar review of these Regulations also indicates that the uranium processing facilities are more appropriately regulated under the Class I Nuclear Facilities Regulations. 

(b) Costs

The Class I Nuclear Facilities Regulations contain no regulatory requirements other than the list of information to be supplied with a licence application and operator recertification which was discussed previously. Consequently, the incremental cost associated with reclassification itself will not be significant. It is recognized, however, that certain documentation and procedures will require updating to reflect the risk associated with these facilities. Based on data provided by the largest processor, the incremental cost to implement these changes for the three licensees involved is estimated to be $275,000. Ongoing costs are estimated to be $110,000 per year.

(c) Benefits

The benefit of the new classification scheme is greater consistency in licensing based on risk.

3.4 Class II Nuclear Facilities Regulations

The Class II Nuclear Facilities Regulations specify the requirements for nuclear facilities that pose a lower risk than class I facilities. These include low-energy accelerators, irradiators and radiation therapy installations. These Regulations introduce new regulatory requirements other than the list of information to be supplied with a licence application and operator recertification which was discussed previously. Consequently, the incremental cost associated with reclassification itself will not be significant. It is recognized, however, that certain documentation and procedures will require updating to reflect the risk associated with these facilities. Based on data provided by the largest processor, the incremental cost to implement these changes for the three licensees involved is estimated to be $275,000. Ongoing costs are estimated to be $110,000 per year.

3.4 Règlement sur les installations nucléaires de catégorie II

Le Règlement sur les installations nucléaires de catégorie II prévoit les exigences pour les installations nucléaires dont le seuil de risque est inférieur à celui des installations de catégorie I. Il s’agit notamment des accélérateurs à basse énergie, des
requirements for servicing licences and therapy room interlocks and the impact of these requirements is discussed below.

As a result of comments received following publication in the *Canada Gazette*, Part I, changes were made to clarify that these Regulations do not apply to diagnostic X-ray machines. Changes were also made to the requirements for geographical logging accelerators. Since these changes reflect the requirements under the AEC Act, they have no significant effect on licensees.

### 3.4.1 Servicing Licences

Many companies provide technical services to class II nuclear facility operators and to holders of nuclear substance licences. Many of these services, such as repairs to safety systems, are essential for the safe operation of the nuclear facility or the safe handling of the radioactive material. The AECB had insufficient information about, and no control over, the work these companies perform, the training and qualification of their staff and their quality assurance programs. This Regulation proposes to licence these service providers where nuclear safety-related services are concerned.

(a) **Alternatives to Servicing Licences**

The alternative of leaving these essential safety-related services unregulated is not considered acceptable since these services contribute directly to the safe management of nuclear facilities and materials.

Another alternative is to require licensees to develop in-house expertise, but this is considered too restrictive for licensees who do not need these services performed frequently. It is also doubtful that in-house expertise would continue to be current when used infrequently.

(b) **Costs**

It is estimated that there are five organizations that service class II equipment without a licence from the AECB. Many cancer clinics perform in-house servicing that will require a licence but as health care institutions, they are exempt from the AECB Cost Recovery Fees Regulations. The total cost for the five service companies is estimated to be $20,000 to become licensed plus incremental costs of $10,000 per year.

(c) **Benefits**

Safety-related activities that are contracted out to technical service providers will be approved and monitored in the same way as the training and qualification of licensees’ staff who perform safety-related activities. This will ensure that equivalent standards of safety are applied to licensees and to contracted technical service providers.

irradiators and des appareils de radiothérapie. Ce règlement introduit de nouvelles exigences en matière de permis d’entretien et de verrouillage des commandes des salles de traitement. L’impact de ces exigences est expliqué en détail ci-dessous.

Les commentaires qui ont suivi la publication du règlement dans la *Gazette du Canada* ont entrainé des modifications pour clarifier que le règlement ne s’applique pas aux appareils de radiographie diagnostiques. Certains changements ont aussi touché les exigences relatives aux accélérateurs de diaphagme. Ils n’auront pas de répercussions importantes pour les titulaires de permis puisqu’ils ne font que refléter les exigences de la LCEA.

### 3.4.1 Permis d’entretien

Plusieurs compagnies fournissent des services techniques aux exploitants d’installations nucléaires de catégorie II et aux titulaires de permis de substances nucléaires. Plusieurs de ces services, par exemple la réparation des systèmes de sûreté, sont essentiels à une exploitation sûre de l’installation nucléaire ou à une manutention sans danger des matières radioactives. La CCEA ne disposait pas de renseignements suffisants et n’avait aucun contrôle sur les travaux que ces compagnies effectuent, sur la formation et la compétence de leur personnel ou sur leurs programmes d’assurance de la qualité. Ce règlement propose que les fournisseurs de services ayant une incidence sur la sûreté nucléaire soient tenus d’obtenir un permis.

a) **Solutions de rechange aux permis d’entretien**

La solution de rechange consistant à ne pas réglementer ces services essentiels à la sûreté n’est pas jugée acceptable dans la mesure où ces services contribuent directement à une gestion sûre des installations et des matières nucléaires. Une autre solution de rechange serait d’exiger du titulaire de permis qu’il développe des compétences techniques internes, mais cette mesure est considérée trop restrictive pour les titulaires de permis qui n’exigent pas fréquemment ces services d’entretien. Il est également peu probable que ces compétences internes demeurent à jour si elle ne sont que rarement utilisées.

b) **Coûts**

On estime qu’il y a cinq entreprises qui fournissent des services d’entretien à des installations de catégorie II sans détente de permis de la CCEA. De nombreux centres anti-cancer entretiennent eux-mêmes leurs équipements et devront donc obtenir un permis. Cependant, à titre d’établissements de santé, ils sont exemptés du Règlement sur les droits pour le recouvrement des coûts de la CCEA. Le coût total d’acquisition des permis est estimé pour l’ensemble des cinq fournisseurs à 20 000 $, somme à laquelle s’ajouteront des coûts supplémentaires de 10 000 $ par année.

c) **Avantages**

Les activités faites à contrat par des fournisseurs de services techniques externes et qui sont associés à la sûreté devront être approuvées et surveillées de la même manière que la formation et la qualification du personnel du titulaire de permis qui effectue lui-même ces tâches. Ainsi, les fournisseurs de services techniques seront soumis aux mêmes normes de sûreté que les titulaires de permis.
3.4.2 Therapy Room Interlocks
All cancer therapy treatment rooms will be required to have interlocks that prevent the production of a radiation beam unless the operator initiates the start-up sequence inside the treatment room before moving to the external control console within a preset period of time. This minimizes the likelihood that an unauthorized person would be in the room when a treatment is being given. Most treatment rooms have this system.

(a) Alternatives to Therapy Room Interlocks
The risk of accidental exposure is significantly reduced when the operator is forced to initiate the start-up sequence from inside the treatment room. The alternative is to rely on administrative procedures. The AECB is aware of cases where administrative procedures have not been effective, so this alternative is not considered to be acceptable.

(b) Costs
It is estimated that there are 20 treatment rooms in Canada that will require the installation of wiring, a timer and a switch. The incremental cost is not expected to exceed $1,000 per room, so the total cost to hospitals will be $20,000.

(c) Benefits
The installation of safety interlocks will reduce the risk of inadvertent exposure of staff or the public to radiation.

3.5 Uranium Mines and Mills Regulations
The Uranium Mines and Mills Regulations consist primarily of the requirements contained in the Uranium and Thorium Mining Regulations and certain licence conditions. Only minor wording changes were made following publication in the Canada Gazette, Part I to improve the clarity of the Regulations.

The mining industry has expressed concern that some information, such as a preliminary safety analysis report, will now be required at an earlier stage in the life-cycle of a mine or mill. The Commission believes this information is necessary at an early stage if it is to be satisfied that the operating mine or mill will be capable of meeting regulatory requirements.

3.6 Nuclear Substances and Radiation Devices Regulations
The Nuclear Substances and Radiation Devices Regulations apply to all nuclear substances, sealed sources and radiation devices not covered by other regulations. As such, they apply to almost every licensee and result in the vast majority of AECB licences. They also contain the criteria for consumer products such as smoke detectors and safety signs using tritium. In general, these Regulations reflect international practice but there are some minor variations based upon Canadian policy and circumstances.
The regulations consist of the requirements under the AEC Regulations and licence conditions, with the addition of servicing licences similar to those described previously in section 3.4.1 for class II nuclear facilities, and audible alarming dosimeters for exposure device operators. The scheduled quantities defined in the AEC Regulations have also been replaced with exemption quantities. This means that the quantities of radioactive material that are exempt from licensing have generally decreased.

Following publication in the Canada Gazette, Part I, changes were made to the regulations to clarify the requirements for the use of calibrated survey meters and to remove several sections that upon review were found to be redundant. Other minor changes were made to improve clarity.

### 3.6.1 Exemption Quantities

The schedule to the Nuclear Substances and Radiation Devices Regulations contains a list of the quantities of radioactive material below which no licence is required. The AEC Regulations also contain exemption values called “scheduled quantities”, but the exemption quantities proposed under the NSC Act, which are based on current radiation protection knowledge and the new dose limits, are generally smaller than those found in the AEC Regulations. The AEC Regulations exempt from licensing most materials that contain less than one scheduled quantity per kilogram. This exemption was not included in the Regulations under the NSC Act because of concerns about the risks posed by large volumes of materials that contain low concentrations of radioactive material.

(a) Alternatives to the Schedule of Exemption Quantities

The schedule of exemption quantities is calculated from models based on assumptions about the hazards and uses of small quantities of nuclear material. As knowledge and experience has grown, these models have been refined to reflect current information. One alternative would be to continue to use the 1974 values. This is considered to be unacceptable because it would not recognize the new lower dose limits and recent information on the effects of radiation. Another alternative would be to adopt one of the sets of values used in other countries. These have been considered, but the AECB has concluded that the proposed exemption quantities are more appropriate because they provide better protection for Canadians.

The regulations could also continue the exemption for materials that contain less than one scheduled quantity per kilogram. The AECB believes, however, that the blanket exemption should be removed because of the potential risk posed by large quantities of materials containing small concentrations of radioactive materials. In cases where such materials pose no significant risk, the Commission may use section 7 of the NSC Act to exempt them from the application of the Act and Regulations.

(b) Costs

Most users of small sources already have a licence from the AECB for other activities, so no significant additional costs are anticipated. However, some abandoned nuclear sites will require consideration for licensing under the new
regulations. The AECB is aware of approximately 45 such contaminated sites. Most of these, if they do require licensing, would incur incremental costs estimated at less than $2,000 per year per site. For five or six of the sites, the incremental costs for licensing and monitoring are estimated to be as much as $10,000 per year per site.

(c) Benefits
The revised exemption quantities will reflect improved safety standards that are based on current scientific knowledge. Removal of the blanket exemption for materials containing low concentrations of radioactive material allows for regulatory control when justified due to the volume of material involved.

3.6.2 Audible Alarming Dosimeters

The use of radiation sources to radiograph structures such as pipeline welds, aircraft components and pressure vessels for flaws is one of the most hazardous activities licensed by the AECB. The new regulations therefore require all exposure device operators to wear an audible alarming dosimeter to alert them to dangerous levels of radiation before significant exposures occur. Under the AECB Regulations, only trainees were required to have these devices. Audible alarms have been a requirement in the United States for several years.

(a) Alternatives to Audible Alarming Dosimeters

Due to the conditions under which radiography may be performed, operators are often unable to observe the ambient dose rate on a survey meter as frequently as safe practice would require. Therefore, the only way operators can be informed of high radiation levels under such circumstances is with an audible alarm. Audible alarms have been a requirement for trainees since 1983, but they were not made mandatory for everyone at that time because they were judged to lack adequate reliability. Technology has advanced to the point where their reliability is now considered acceptable. The AECB is aware of significant exposures occur. Under the AECB Regulations, only trainees were required to have these devices. Audible alarms have been a requirement in the United States for several years.

(b) Costs

Basic audible alarming dosimeters that meet the requirements of the regulations cost approximately $200, but sophisticated units can cost up to $1,500 per unit. Many operators already have audible alarms. It is therefore assumed that 500 units will have to be purchased at a cost of $200 for a total cost to industry of $100,000. Assuming units last five years on average, the incremental replacement cost for the industry will be $20,000 per year.

(c) Benefits

Industrial radiography causes the largest number of overexposures and radiation incidents in Canada. Alerting operators to hazardous dose rates before large exposures occur is one of the most effective measures available to meet the new lower dose limits.

b) Coûts

La plupart des utilisateurs de petites sources ont déjà un permis de la CCEA pour d’autres activités. On ne s’attend donc pas à des coûts supplémentaires. Il faudra cependant analyser le cas des sites nucléaires abandonnés avant de leur accorder des permis qui soient conformes au nouveau règlement. La CCEA connaît l’existence d’environ 45 de ces sites contaminés dont la plupart, s’ils devaient se munir de permis, ne devraient faire face qu’à des coûts supplémentaires de moins de 2 000 $ par année. Toutefois, pour cinq ou six d’entre eux, les coûts de permis et de surveillance pourraient atteindre jusqu’à 10 000 $ par année, par site.

c) Avantages

La version révisée des quantités d’exemption reflètera les normes de sûreté améliorées, qui sont fondées sur les connaissances scientifiques courantes. Le retrait de l’exception générale pour des matières contenant de faibles concentrations de matières radioactives prévoit un contrôle réglementaire lorsque le volume de ces matières le justifie.

3.6.2 Dosimètres sonores

L’utilisation de sources de rayonnement pour détecter des vices cachés dans des structures comme les soudures de pipelines, les pièces d’aéronef et les récipients sous pression est une des activités les plus dangereuses autorisées par la CCEA. Par conséquent, le nouveau règlement exige que tous les opérateurs d’appareils à rayonnement portent un dosimètre sonore pour les avertir avant que l’exposition au rayonnement ne devienne dangereuse. Le Règlement sur le contrôle de l’énergie atomique exige seulement que les stagiaires portent ces dosimètres. Aux États-Unis, les alarmes sonores sont obligatoires depuis plusieurs années.

a) Solutions de rechange aux dosimètres sonores

En raison des conditions dans lesquelles les travaux de radiographie doivent être effectués, les opérateurs sont souvent incapables de lire le débit de dose ambiant sur le radiomètre aussi souvent que l’exigent les pratiques de sécurité. Par conséquent, dans ces circonstances, une alarme sonore est la seule façon qu’ils ont de savoir s’ils sont exposés à des niveaux élevés de rayonnement. Les alarmes sonores sont obligatoires pour les stagiaires depuis 1983, mais, à l’époque, elles ne l’étaient pas pour tout le monde puisqu’on ne les considérait pas assez fiables. La technologie a fait de tels progrès que ce n’est maintenant plus le cas. La CCEA n’est pas sans savoir que le port de dosimètres sonores aurait empêché des expositions importantes aux rayonnements. Voilà pourquoi elle croit qu’elle n’a pas d’autre choix que de les rendre obligatoires.

b) Coûts

Les alarmes sonores de base qui satisfont aux exigences du règlement coûtent environ 200 $, mais des alarmes de type avancé peuvent coûter jusqu’à 1 500 $ l’unité. De nombreux opérateurs possèdent déjà des alarmes sonores. On présume donc qu’ils auraient acheté 500 alarmes de 200 $ chacune, pour un total de 100 000 $ pour l’industrie. Si les alarmes durent en moyenne cinq ans, il est à prévoir que le coût de remplacement additionnel pour l’industrie sera de 20 000 $ par année.

c) Avantages

La radiographie industrielle est à l’origine du plus grand nombre de surexpositions et d’incidents liés au rayonnement
3.7 Packaging and Transport Regulations

All industrialized countries use the recommendations of the International Atomic Energy Agency (IAEA) to regulate the transport packaging of radioactive materials. The Canadian requirements in the Transport Packaging of Radioactive Materials Regulations are based on the 1973 IAEA recommendations, and the new Regulations are based on the 1985 recommendations, as amended in 1990. Many countries and international organizations have already adopted the latter recommendations, so most Canadian exporters and shippers are already in compliance with the packaging requirements. Therefore, the major changes are the requirement for carriers to have a radiation protection program, the expansion of those activities that require quality assurance programs and the use of Type 2 Industrial Packages (IP-2 packages).

The AECB has been a major participant in the development of the IAEA recommendations on the packaging and transport of nuclear materials. In developing a position on transportation issues, the AECB has communicated regularly with Transport Canada and the major Canadian shippers. Transport Canada is normally represented at the IAEA meetings, and experts from the industry have accompanied AECB staff to IAEA meetings when specific topics have been discussed.

Numerous changes were made to these Regulations as a result of consultation. The major changes consist of the removal of the requirement for a licence to package nuclear substances for most types of shipments, allowing additional methods to demonstrate that packages comply with the performance requirements and acceptance of emergency response plans that comply with the requirements of the Transportation of Dangerous Goods Regulations (TDG Regulations). Other changes were made to improve clarity and consistency with the TDG Regulations.

Since the regulations make frequent reference to the IAEA recommendations, the Commission has obtained the approval of the IAEA to reproduce the reference material to respond to a frequent concern expressed during the consultation process. This material will be made available to stakeholders free of charge.

3.7.1 Radiation Protection Program for Carriers

The use in Canada of nuclear materials for research, industrial applications, medicine and export is substantial and growing. It is estimated that approximately one million packages containing radioactive material are transported in Canada each year. The safety record of this industry is good because of the continued efforts of licensees, Transport Canada, the transportation industry and the AECB to improve the packaging and safe handling of nuclear materials. However, as the number of shipments has increased, more drivers and handlers have become involved. The AECB is aware that some of these drivers and handlers do not have adequate knowledge of radiation to protect au Canada. Le fait de prévenir l’opérateur avant qu’il ne soit exposé à un niveau élevé de rayonnement est l’une des mesures les plus efficaces qui soient pour respecter les nouvelles limites de dose moins élevées.

3.7 Règlement sur l’emballage et le transport des substances nucléaires


De nombreux changements ont été apportés à ce règlement à la suite des consultations. Les principaux changements comprennent le retrait de l’obligation de posséder un permis pour l’emballage de substances nucléaires pour la plupart des types d’expédition. On pourra ainsi recourir à d’autres méthodes pour démontrer que les colis sont conformes aux exigences de rendement et pour accepter les plans d’interventions d’urgence qui sont conformes au Règlement sur le transport des matières dangereuses. D’autres modifications ont été apportées pour améliorer la clarté ainsi que l’harmonisation avec le Règlement sur le transport des matières dangereuses.

Puisque le règlement fait souvent renvoi aux recommandations de l’IAEA, la CCSN a obtenu l’autorisation de celle-ci pour reproduire la documentation de référence afin de répondre à des préoccupations maintes fois exprimées au cours du processus de consultation. Les parties intéressées pourront se procurer cette documentation sans frais.

3.7.1 Programme de radioprotection des transporteurs

Les matières nucléaires sont beaucoup utilisées au Canada pour la recherche, les applications industrielles, la médecine et l’exportation, et cette utilisation augmente. On estime qu’environ un million de colis contenant des matières radioactives sont transportés au Canada par année. Le dossier de sécurité de l’industrie du transport est bon parce que les titulaires de permis, Transports Canada, l’industrie du transport et la CCEA s’efforcent constamment d’améliorer l’emballage et la manutention sûres des matières nucléaires. Toutefois, l’augmentation du nombre d’expéditions a aussi entraîné une hausse du nombre de conducteurs et de manutentionnaires. La CCEA sait que certains conducteurs et
themselves, the public and the environment in all transportation situations. In addition, some exposures will have to be reduced to comply with the new dose limits, and training in radiation protection is one of the most effective ways to achieve this.

(a) Alternatives to Radiation Protection Program for Carriers

Given the growing volume and complexity of transportation activities, and the need to maintain high safety standards, the alternative of no regulation is considered unacceptable. Alternatives such as licensing carriers or setting examinations for drivers and handlers are considered to be too costly and too difficult to implement. The best alternative is considered to be requiring carriers to introduce training programs for their staff that can be integrated into the general training program for drivers and handlers. The AECB plans to work closely with Transport Canada, the provinces and industry associations to promote training and monitor compliance with this requirement.

(b) Costs

Most major carriers of radioactive material are already licensed to use radioactive materials and thus have radiation protection programs in place, or they provide staff with training in the transportation of all dangerous goods. For the smaller or infrequent carriers, radiation protection training is lacking, but it is expected that major shippers, consultants or transport associations will develop basic radiation protection programs for implementation by carriers, much as was done to comply with the Transport of Dangerous Goods Regulations. The technical requirements are not complex, and it is estimated that the training should not exceed a half day per person for approximately 2,000 drivers and handlers. The estimated initial cost for the transportation industry to meet this new requirement is therefore approximately $400,000. The incremental costs should not be significant because radiation protection can be incorporated into the training provided to new staff.

Some licensees have commented that the additional requirements may force some carriers out of the business or raise the charges for those who remain in the business. The costs described above will likely be passed on to the shippers but given that there are approximately 800,000 packages of radioactive material shipped in Canada each year, the initial costs per package are not significant. Once staff is trained, ongoing incremental costs should be minimal.

(c) Benefits

Teaching radiation protection to staff directly involved in the transport of radioactive materials will reduce exposures and reduce the number of reports of incidents that upon investigation, are found to be insignificant. Such incidents delay shipments of all types of cargo and cause unnecessary use of resources.

manutentionnaires ne possèdent pas une connaissance suffisante des dangers du rayonnement pour bien se protéger et assurer la protection du public et de l’environnement dans toutes les situations de transport. De plus, il faudra réduire le taux d’exposition pour se conformer aux nouvelles limites de dose; la formation en matière de radioprotection est l’un des moyens les plus efficaces pour y parvenir.

a) Solutions de rechange au programme de radioprotection des transporteurs

Vu le volume croissant et la complexité des activités de transport, et étant donné qu’il est nécessaire de maintenir des normes de sécurité élevées, le manque de réglementation n’est pas considéré comme une solution de rechange acceptable. Les solutions de rechange telles que forcer les transporteurs à obtenir un permis ou faire passer des examens aux conducteurs et aux manutentionnaires sont jugés trop coûteuses et difficiles à mettre en œuvre. La meilleure solution consiste à exiger que les transporteurs offrent des programmes de formation en radioprotection à leurs employés. Le programme de formation en radioprotection peut être intégré au programme de formation général des conducteurs et des manutentionnaires. La CCEA prévoit de travailler en étroite collaboration avec Transports Canada, les provinces et les associations de l’industrie pour promouvoir la formation et vérifier si cette exigence a été respectée.

b) Coûts

La plupart des grands transporteurs de matières radioactives sont déjà titulaires d’un permis d’utilisation de matières radioactives et ont donc des programmes de radioprotection en place, ou bien ils dispensent à leur personnel une formation sur le transport des marchandises dangereuses. Les transporteurs dont le volume est moins élevé ou moins fréquent ne possèdent pas de formation en radioprotection, mais on s’attend à ce que les grands expéditeurs, les consultants ou les associations de transporteurs élaborent un programme de base en radioprotection destiné à tous les transporteurs. Beaucoup a été fait pour se conformer au Règlement sur le transport des matières dangereuses. Les exigences techniques ne sont pas complexes, et on estime que la formation en radioprotection ne devrait pas dépasser une demi-journée par personne et devrait être offerte à environ 2 000 conducteurs et manutentionnaires. Pour l’industrie du transport, le coût initial prévu pour satisfaire à cette nouvelle exigence s’élève à environ 400 000 $. Les coûts annuels ne devraient pas être très élevés, car la formation en radioprotection peut être intégrée à la formation offerte aux nouveaux employés. Certains titulaires de permis ont soutenu que les exigences additionnelles pourraient contraindre certains transporteurs à se retirer des affaires ou augmenter les frais de ceux qui restent. Les coûts ci-dessus seront probablement transmis aux expéditeurs, mais étant donné qu’il y a environ 800 000 colis contenant des matières radioactives expédiés chaque année au Canada, les coûts initiaux par colis ne sont pas élevés. Une fois que les employés auront reçu une formation, les coûts additionnels permanents seront minimes.

c) Avantages

Une meilleure formation pour aider les employés directement impliqués dans le transport de matières radioactives à se protéger contre le rayonnement réduira les expositions et le nombre de rapports d’accidents qui, après enquête, sont jugés peu importants. De tels incidents retardent les
3.7.2 Quality Assurance Programs

In accordance with the recommendations of the IAEA, the new regulations require every person who designs, produces, tests, uses, services or inspects a package containing radioactive material, or special form material, to have a quality assurance program. This expands the types of packages and the licensed activities that require a quality assurance program under the AEC Act and the Transport Packaging of Radioactive Materials Regulations. The Commission will expect licensees to implement staff training programs and verify that work is performed according to documented procedures. The requirements, which will vary depending on the risks associated with the given activity, will be explained in guidance documents.

(a) Alternatives to Quality Assurance Programs

Canada is a strong supporter of international harmonization in the requirements for the transport of radioactive materials, because without harmonization, shipments will be delayed, costs will increase and safety will decrease. Through agencies such as the IAEA, international and most domestic regulations already require quality assurance programs for the handling of radioactive materials and other dangerous goods. There is no alternative to adopting this Regulation if we are to protect workers and the public from deficient packages and meet international requirements.

(b) Costs

Since companies that design and produce packages have had to demonstrate compliance with the Transport Packaging of Radioactive Materials Regulations, they essentially meet the new quality assurance requirements. Discussions with some major shippers of radioactive material indicate that this requirement will not be a significant burden because they already have corporate quality assurance programs and for several years, they have been required to have a quality assurance program for their international shipments.

A graded approach to quality assurance will be used, based on the risk associated with the shipment. It is estimated that there are 500 infrequent shippers who will have to modify their practices, each at an average cost of $1,000. The incremental cost to industry is therefore estimated to be $500,000. Once established, the ongoing costs should not be significant because the program should not require any additional staff. It is expected that Commission staff will inspect quality assurance programs as part of regular compliance activities, so no significant incremental costs are anticipated.

(c) Benefits

A quality assurance program will ensure that all packages are designed, manufactured, used and maintained in accordance with Canadian and international packaging requirements. This will reduce the risk of package failures and high exposures.

expéditions de tous les types de chargement et consomment inutilement les ressources.

3.7.2 Programmes d’assurance de la qualité

Conformément aux recommandations de l’AIEA, le nouveau règlement exige que chaque personne qui conçoit, produit, essaie, utilise, entretient ou inspecte un colis contenant des matières radioactives, ou des matières radioactives sous forme spéciale, possède un programme d’assurance de la qualité. Cela augmente les types de colis et les activités nécessitant un permis exigeant un programme d’assurance de la qualité en vertu de la Loi sur le contrôle de l’énergie atomique et du Règlement sur l’emballage des matières radioactives destinées au transport. La CCSN s’attend à ce que les titulaires de permis mettent sur pied des programmes de formation pour les employés et vérifient que le travail se déroule conformément aux procédures écrites. Les exigences, qui seront modifiées selon les risques associés à l’activité donnée, seront expliquées dans des guides d’application de la réglementation.

(a) Solutions de rechange aux programmes d’assurance de la qualité

Le Canada est un partisan convaincu de l’harmonisation internationale des exigences en matière de transport de matières radioactives, parce que, sans harmonisation, les expéditions seront retardées, les coûts augmenteront et la sécurité diminuera. Par le biais d’agences comme l’AIEA, les règlements internationaux et la plupart des règlements nationaux exigent déjà des programmes d’assurance de la qualité pour la manutention de matières radioactives et d’autres matières dangereuses. Il n’y a aucune solution de rechange à ce règlement si nous voulons protéger les travailleurs et le public contre les colis non sécuritaires ou satisfaisant aux exigences internationales.

(b) Coûts

Les entreprises qui conçoivent et fabriquent les colis ayant déjà dû se conformer au Règlement sur l’emballage des matières radioactives destinées au transport n’ont désormais qu’à satisfaire aux nouvelles exigences sur l’assurance de la qualité. Des discussions avec certains gros expéditeurs de matières radioactives indiquent que les exigences ne seront pas un trop gros fardeau puisqu’ils possèdent déjà des programmes d’assurance de la qualité et que, depuis plusieurs années, ils étaient tenus d’en posséder un pour les expéditions internationales.

L’établissement de programmes d’assurance de la qualité se fera d’une manière progressive, en fonction des risques associés à l’expédition. On estime qu’il y a 500 expéditeurs dont le volume est peu fréquent qui devront modifier leur façon de faire, ce qui coûtera 1 000 $ en moyenne à chacun d’eux. Les coûts additionnels pour l’industrie sont par conséquent estimés à 500 000 $. Une fois le programme en place, les coûts permanents ne seront guère élevés, car le programme ne nécessite pas l’embauche d’employés additionnels. On ne prévoit pas d’autres coûts importants puisque l’inspection des programmes d’assurance de la qualité par les employés de la CCSN se fera dans le cadre de leurs activités régulières de surveillance de la conformité.

(c) Avantages

Un programme d’assurance de la qualité permettra d’assurer que tous les colis sont conçus, fabriqués, utilisés et entretenus conformément aux exigences canadiennes et
3.7.3 IP-2 Packages for Ore Samples Containing More than 2% Uranium

The properties of high-grade Canadian ores are such that the hazard they pose is consistent with that of type 2 low specific activity (LSA-2) materials, and as such, the use of IP-2 packages is more appropriate. If the IAEA Regulations had been followed, all grades of uranium ores would have been considered as LSA-1 material that could be shipped in IP-1 packages. However, this provision was developed in the 1960s, when the known ore grades were approximately 1% uranium.

(a) Alternatives to IP-2 Packages

The only alternative to this Regulation is to allow ore samples containing more than 2% uranium to be shipped in IP-1 packages that do not have to undergo any performance tests. This is not considered acceptable given the hazard posed by high-grade ore samples. This is also inconsistent with the packaging requirements for medical isotope shipments that pose a risk similar to that of ore samples containing more than 2% uranium.

(b) Costs

The costs associated with this requirement consist of developing, testing and producing an IP-2 package, mainly for small ore samples taken for analytical purposes. This is not considered a significant expense because there are many examples of existing IP-3 and Type A packages that must meet slightly higher performance standards than the IP-2 package being proposed. A one-time cost of $20,000 for the one licensee involved has been estimated based upon the development, testing and production of similar packages.

(c) Benefits

The benefit of using IP-2 packages is the decreased risk that in normal transport situations or in an accident, uranium ore samples will be released into the environment or unacceptably high radiation levels will exist.

3.7.4 IP-2 Packages

Adoption of the IAEA’s definition of an (IP-2) package will require packaging of low specific activity radioactive materials to meet new drop and puncture tests when shipped under exclusive use (i.e., when packages are not combined with cargo from other shippers). This will affect primarily waste and heavy water shipments from the power utilities. It should be noted that for shipments that are not exclusive use, there is no change to the requirements.

(a) Alternatives to IP-2 Packages

To be consistent with the IAEA’s recommendations, there is no alternative to adopting this Regulation.

(b) Costs

During the consultation phase, three licensees commented on this requirement. Each of these licensees will have to determine if their packages meet the requirements, and if not, they will have to develop or purchase new packages. If new packages are required, the costs are not expected to international en matière d’emballage. Cela réduira les risques de colis défectueux et d’expositions élevées.

3.7.3 Colis CI-2 pour échantillons de minerai contenant plus de 2 % d’uranium

Les propriétés du minerai à haute teneur du Canada sont telles que les dangers qu’ils présentent correspondent à ceux des matières FAS-2 à faible activité spécifique. Pour cette raison, il vaut mieux utiliser des colis CI-2. Si on avait respecté les règles de l’AIEA, toutes les teneurs du minerai d’uranium auraient été considérées comme des matières à faible activité spécifique pouvant être expédiées dans des colis CI-1. Toutefois, cette disposition date des années 1960, à l’époque où la teneur en uranium était d’environ 1 %.

(a) Solutions de rechange aux colis CI-2

La seule solution de rechange au règlement est de permettre la livraison d’échantillons de minerai contenant plus de 2 % d’uranium dans des colis CI-1 qui n’ont pas à subir d’épreuves de rendement. Cela n’est pas acceptable étant donné les dangers que présentent les échantillons de minerai à haute teneur. Cela est aussi incompatible avec les exigences d’emballage relatives aux expéditions d’isotopes médicaux, qui présentent un risque similaire à celui des échantillons de minerai contenant plus de 2 % d’uranium.

(b) Coûts

Les coûts associés à cette exigence concernent le développement, la mise à l’épreuve et la fabrication des colis CI-2 pour le transport des petits échantillons de minerai destinés à l’analyse. Cela n’est pas considéré comme une dépense importante puisqu’il existe déjà de nombreux spécimens de colis CI-3 et de type A qui doivent satisfaire à des normes de rendement légèrement plus élevées que les colis CI-2. Le coût unique de 20 000 $ pour le seul titulaire de permis concerné a été estimé en fonction du développement, de la mise à l’épreuve et de la fabrication d’un colis semblable.

(c) Avantages

L’utilisation de colis CI-2 se traduit par la diminution du risque de rejet dans l’environnement des échantillons de minerai d’uranium ou des niveaux de rayonnement élevés inadmissibles qui pourraient se produire au cours d’un transport régulier ou d’un accident.

3.7.4 Colis CI-2

L’adoption de la définition de l’AIEA d’un colis CI-2 exigera l’emballage de matières radioactives de faible activité spécifique pour satisfaire aux épreuves de chute et de perforation lorsqu’ils sont transportés dans un conteneur à usage exclusif (c.-à-d. lorsque les colis ne sont pas combinés aux marchandises d’autres expéditeurs). Cela touche surtout les expéditions de déchets et d’eau lourde des services privés d’électricité. Les exigences demeurent inchangées en ce qui concerne les expéditions qui ne sont pas dans un conteneur à usage exclusif.

(a) Solutions de rechange aux colis CI-2

Afin de respecter les recommandations de l’AIEA, il ne peut y avoir de solutions de rechange à l’adoption de cette exigence.

(b) Coûts

Durant la phase de consultation, trois titulaires de permis ont offert des commentaires concernant cette exigence.
exceed $100,000 for each licensee to meet the minimum requirements of the regulations. Some cost information has been submitted that is higher than the above estimate but the AECB believes the additional costs are not required to meet the requirements. Licensees may decide to spend larger sums for reasons that are not directly related to the regulations; these additional costs are not included in the above estimate. Operating costs are not expected to be affected.

(c) Benefits
The requirement to use an IP-2 package for low specific activity material will reduce the risk of package failure during transit.

3.8 Nuclear Security Regulations
The three new security requirements in the Nuclear Security Regulations described below are considered necessary to bring Canadian nuclear facilities up to the internationally accepted recommendations of the IAEA. In developing these new requirements, the Commission has given consideration to the Canadian security context.

Security experts of the AECB have visited the most affected licensees to discuss these proposals directly with their security experts. The figures used in the cost sections below have been obtained primarily from the affected licensees.

As a result of consultation, the requirements for searching those entering or leaving a protected area have been modified. Details can be found in section 3.8.3 below.

3.8.1 Alarm Assessment System for Protected Areas
Major nuclear facilities in Canada have security measures that are intended to protect them from unauthorized entry. These measures include protected areas and alarm systems. At some sites, a guard is dispatched to investigate the alarm and to report on the cause. This can take some time and the delay in investigating the alarm adds to the response time to address the problem if the alarm is genuine. A new provision has therefore been included in the regulations which will require licensees to continuously maintain, and in some cases, install additional assessment equipment in order to provide accurate and timely alarm assessment.

(a) Alternatives to Alarm Assessment Systems for Protected Areas
One alternative to the assessment system is to trigger the emergency response team on each alarm from the protected area. This would be very expensive, since nuisance alarms, caused by environmental conditions or animals, are difficult to eliminate completely. Nuisance alarms reduce the credibility of the overall security system and reduce the capacity of the response team to deal with a real emergency. Costs might also result from the need to improve the quality of systems to minimize nuisance alarms.

Chacun aura à déterminer si ses colis satisfont aux exigences, et, dans la négative, il devra développer ou acheter de nouveaux colis. Les coûts d’acquisition de nouveaux colis satisfaisant aux exigences minimales ne devraient pas dépasser 100 000 $ par titulaire de permis. Certains renseignements présentés concernant les colis signalent des coûts plus élevés que l’estimation ci-dessus, mais la CCEA croit que ces coûts additionnels ne sont pas nécessaires pour satisfaire aux exigences. Les titulaires de permis peuvent dépendre des sommes plus importantes pour des raisons qui ne sont pas directement liées au règlement. Ces coûts additionnels ne font donc pas partie des estimations susmentionnées. On ne prévoit pas d’augmentation des coûts d’exploitation.

c) Avantages
Les exigences relatives à l’utilisation de colis CI-2 pour les matières à faible activité spécifique réduiront les risques de défaillance du colis pendant le transport.

3.8 Règlement sur la sécurité nucléaire
Les trois nouvelles mesures de sécurité du Règlement sur la sécurité nucléaire, décrites ci-dessous, sont nécessaires pour que les installations nucléaires canadiennes soient protégées selon les normes internationales recommandées par l’IAEA. La CCSN a pris en considération le contexte canadien en matière de sécurité.

Les spécialistes de la sécurité de la CCEA ont rendu visite aux titulaires de permis les plus touchés afin de discuter de ces propositions directement avec leurs spécialistes de la sécurité. Les chiffres figurant dans les sections sur les coûts ci-dessous proviennent principalement des titulaires de permis touchés.

À la suite de consultations, les exigences relatives à la recherche de personnes entrant dans une aire protégée, ou en sortant, ont été modifiées. On trouvera les renseignements détaillés sur ce sujet à la section 3.8.3 ci-dessous.

3.8.1 Système d’évaluation des alertes dans les aires protégées
Au Canada, les grandes installations nucléaires ont adopté des mesures de sécurité destinées à empêcher l’entrée non autorisée. Ces mesures comprennent l’établissement des aires protégées et la mise en place des systèmes d’alarme. À certains emplacements, un garde est dépêché sur le lieu de l’alerte pour faire enquête. Cela peut prendre du temps, et le délai s’ajoute au temps nécessaire pour régler le problème s’il s’agit d’une alarme réelle. Par conséquent, une nouvelle disposition a été ajoutée au règlement, qui exigera que le titulaire de permis maintienne en permanence l’équipement de surveillance et, dans certains cas, installe de l’équipement supplémentaire pour pouvoir évaluer avec précision et rapidité la cause de l’alerte.

a) Solutions de rechange aux systèmes d’évaluation des alertes dans les aires protégées
Une solution de rechange serait de faire intervenir une équipe d’intervention d’urgence à chaque alerte dans une aire protégée. Cela serait très coûteux puisque les fausses alertes causées par les conditions environnementales et les animaux sont difficiles à éliminer complètement. Les fausses alertes compromettent la crédibilité de l’ensemble du système de sécurité et la capacité de l’équipe d’intervention de s’occuper d’une urgence réelle. Des coûts...
Having a guard investigate the alarm is not acceptable at large sites where the delay in reaching the alarm location could be considerable. This delay would create a serious weakness in the security system since the response team is not normally called into action unless an alarm is confirmed as a real breach of security.

(b) Costs
Since an alarm assessment system is already in place for the affected licensees, and equipment maintenance systems are already established, the initial costs will be limited to the purchase and installation of additional equipment. These costs are estimated to total $6,000 for the five licensees affected. Based on the figures supplied by the industry, the operating costs for maintenance and for security guards are estimated at $600,000 per year for all licensees concerned.

(c) Benefits
Maintenance of security at nuclear facilities in Canada is crucial to protect against terrorism and sabotage. Canadian security precautions should provide a standard of protection that is consistent with those of other countries that have facilities with similar levels of risk. The alarm assessment system provides a remote means of assessing the cause of an alarm from the protected area and will provide quick assessment of the nature of the alarm, whether it is a serious problem or a nuisance alarm. If the alarm represents a serious threat, the appropriate response will be initiated more quickly. This assessment system will also reduce the number of times that security staff must investigate nuisance alarms.

3.8.2 Alarm Assessment System for Inner Areas

Only two licensees are authorized to store sensitive nuclear material in a high security installation known as an inner area. When the alarm for these areas is triggered, a security guard is dispatched to investigate the cause. The introduction of a mandatory assessment system in the inner area will facilitate the immediate assessment of the cause of the alarm.

(a) Alternatives to Alarm Assessment System for Inner Areas
The alternatives are identical to those set out for protected areas described in section 3.8.1(a) above. The material under protection by the security system is usable in nuclear weapons and must be protected to the highest degree.

(b) Costs
According to the cost estimates provided by the industry, installation costs will total $2,000 and annual operating costs will total $190,000 per year.

(c) Benefits
As noted above, the immediate assessment of an alarm from the inner area will allow instantaneous initiation of response to unlawful activities in the case of a real alarm, and will save resources in the investigation of nuisance alarms.

3.8.2 Système d’évaluation des alertes dans les aires intérieures

Seuls deux titulaires de permis sont autorisés à stocker des matières nucléaires sensibles dans une installation de haute sécurité appelée aire intérieure. Lorsqu’une alarme se déclenche dans une aire intérieure, un garde de sécurité est dépêché sur le lieu de l’alerte pour faire enquête. L’intro-duction d’un système de surveillance de l’aire intérieure permettrait d’évaluer sans délai la cause de l’alerte.

(a) Solutions de rechange au système d’évaluation des alertes dans les aires intérieures
Les solutions de rechange sont identiques à celles qui ont été indiquées à la section 3.8.1(a) ci-dessus pour les aires protégées. Les matières que le système de sécurité doit protéger peuvent être utilisées dans des armes nucléaires et doivent donc être protégées selon les normes les plus élevées.

(b) Coûts
Selon l’estimation des coûts présentée par l’industrie, les coûts d’installation s’élèveraient au total à 2 000 $ et les coûts annuels d’exploitation s’élèveraient au total à 190 000 $ par année.

(c) Avantages
Comme on l’a noté ci-dessus, l’évaluation immédiate d’une alerte dans une aire intérieure permettra de déclencher une intervention et de contrer des activités illicites, s’il s’agit...
3.8.3 Searches at the Perimeter of a Protected Area

Nuclear facilities in Canada are protected by security perimeters that limit access to protected areas. A new provision has been included in the regulations which will require licensees to search, or otherwise monitor, persons without a security clearance and their possessions when entering and leaving the protected area. Licensees also have the right to search, on reasonable suspicion, anyone entering or leaving a protected area. The searches can be carried out by technical means and are similar to the standard of security provided at Canadian airports.

The draft regulations published in the Canada Gazette, Part I required that everyone entering and leaving the protected area be searched. Licensees pointed out that including staff in the requirement would be expensive to implement and would delay shift changes, with little increase in security. The regulations now limit mandatory searches as described above pending completion of the project to review the overall threat to security at Canadian nuclear facilities.

The search procedure will deter terrorists and others from carrying weapons or explosives into protected areas or removing Category I, II or III nuclear material. The regulation allows the operator to use non-intrusive technical means such as metal detectors and X-ray machines in carrying out searches.

(a) Alternatives to Searches at the Perimeter of Protected Areas

There is no alternative to searches to prevent explosives and weapons from reaching the protected areas of Canadian nuclear facilities. The alternative of not upgrading the controls over the protected areas would leave the security measures at Canadian nuclear facilities below that found in similar facilities around the world.

(b) Costs

The affected licensees have estimated that the new provisions will cost a total of $2.7 million to implement, and that operating costs will be approximately $1.7 million per year.

(c) Benefits

There is a continuing worldwide movement to upgrade the security measures at major nuclear facilities. This new initiative is part of the Canadian response to ensure that Canadian nuclear security measures are keeping pace with those of the rest of the world.

3.8.3 Fouilles au périmètre d’une aire protégée

Au Canada, les installations nucléaires sont protégées par un périmètre de sécurité qui reste en l’entend aux aires protégées. Une nouvelle disposition, qui fait maintenant partie du règlement, exigera que les titulaires de permis fouillent ou surveillent les personnes et les choses qui entrent ou sortent d’une aire protégée sans autorisation de sécurité. Les titulaires de permis ont aussi le droit de fouiller, s’ils ont des motifs raisonnables de le faire, quiconque entre dans une aire protégée ou en sort. Les fouilles se feront par des moyens techniques semblables à ceux utilisés dans les aéroports canadiens pour répondre aux normes de sécurité. Le projet de règlement publié dans la Gazette du Canada Partie I exige la fouille de quiconque entre dans une aire protégée ou en sort. Les titulaires de permis ont fait remarquer que le fait d’inclure les employés dans ces exigences serait coûteux à mettre en place et retarderait la relève des équipes, sans pour autant améliorer vraiment la sécurité. Le règlement limite maintenant les fouilles obligatoires, décrites ci-dessous, en attendant l’achèvement du projet de révision de la menace globale à la sécurité dans les installations nucléaires canadiennes.

Les fouilles empêcheraient les terroristes ou d’autres personnes d’apporter des armes ou des explosifs dans une aire protégée ou d’en retirer des substances nucléaires de catégorie I, II ou III. Le règlement permet à l’exploitant d’effectuer des fouilles en utilisant des moyens techniques non intrusifs comme des détecteurs de métal ou de l’équipement radiographique.

a) Solutions de rechange aux fouilles au périmètre des aires protégées

Il n’existe pas de solution de rechange pour éviter que des explosifs ou des armes ne soient introduits dans une aire protégée d’une installation nucléaire canadienne. La solution de rechange consistant à ne pas améliorer les mesures de sécurité pour les aires protégées ferait que les systèmes de sécurité des installations nucléaires canadiennes seraient inférieurs à ceux dont sont munies les installations similaires de par le monde.

b) Coûts

Les titulaires de permis touchés ont estimé que les nouvelles dispositions coûteraient au total 2,7 millions de dollars à mettre en œuvre et que les coûts d’exploitation seraient d’environ 1,7 million de dollars par année.

c) Avantages

La tendance mondiale actuelle est de rehausser les mesures de sécurité aux grandes installations nucléaires. La nouvelle initiative visant les fouilles est un élément de la réponse canadienne visant à assurer que les mesures de sécurité protégeant les installations nucléaires sont comparables à celles adoptées ailleurs dans le monde.

3.9 Nuclear Non-Proliferation Import and Export Control Regulations

The new regulations increase the number of items for which import licences are required so that Canada will be in a better position to implement its international obligations with respect to the control of nuclear equipment. Canada imports little of this d’une alerte réelle, ou d’économiser des ressources en cas de fausse alerte.

3.9 Règlement sur le contrôle de l’importation et de l’exportation à des fins de non-prolifération

Le nouveau règlement augmente le nombre d’articles pour lesquels un permis d’importation est exigé; le Canada sera ainsi mieux placé pour respecter ses obligations internationales en matière de contrôle de l’équipement nucléaire. Le Canada importe
equipment, and most companies who would import these items currently have import licences for other reasons, so the overall effect of adding items to the list is not considered to be significant.

As a result of consultations, the list of items requiring import licences has been significantly shortened from that published in the Canada Gazette, Part I. Initially, importing any component of a nuclear facility required a licence, but following discussions with the industry, it was concluded that import licences should only be required for major components as identified in Part A.2 of the schedule to the regulations.

3.10 Canadian Nuclear Safety Commission Rules of Procedure

The Canadian Nuclear Safety Commission Rules of Procedure provide a legal framework for the conduct of public hearings held by the Commission and for opportunities to be heard by the Commission or a designated officer. In the past, under the Atomic Energy Control Board (AECB), the framework for conducting hearings and meetings was contained in “policy” type documents which were approved by the Board, but were not regulations. These rules, while they can be varied or supplemented in order to ensure that a proceeding is dealt with as informally and expeditiously as possible, will streamline the Commission’s decision-making procedures for the benefit of all participants.

The AECB has held public meetings for approximately 10 years. The rules represent the accumulated experience the Board has gained during this period. The Board has received numerous comments on Regulatory Policy P-76 since its publication in August 1997. These comments have been considered in the development of the rules.

On February 13, 1999, the draft Canadian Nuclear Safety Commission Rules of Procedure were published in the Canada Gazette, Part I for comments. The comments from 21 interested parties were reviewed, and appropriate changes were made to the rules. In general, the changes enhance the opportunity for intervenor participation by providing additional time for intervenors to prepare and send information and submissions to the Commission. The main changes, found in sections 2, 17, 18, 19 and 21, relate to notice of hearings, filing and participation requirements, filing supplementary material, and inclusion of officers and employees of the Commission as participants.

Since the question of alternatives, costs and benefits apply to the rules in their entirety, they will be discussed at the end of the section, rather than following each topic.

3.10.1 Confidentiality

Over half of the 21 submissions received on the proposed rules following their February 13, 1999, publication in the Canada Gazette, Part I concerned section 12 which deals with confidentiality of information. Some suggested the Commission should not treat any information confidentially, while others thought any information which a person requests to be kept confidential should be so kept. Section 12 recognizes that confidentiality of peu d’équipement de ce genre, et la plupart des entreprises qui importent de tels articles possèdent actuallement des permis d’importation pour d’autres raisons; ainsi, l’effet général de l’ajout d’articles à cette liste n’est pas considéré comme important.

À la suite de consultations, la liste des articles nécessitant un permis d’importation a été réduite de façon significative par rapport à celle publiée dans la Gazette du Canada Partie I. Au départ, un permis était nécessaire pour importer toute composante d’une installation nucléaire, mais, à la suite de discussions avec l’industrie, on est arrivé à la conclusion qu’il faudrait des permis d’importation seulement pour les composantes importantes, comme celles identifiées à la partie A.2 de l’annexe du règlement.

3.10 Règles de procédure de la Commission canadienne de sûreté nucléaire

Les Règles de procédure de la Commission canadienne de sûreté nucléaire prévoient un cadre juridique pour la tenue d’audiences publiques de la CCSN et pour les possibilités d’être entendu par la CCSN ou par un fonctionnaire désigné. Auparavant, sous la gouverne de la CCSN de contrôle de l’énergie atomique (CCEA), le cadre de travail pour la tenue d’audiences et de réunions faisait partie de documents dans lesquels des politiques approuvées par la CCSN étaient énoncées, mais il ne s’agissait pas de règlements. Ces règles, qui pourront être modifiées ou enrichies afin de garantir qu’une procédure se déroule de façon informelle et rapide, simplifieront les procédures de prise de décision de la CCSN à l’avantage de tous les participants.

La CCSN tient des réunions publiques depuis environ 10 ans. Les règles représentent l’expérience accumulée par la CCSN au cours de cette période. Depuis la publication de la politique d’application de la réglementation P-76 en août 1997, la CCSN a reçu de nombreux commentaires à son sujet. Ces commentaires ont été pris en considération dans l’élaboration des règles.

Le 13 février 1999, le projet de Règles de procédure de la Commission canadienne de la sûreté nucléaire ont été publiées dans la Gazette du Canada Partie I, aux fins de commentaires. Les commentaires de 21 parties intéressées ont été analysés et des changements appropriés ont été apportés aux règles. En général, les changements améliorent les occasions de participation des intervenants en leur offrant du temps supplémentaire pour la préparation et l’envoi de renseignements et de mémoires à la CCSN. Les principaux changements, qu’on trouvera aux articles 2, 17, 18, 19 et 21, se rapportent à l’avis d’audience, aux exigences de dépôt et d’intervention, au dépôt de documents supplémentaires, et à la participation des agents et des employés de la CCSN dans les procédures.

Puisque la question des solutions de rechange, des coûts et des avantages s’applique aux règles dans leur intégralité, elle sera discutée à la fin de la présente section plutôt qu’à la suite de chaque sujet.

3.10.1 Confidentialité

Après la publication des règles proposées le 13 février 1999 dans la Gazette du Canada Partie I, plus de la moitié des 21 mémoires reçus concernaient l’article 12, qui traite de la confidentialité des renseignements. Certains ont suggéré que la CCSN ne devrait pas traiter les renseignements reçus de manière confidentielle, tandis que d’autres considéraient que, si une personne exigeait la confidentialité de certains renseignements, la CCSN
some information may be needed but that the Commission should not compromise the public interest by unduly limiting disclosure to affected participants. As a result of comments received during consultation, section 12 was amended to clarify the need to establish a balance between the public interest and the need to protect certain security and confidential information.

3.10.2 Process and Notice Provisions

Comments were received on the notice provisions proposed in section 17 of the rules indicating that the process would be longer, and therefore costlier than at present. Other comments were to the effect that the process should be longer to allow intervenors more time to prepare. It is not anticipated that the new process will inherently be any longer than the process under the AEC Act.

The process set out in Part 2 respecting public hearings was revised to increase the ability of intervenors to adequately review and respond to the material submitted by applicants and Commission staff. Where hearings are scheduled to take place over two days, major facilities, licence applicants and Commission staff will be required to submit their information within set time frames prior to the hearing (Rule 18), as has been the practice under the AECB. The first day of the hearing will concentrate on this information. Intervenors will not be required to submit their information until a set period prior to the second hearing day (Rule 19). This will provide them with an increased ability to review the information submitted by licence applicants and Commission staff, and focus on the issues which may have been identified at the first day of the hearing. Intervenors will then be able to submit their information at the second hearing day and to pose questions concerning the information submitted by licence applicants and Commission staff. Commission staff, as well as witnesses appearing for licence applicants during the first day of hearings, will be required, unless the Commission directs otherwise, to attend during the second day (Rule 18), to give intervenors an adequate opportunity to ask questions.

3.10.3 Quorum and Role of Commission Staff in Proceedings

Two subsections have been added to the rules as a result of consultations, one dealing with Commission staff and the other pertaining to the quorum of the Commission and panels.

The rules, as they originally appeared, omitted reference to Commission staff and their reports, which are submitted to the Commission for consideration. Some contributors noted that staff are important participants in the process and that their participation should be formally included; this has therefore been added. A subsection on a quorum has also been included.

devait respecter ce choix. L’article 12 reconnaît que certains renseignements doivent être tenus confidentiels, mais que la CCSN ne doit pas compromettre l’intérêt du public en limitant indûment leur divulgation aux participants concernés. À la suite des commentaires présentés pendant les consultations, l’article 12 a été modifié pour clarifier la nécessité de trouver un juste équilibre entre l’intérêt du public et la protection de certains renseignements à caractère confidentiel et en matière de sécurité.

3.10.2 Dispositions relatives au processus et à la convocation

Des commentaires sur les dispositions relatives à la convocation proposées à l’article 17 des règles indiquaient que le processus serait plus long et, par conséquent, plus coûteux qu’il ne l’est actuellement. D’autres commentaires proposaient de prolonger le processus afin que les intervenants aient plus de temps pour se préparer. Il n’est pas prévu que le processus soit plus long en soi que celui suivi en vertu de la LCEA.

Le processus établi dans la partie 2 concernant les audiences publiques a été révisé pour améliorer la capacité des intervenants d’analyser adéquatement les documents soumis par les demandeurs et les employés de la CCSN et d’y répondre. Dans les cas d’audiences d’une durée de plus de deux jours, les grandes installations, les demandeurs de permis et les employés de la CCSN devront présenter leurs renseignements dans le délai précisé avant l’audience (Règle 18), comme c’était la pratique sous la gouverne de la CCEA. La première journée de l’audience sera consacrée à ces renseignements. Les intervenants ne seront pas obligés de déposer leurs renseignements avant le délai précisé avant la deuxième journée de l’audience (Règle 19). Cela leur donnera plus de temps pour analyser les renseignements présentés par les demandeurs de permis et les employés de la CCSN et de se concentrer sur les questions relevées au cours de la première journée d’audience. Les intervenants seront alors en mesure de présenter leurs renseignements au cours de la deuxième journée d’audience et de poser des questions concernant les renseignements présentés par les demandeurs de permis et les employés de la CCSN ainsi que les témoins des demandeurs de permis qui se présentent lors de la première journée d’audience sont obligés, à moins que la CCSN en décide autrement, de participer à la deuxième journée d’audience (Règle 18) afin de donner aux intervenants la possibilité de poser des questions.
The addition of these two subsections will not affect the rights or obligations of participants and are therefore seen as minor changes.

3.10.4 Other Changes

A number of other changes were made to the rules to provide clarification, correct errors and ensure that the English and French versions were the same. None of these changes is major.

(a) Alternatives

The NSC Act requires the Commission to hold public hearings in certain specified situations and to give a reasonable opportunity for affected parties to be heard. The NSC Act also requires that rules of procedure must be established by regulation so that there are no alternatives. In many respects, the proposed rules reflect the AECB’s practice as described in its Regulatory Policy P-76, Policy and Procedures for Making Submissions and Appearances Before the Atomic Energy Control Board.

(b) Consistency with Regulatory Policy and the Citizens’ Code

The rules provide interested parties with a fair opportunity to participate in the Commission’s public hearings process and affected parties with an opportunity to be heard, while ensuring that the statutory rights of applicants and licensees are recognized.

(c) Benefits

These Rules will constitute a published standard set of procedures for all participants to follow in proceedings before the Commission. The rules establish the Commission’s procedures in accordance with its mandate to resolve matters before it as informally and expeditiously as the circumstances and the considerations of fairness permit. They will benefit licensees, applicants and interested parties by describing the process. As well, the rules will assist the Commission in conducting its proceedings in accordance with the requirements of administrative law and the NSC Act.

Since the NSC Act also provides the authority for decision making by inspectors and designated officers, the rules address these functions and the opportunity for affected parties to be heard.

(d) Costs

The rules are consistent with the Board’s practice and therefore cause no significant additional cost to industry, the public or government.

4. Environmental Impact

There are no adverse environmental effects anticipated from the passage of these Regulations. The major positive environmental impacts of these Regulations are the requirements to consider the environment in any licensing action and the regulatory scheme to require financial guarantees for decommissioning and waste management. The AEC Act and Regulations make no mention of the environment, but the AECB has been including appropriate requirements via licence conditions. The NSC Act, on the other hand, requires the Commission to hold public hearings in certain specified situations and to give a reasonable opportunity for affected parties to be heard. The NSC Act also requires that rules of procedure must be established by regulation so that there are no alternatives. In many respects, the proposed rules reflect the AECB’s practice as described in its Regulatory Policy P-76, Policy and Procedures for Making Submissions and Appearances Before the Atomic Energy Control Board.

4. Incidences environnementales

L’ajout de ces deux paragraphes n’affecte en rien les droits et les obligations des participants et est, par conséquent, considéré comme une modification mineure.

3.10.4 Autres modifications

Un certain nombre d’autres modifications ont été apportées aux règles dans le but de clarifier des choses, de corriger des erreurs et de s’assurer que les versions anglaise et françaises étaient identiques. Aucune de ces modifications n’est capitale.

(a) Solutions de rechange

La Loi sur la sûreté et la réglementation nucléaires exige que la CCSN tienne des audiences publiques dans certaines situations précises et donne une possibilité raisonnable aux parties touchées de se faire entendre. Elle stipule également que les règles de procédure doivent être établies par règlement; il n’y a donc pas de solutions de rechange. À bien des égards, les règles proposées reflètent la pratique de la CCEA telle qu’elle est décrite dans sa politique d’application de la réglementation P-76, Politique et règles de procédure sur les mémoires et les interventions à l’adresse de la Commission de contrôle de l’énergie atomique.

(b) Uniformité avec la politique de réglementation et le code du citoyen

Les règles fournissent aux parties intéressées une possibilité juste de participer aux audiences publiques de la CCSN et aux parties touchées une chance de se faire entendre, tout en garantissant la reconnaissance des droits statutaires des demandeurs et des titulaires de permis.

c) Avantages

Ces règles constitueront un ensemble standard de procédures à suivre par tous les participants qui se présentent devant la CCSN. Elles établissent les procédures de la CCSN conformément à son mandat, qui est de résoudre les questions qui lui sont soumises de la façon la plus informelle et rapide que les circonstances et les questions d’équité le permettent. En donnant une description du processus, les règles sont à l’avantage des demandeurs et titulaires de permis ainsi que des parties intéressées. En outre, elles aideront la CCSN à mener les procédures conformément aux exigences du droit administratif et de la LSRN.

Étant donné que la LSRN donne aussi le droit aux inspecteurs et aux fonctionnaires désignés de prendre des décisions, les règles portent sur ces fonctions et sur la possibilité pour les parties touchées de se faire entendre.

d) Coûts

Les règles correspondent aux pratiques de la CCSN et, par conséquent, n’occasionnent pas de coûts additionnels importants à l’industrie, au public ou au gouvernement.
the other hand, states that one of the objects of the Commission is
to “prevent unreasonable risk to the environment”. Protecting
the environment is therefore mentioned extensively throughout
the new regulations.

5. Consultation
The AECB maintains close contact with its licensees and the
public by a variety of means, including open Board meetings,
public meetings and sessions with Board members and staff.
Regular visits by staff to licensed premises and staff working at
the nuclear power sites allow for a continuous exchange of infor-
mation. In addition to this regular dialogue with licensees and
stakeholders, the AECB undertook general consultations on the
new regulations and specific consultations on the new dose limits,
transportation requirements and enhanced security requirements.

Although it is not required by the government’s regulatory pro-
cess, the AECB made draft regulations available soon after the
Act was passed. This provided the public and the nuclear industry
with an indication of the AECB’s intentions and the AECB with
comments at an early stage in the process. The draft regulations
were published on the AECB Web site and paper copies were
made available to any person who requested them. Notices were
placed in the AECB Reporter and a notice was sent out to ap-
proximately 5,000 licensees and persons who have expressed
interest in nuclear issues. The AECB received 1,588 comments
from 42 individuals or organizations. These comments were ana-
yzed, and where appropriate, changes were made to the regula-
tions. A document describing each comment and the AECB’s
response to the comment is available on the AECB’s Web site
(www.aecb-ccea.gc.ca), and paper copies can be obtained by
contacting the AECB.

On October 10, 1998, the AECB published a draft version of
the nine technical regulations in the Canada Gazette, Part I for
the official comment period required in the federal government’s
regulatory approval process. During the comment period, eight
public meetings were held in major centres across the country to
allow stakeholders an opportunity to obtain more information
about the regulations. In addition, meetings were held with the
reactor licensees. When the comment period closed on Decem-
ber 1, 1998, the AECB had received approximately 800 indivi-
dual comments from 78 contributors. Again, these comments were
reviewed, and where appropriate, changes were made to the draft
regulations. As with the earlier round of consultations, a docu-
ment describing the comments and how they were addressed has
been published by the AECB.

Beginning in January 1999, a series of meetings were held with
some major licensees and other stakeholders concerning some of
the significant issues associated with implementing the new
regulations. These included the Canadian Nuclear Association
and its members, the Saskatchewan Mining Association and its
members, the Canadian Radiation Protection Association, Trans-
port Canada and the Government of Saskatchewan.

6. Compliance and Enforcement
These Regulations will be proclaimed under the NSC Act and
will be subject to the Compliance Policy of the CNSC. With the
part, aux termes de la LSRN, la CCSN a pour mission de mainte-
nir à un niveau acceptable le risque pour l’environnement. La
protection de l’environnement est donc mentionnée abondam-
dans les nouveaux règlements.

5. Consultations
La CCEA maintient un contact étroit avec ses titulaires de
permis et le public par divers moyens, notamment les réunions de
la CCSN, les rencontres publiques et les séances avec les com-
missaires et le personnel de la CCSN. Les visites régulières des
employés aux installations autorisées et leur interaction avec le
personnel des centres favorisent l’échange continu d’informa-
tion. Outre ce dialogue constant avec les titulaires de permis et les
parties intéressées, la CCEA a mené des consultations générales
sur les nouveaux règlements et des consultations particulières sur
les nouvelles limites de dose ainsi que sur les exigences en ma-
tière de transport et d’amélioration de la sécurité.

Bien que le processus de réglementation gouvernemental ne
l’exige pas, la CCEA a produit des projets de règlement, qui sont
devenus disponibles peu après l’adoption de la LSRN. Cela lui a
permis de faire connaître au public et à l’industrie nucléaire ses
intentions et d’obtenir des commentaires tôt au cours du proces-
sus. Les projets de règlements ont été publiés sur le site Web de
la CCEA, et toutes les personnes intéressées ont pu s’en procurer
une copie sur support papier. Des avis ont été placés dans son
périodique, le Reporter, et un avis a été envoyé à environ 5 000 titulaires de permis et personnes ayant manifesté de l’in-
térêt pour les questions nucléaires. La CCEA a reçu 1 588 com-
ments, dont 42 particuliers et organisations. Elle a analysé ces
commentaires et, le cas échéant, modifié les règlements en consé-
quence. Un document décrivant les commentaires individuels et
les réponses fournies par la CCEA est disponible sur le site Web de
la CCEA (www.aecb-ccea.gc.ca), et une copie sur support
papier peut être obtenue en communiquant avec la CCEA.

Le 10 octobre 1998, la CCEA a publié une version provisoire
des neuf règlements techniques dans la Gazette du Canada Par-
tie 1 pour respecter les exigences du processus d’approbation du
gouvernement fédéral, en matière de période de commentaires
officielle. Durant la période de commentaires, huit rencontres
publiques ont eu lieu dans les grands centres du pays afin de per-
mettre aux partenaires d’obtenir davantage de renseignements sur
les règlements. En outre, des rencontres ont eu lieu avec les titu-
laire permissio centrales nucléaires. À la fin de la période de
commentaires, le 1er décembre 1998, la CCEA a reçu environ
800 commentaires individuels provenant de 78 participants. Une
fois de plus, elle a analysé ces commentaires et, le cas échéant,
modifié les projets de règlement en conséquence. Tout comme
pour les consultations précédentes, la CCEA a publié un docu-
ment décrivant les commentaires et les réponses qu’elle a four-
nies.

À compter de janvier 1999, une série de rencontres a eu lieu
avec les titulaires de permis importants et d’autres parties intéres-
sées concernant certaines questions importantes associées à la
mise en œuvre des nouveaux règlements. L’Association nucléaire
canadienne et ses membres, la Saskatchewan Mining Association
et ses membres, l’Association canadienne de radioprotection,
Transports Canada et le gouvernement de la Saskatchewan ont
participé à ces rencontres.

6. Respect et exécution
Les règlements seront proclamés aux termes de la LSRN et as-
sujettis à la politique de conformité de la CCSN. Avec l’adoption
introduction of the new initiatives noted above, and the new range of penalties and enforcement powers established in the NSC Act, the new regulatory regime will put greater emphasis on safe operation in the interests of health, safety, security and the environment. In particular, options under the NSC Act that allow the courts to order redress of contamination and other penalties as part of the sanction system, are expected to yield valuable new compliance tools.

The Commission will also continue the policy of the AECB to promote compliance through notices, explanatory material, public meetings and seminars. Priority will be placed on the new initiatives noted above.

Compliance verification will continue to be carried out by trained inspectors who will monitor all nuclear activities on the basis of risk and the historical performance of the licensees. Nuclear power plant licensees will continue to have resident inspectors from the Commission working full time on site at their facilities. The NSC Act will give wider and more explicit powers to inspectors, subject to review by the Commission.

Violations can result in an escalating range of actions, including warnings, orders by inspectors or designated officers, licence suspension and prosecution. Inspectors will also be able to issue orders to address problems where risks to the safety of persons or the environment are discovered.

6.1 Canadian Nuclear Safety Commission Rules of Procedure

Since the rules are procedural, compliance with them is supported by the procedural powers given to the Commission by the NSC Act. In addition to its power to control its proceedings, the Commission will be a court of record. It has, with respect to the appearance, summoning and examination of witnesses, the production and inspection of records, the enforcement of its orders and other matters necessary or proper for the due exercise of its jurisdiction, all powers that are necessary to carry out its duties.

7. Overall Cost

The total cost to implement the new requirements in the regulations is estimated to be $5.9 million, 46% of which results from new requirements relating to security.

The annual incremental cost associated with the new requirements in the regulations is estimated to be $4.5 million per year, 56% of which results from additional security requirements and 22% of which results from the new dose limits.

To implement the new Act and regulations, the Commission received no additional resources so training has and will continue to be accomplished by a reallocation of existing resources. The cost to train Commission staff on the new Act and regulations consists of direct costs for items such as contractors, materials and facilities plus the time spent by Commission staff away from their regular duties. The training program will be spread over the three fiscal years beginning on April 1, 1998 and ending on March 31, 2001. The direct costs are estimated to be $370,000 per year for each of the three fiscal years. This represents approximately 1% of the Commission’s annual budget.

des nouvelles initiatives susmentionnées, et compte tenu des amendes et des pouvoirs d’application prévus dans la LSRN, le nouveau régime de réglementation mettra davantage l’accent sur l’exploitation sûre dans l’intérêt de la santé, de la sécurité, de la sûreté et de l’environnement. Les options qui, aux termes de la LSRN, autorisent les tribunaux à ordonner des réparations lors d’une contamination ou d’autres dommages dans le cadre d’un régime de sanctions devraient s’avérer de précieux outils pour assurer la conformité.

La CCSN maintiendra la politique de la CCEA de promouvoir la conformité grâce à des avis, des documents explicatifs, des rencontres publiques et des séminaires. La priorité sera donnée aux nouvelles initiatives susmentionnées.

Des inspecteurs qualifiés continueront d’effectuer la vérification de la conformité en surveillant toutes les activités nucléaires d’après le risque et en tenant compte des antécédents des titulaires de permis. Le titulaire d’un permis de centrale nucléaire continuera d’avoir à demeure des inspecteurs de la CCSN à plein temps. La LSRN confère à l’inspecteur des pouvoirs plus vastes et plus explicites, sous réserve de révision par la CCSN.

Les infractions peuvent entraîner des mesures allant d’un simple avertissement à une poursuite, en passant par un ordre donné par un inspecteur ou un fonctionnaire désigné à la suspension du permis. Un inspecteur pourra aussi émettre les ordres qu’il estime nécessaires pour assurer la sécurité des personnes et protéger l’environnement.

7. Coût d’ensemble

Le coût total de la mise en œuvre des nouvelles exigences réglementaires est estimé à 5,9 millions de dollars, dont 46% découlent des nouvelles exigences en matière de sécurité.

Le coût additionnel des nouvelles exigences est estimé à 4,5 millions de dollars par année, dont 56% découlent des exigences additionnelles en matière de sécurité, et 22% des nouvelles limites de dose.

La CCSN n’a reçu aucune ressource additionnelle pour la mise en œuvre de la nouvelle loi et de ses règlements; la réaffectation des ressources existantes a donc servi, et servira, à assurer la formation. Le coût de la formation sur la nouvelle loi et ses règlements à l’intention du personnel de la CCSN consiste en frais directs pour des éléments comme les entrepreneurs, le matériel et les installations, en plus du temps que les employés de la CCSN passent loin de leurs tâches régulières. Le programme de formation sera réparti sur trois exercices à partir du 1er avril 1998 et se terminera le 31 mars 2001. Les frais directs sont estimés à 370 000 $ par année pour chacun des exercices. Cela représente environ 1% du budget annuel de la CCSN.
Staff time spent in developing and delivering training, plus the time spent by trainees away from their regular duties, will average 9 FTEs (full time equivalents) during each of the three fiscal years. This reallocation, which represents approximately 2% of the Commission’s staff allocation, will be accomplished by reducing the number of inspections and increasing the time period between licence renewals for licensees who have a good compliance history.

The Canadian Environmental Assessment Act (CEA Act) requires that environmental assessments be completed for some projects proposed for AECB approval. With the introduction of the NSC Act, subsequent changes to CEA Regulations will be required. The Canadian Environmental Assessment Agency is considering amendments to the CEA Regulations but until its regulatory process has been completed, the effect on licensees is unknown. Questions such as environmental assessments at the time of licence renewal for nuclear facilities will be addressed but until the CEA Regulations are amended, an estimate of any incremental costs is not possible.

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SOR/2000-204 31 May, 2000

NUCLEAR SAFETY AND CONTROL ACT

Class I Nuclear Facilities Regulations

P.C. 2000-784 31 May, 2000

Her Excellency the Governor General in Council, on the recommendation of the Minister of Natural Resources, pursuant to section 44 of the Nuclear Safety and Control Act⁴, hereby approves the annexed Class I Nuclear Facilities Regulations made by the Canadian Nuclear Safety Commission on May 31, 2000.

Enregistrement
DORS/2000-204 31 mai 2000

LOI SUR LA SÛRETÉ ET LA RÉGLEMENTATION NUCLÉAIRES

Règlement sur les installations nucléaires de catégorie I

C.P. 2000-784 31 mai 2000


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⁴ S.C. 1997, c. 9
⁵ L.C. 1997, ch. 9
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CLASS I NUCLEAR FACILITIES REGULATIONS

INTERPRETATION AND APPLICATION

Definition

1. The definitions in this section apply in these Regulations.

“Act” means the Nuclear Safety and Control Act (Loi)

“certificate” means a document issued by the Commission or by a designated officer authorized under paragraph 37(2)(b) of the Act, indicating that a person is certified. (attestation)

“certified” means certified by the Commission under paragraph 21(1)(i) of the Act or by a designated officer authorized under paragraph 37(2)(b) of the Act. (version anglaise seulement)

“Class I nuclear facility” means a Class IA nuclear facility and a Class IB nuclear facility. (installation nucléaire de catégorie I)

“Class IA nuclear facility” means any of the following nuclear facilities:

(a) a nuclear fission or fusion reactor or subcritical nuclear assembly; and
(b) a vehicle that is equipped with a nuclear reactor. (installation nucléaire de catégorie IA)

“Class IB nuclear facility” means any of the following nuclear facilities:

(a) a particle accelerator with a beam energy equal to or greater than 50 MeV;
(b) a plant for the processing, reprocessing or separation of an isotope of uranium, thorium or plutonium;
(c) a plant for the manufacture of a product from uranium, thorium or plutonium;
(d) a plant, other than a Class II nuclear facility as defined in section 1 of the Class II Nuclear Facilities and Prescribed Equipment Regulations, for the processing or use, in a quantity greater than 10^{15} Bq per calendar year, of nuclear substances other than uranium, thorium or plutonium;
(e) a facility for the disposal of a nuclear substance generated at another nuclear facility; and
(f) a facility prescribed by paragraph 19(a) or (b) of the General Nuclear Safety and Control Regulations. (installation nucléaire de catégorie IB)

“effective dose” has the same meaning as in subsection 1(1) of the Radiation Protection Regulations. (dose efficace)

“equivalent dose” has the same meaning as in subsection 1(1) of the Radiation Protection Regulations. (dose équivalente)

“exclusion zone” means a parcel of land within or surrounding a nuclear facility on which there is no permanent dwelling and over which a licensee has the legal authority to exercise control. (zone d’exclusion)

“hazardous substance” or “hazardous waste” means a substance or waste, other than a nuclear substance, that is used or produced in the course of carrying on a licensed activity and that may pose a risk to the environment or the health and safety of persons. (substance dangereuse ou déchet dangereux)

“IAEA” means the International Atomic Energy Agency. (AIEA)

“IAEA Agreement” means the Agreement between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty

RÈGLEMENT SUR LES INSTALLATIONS NUCLÉAIRES DE CATÉGORIE I

DÉFINITIONS ET CHAMP D’APPLICATION

Définitions

1. Les définitions qui suivent s’appliquent au présent règlement.

« Accord avec l’AIEA » L’Accord entre le Gouvernement du Canada et l’Agence internationale de l’énergie atomique relatif à l’application de garanties dans le cadre du Traité sur la non-prolifération des armes nucleaires, entré en vigueur le 21 février 1972; INFIRC/164; UNTS vol. 814, R. no 11596. (IAEA Agreement)

« accord relatif aux garanties »

a) L’Accord avec l’AIEA, ainsi que tout arrangement conclu entre le Canada et l’AIEA dans le cadre de cet accord;

b) toute entente à laquelle le Canada est partie et qui concerne la mise en oeuvre au Canada d’un système de vérification des substances nucléaires, de l’équipement réglementé ou des renseignements réglementés, de même que tout arrangement conclu dans le cadre d’une telle entente. (safeguards agreement)

« accroître » S’entend au sens du paragraphe 1(1) du Règlement sur la radioprotection. (effective dose)

« dose équivalente » S’entend au sens du paragraphe 1(1) du Règlement sur la radioprotection. (equivalent dose)

« installation nucléaire de catégorie IA » « installation nucléaire de catégorie IB »

« installation nucléaire de catégorie IB » L’une des installations suivantes :

a) un réacteur à fission ou à fusion nucléaires ou un assemblage nucléaire non divergent;

b) un véhicule muni d’un réacteur nucléaire. (Class I nuclear facility)

« installation nucléaire de catégorie IA » L’une des installations suivantes :

a) un réacteur à fission ou à fusion nucléaires ou un assemblage nucléaire non divergent;

b) une usine de traitement, de retraitement ou de séparation d’isotopes d’uranium, de thorium ou de plutonium;

c) une usine de fabrication de produits à partir d’uranium, de thorium ou de plutonium;

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on the Non-proliferation of Nuclear Weapons, effective on February 21, 1972; INFCIRC/164; UNTS vol. 814, R. No. 11596. (Accord avec l’AIEA)

“licensed activity” means an activity described in paragraph 26(e) of the Act that a licence authorizes the licensee to carry on in relation to a Class I nuclear facility. (activité autorisée)

“licensee” means a person who is licensed to carry on an activity described in paragraph 26(e) of the Act in relation to a Class I nuclear facility. (titulaire de permis)

“prescribed equipment” means the equipment prescribed by section 20 of the General Nuclear Safety and Control Regulations. (équipement réglementé)

“prescribed information” means the information prescribed by section 21 of the General Nuclear Safety and Control Regulations. (renseignements réglementés)

“safeguards” means a verification system that is established in accordance with a safeguards agreement. (garanties)

“safeguards agreement” means

(a) the IAEA Agreement and any arrangement between Canada and the IAEA made under that agreement; and

(b) any agreement to which Canada is a party for the establishment in Canada of a verification system in respect of nuclear substances, prescribed equipment or prescribed information, and any arrangements made under such an agreement. (accord relatif aux garanties)

“sealed source” means a radioactive nuclear substance in a sealed capsule or in a cover to which the substance is bonded, where the capsule or cover is strong enough to prevent contact with or the dispersion of the substance under the conditions for which the capsule or cover is designed. (source scellée)

“worker” means a person who performs work that is referred to in a licence. (travailleur)

2. These Regulations apply in respect of Class I nuclear facilities.

2. Le présent règlement s’applique aux installations nucléaires de catégorie I.

3. An application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the following information in addition to the information required by section 3 of the General Nuclear Safety and Control Regulations:

(a) a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;

(b) plans showing the location, perimeter, areas, structures and systems of the nuclear facility;

(c) evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed;

(d) the proposed quality assurance program for the activity to be licensed;

3. La demande de permis visant une installation nucléaire de catégorie I, autre qu’un permis d’abandon, comprend les renseignements suivants, outre ceux exigés à l’article 3 du Règlement général sur la sûreté et la réglementation nucléaires :

(a) une description de l’emplacement de l’activité visée par la demande, y compris l’emplacement de toute zone d’exclusion et de toute structure s’y trouvant;

(b) des plans indiquant l’emplacement, le périmètre, les aires, les ouvrages et les systèmes de l’installation nucléaire;

(c) la preuve que le demandeur est le propriétaire de l’emplacement ou qu’il est mandaté par celui-ci pour exercer l’activité visée;

(d) le programme proposé d’assurance de la qualité proposé pour l’activité visée;

a) une usine, autre qu’une installation nucléaire de catégorie II au sens de l’article 1 du Règlement sur les installations nucléaires et l’équipement réglementé de catégorie II, qui traite ou utilise, par année civile, plus de 107 Bq de substances nucléaires autres que l’uranium, le thorium et le plutonium;

b) une installation d’évacuation ou de stockage permanent de substances nucléaires provenant d’une autre installation nucléaire;

c) une installation visée aux alinéas 19(a) ou 19(b) du Règlement général sur la sûreté et la réglementation nucléaires. (Class IB nuclear facility)
(e) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on;
(f) the proposed worker health and safety policies and procedures;
(g) the proposed environmental protection policies and procedures;
(h) the proposed effluent and environmental monitoring programs;
(i) if the application is in respect of a nuclear facility referred to in paragraph 2(b) of the Nuclear Security Regulations, the information required by section 3 of those Regulations;
(j) the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed; and
(k) the proposed plan for the decommissioning of the nuclear facility or of the site.

Licence to Prepare Site

4. An application for a licence to prepare a site for a Class I nuclear facility shall contain the following information in addition to the information required by section 3:
(a) a description of the site evaluation process and of the investigations and preparatory work that have been and will be done on the site and in the surrounding area;
(b) a description of the site’s susceptibility to human activity and natural phenomena, including seismic events, tornadoes and floods;
(c) the proposed program to determine the environmental baseline characteristics of the site and the surrounding area;
(d) the proposed quality assurance program for the design of the nuclear facility; and
(e) the effects on the environment and the health and safety of persons that may result from the activity to be licensed, and the measures that will be taken to prevent or mitigate those effects.

Licence to Construct

5. An application for a licence to construct a Class I nuclear facility shall contain the following information in addition to the information required by section 3:
(a) a description of the proposed design of the nuclear facility, including the manner in which the physical and environmental characteristics of the site are taken into account in the design;
(b) a description of the environmental baseline characteristics of the site and the surrounding area;
(c) the proposed construction program, including its schedule;
(d) a description of the structures proposed to be built as part of the nuclear facility, including their design and their design characteristics;
(e) a description of the systems and equipment proposed to be installed at the nuclear facility, including their design and their design operating conditions;
(f) a preliminary safety analysis report demonstrating the adequacy of the design of the nuclear facility;
(g) the proposed quality assurance program for the design of the nuclear facility;

(e) le nom, la forme, les caractéristiques et la quantité des substances dangereuses qui pourraient se trouver sur l’emplacement pendant le déroulement de l’activité visée;
(f) les politiques et procédures proposées relativement à la santé et à la sécurité des travailleurs;
(g) les politiques et procédures proposées relativement à la protection de l’environnement;
(h) les programmes proposés pour la surveillance de l’environnement et des effluents;
i) lorsque la demande vise une installation nucléaire mentionnée à l’alinéa 2(b) du Règlement sur la sécurité nucléaire, les renseignements exigés à l’article 3 de ce règlement;
(j) le programme destiné à informer les personnes qui résident à proximité de l’emplacement de la nature et des caractéristiques générales des effets prévus de l’activité visée sur l’environnement ainsi que sur la santé et la sécurité des personnes;
k) le plan proposé pour le déclassement de l’installation nucléaire ou de l’emplacement.

Permis de préparation de l’emplacement

4. La demande de permis pour préparer l’emplacement d’une installation nucléaire de catégorie I comprend les renseignements suivants, outre ceux exigés à l’article 3:
(a) une description du processus d’évaluation de l’emplacement, ainsi que des analyses et des travaux préalables qui ont été et seront effectués sur l’emplacement et dans les environs;
(b) une description de la vulnérabilité de l’emplacement aux activités humaines et aux phénomènes naturels, y compris les secousses sismiques, les tornades et les inondations;
(c) le programme devant servir à déterminer les caractéristiques environnementales de base de l’emplacement et des environs;
(d) le programme d’assurance de la qualité proposé pour la conception de l’installation nucléaire;
e) les effets sur l’environnement ainsi que sur la santé et la sécurité des personnes que peut avoir l’activité visée par la demande, de même que les mesures qui seront prises pour éviter ou atténuer ces effets.
(h) the proposed measures to facilitate Canada’s compliance with any applicable safeguards agreement;

(i) the effects on the environment and the health and safety of persons that may result from the construction, operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects;

(j) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;

(k) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;

(l) the proposed program and schedule for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility; and

(m) a description of any proposed full-scope training simulator for the nuclear facility.

**Licence to Operate**

6. An application for a licence to operate a Class I nuclear facility shall contain the following information in addition to the information required by section 3:

(a) a description of the structures at the nuclear facility, including their design and their design operating conditions;

(b) a description of the systems and equipment at the nuclear facility, including their design and their design operating conditions;

(c) a final safety analysis report demonstrating the adequacy of the design of the nuclear facility;

(d) the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility;

(e) the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances;

(f) the proposed measures to facilitate Canada’s compliance with any applicable safeguards agreement;

(g) the proposed commissioning program for the systems and equipment that will be used at the nuclear facility;

(h) the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects;

(i) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;

(j) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;

(k) the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of security, including measures to

(i) assist off-site authorities in planning and preparing to limit the effects of an accidental release,

(ii) notify off-site authorities of an accidental release or the imminence of an accidental release,

(h) les mesures proposées pour aider le Canada à respecter tout accord relatif aux garanties qui s’applique;

(i) les effets sur l’environnement ainsi que sur la santé et la sécurité des personnes que peuvent avoir la construction, l’exploitation et le déclassement de l’installation nucléaire, de même que les mesures qui seront prises pour éviter ou atténuer ces effets;

(j) l’emplacement proposé des points de rejet, les quantités et les concentrations maximales proposées, ainsi que le volume et le débit d’écoulement prévus des rejets de substances nucléaires et de substances dangereuses dans l’environnement, y compris leurs caractéristiques physiques, chimiques et radiologiques;

(k) les mesures proposées pour contrôler les rejets de substances nucléaires et de substances dangereuses dans l’environnement;

(l) le programme et le calendrier proposés pour le recrutement, la formation et la qualification des travailleurs liés à l’exploitation et à l’entretien de l’installation nucléaire;

(m) une description de tout simulateur de formation à portée totale proposé pour l’installation nucléaire.

**Permis d’exploitation**

6. La demande de permis pour exploiter une installation nucléaire de catégorie I comprend les renseignements suivants, outre ceux exigés à l’article 3 :

a) une description des ouvrages de l’installation nucléaire, y compris leur conception et leurs conditions nominales d’exploitation;

b) une description des systèmes et de l’équipement de l’installation nucléaire, y compris leur conception et leurs conditions nominales de fonctionnement;

c) un rapport final d’analyse de la sûreté démontrant que la conception de l’installation nucléaire est adéquate;

(d) les mesures, politiques, méthodes et procédures proposées pour l’exploitation et l’entretien de l’installation nucléaire;

(e) les procédures proposées pour la manipulation, le stockage provisoire, le chargement et le transport des substances nucléaires et des substances dangereuses;

(f) les mesures proposées pour aider le Canada à respecter tout accord relatif aux garanties qui s’applique;

(g) le programme de mise en service proposé pour les systèmes et l’équipement de l’installation nucléaire;

(h) les effets sur l’environnement ainsi que sur la santé et la sécurité des personnes que peuvent avoir l’exploitation et le déclassement de l’installation nucléaire, de même que les mesures qui seront prises pour éviter ou atténuer ces effets;

(i) l’emplacement proposé des points de rejet, les quantités et les concentrations maximales proposées, ainsi que le volume et le débit d’écoulement prévus des rejets de substances nucléaires et de substances dangereuses dans l’environnement, y compris leurs caractéristiques physiques, chimiques et radiologiques;

(j) les mesures proposées pour contrôler les rejets de substances nucléaires et de substances dangereuses dans l’environnement;

(k) les mesures proposées pour éviter ou atténuer les effets que les rejets accidentels de substances nucléaires et de substances dangereuses peuvent avoir sur l’environnement, sur la santé et la sécurité des personnes ainsi que sur le maintien de la sécurité, y compris les mesures visant à :

(i) aider les autorités extérieures à effectuer la planification et la préparation en vue de limiter les effets d’un rejet accidentel,
Licence to Decommission

7. An application for a licence to decommission a Class I nuclear facility shall contain the following information in addition to the information required by section 3:

(a) a description of and the proposed schedule for the decommissioning, including the proposed starting date and the expected completion date of the decommissioning and the rationale for the schedule;
(b) the nuclear substances, hazardous substances, land, buildings, structures, systems and equipment that will be affected by the decommissioning;
(c) the proposed measures, methods and procedures for carrying on the decommissioning;
(d) the proposed measures to facilitate Canada’s compliance with any applicable safeguards agreement;
(e) the nature and extent of any radioactive contamination at the nuclear facility;
(f) the effects on the environment and the health and safety of persons that may result from the decommissioning, and the measures that will be taken to prevent or mitigate those effects;
(g) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;
(h) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;
(i) the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of security, including an emergency response plan;
(j) the proposed qualification requirements and training program for workers; and
(k) a description of the planned state of the site on completion of the decommissioning.

Licence to Abandon

8. An application for a licence to abandon a Class I nuclear facility shall contain the following information in addition to the

(ii) aviser les autorités extérieures d’un rejet accidentel ou de l’imminence d’un tel rejet,
(iii) tenir les autorités extérieures informées pendant et après un rejet accidentel,
(iv) aider les autorités extérieures à remédier aux effets d’un rejet accidentel,
(v) mettre à l’épreuve l’application des mesures pour éviter ou atténuer les effets d’un rejet accidentel;
l) les mesures proposées pour empêcher tout acte ou tentative de sabotage à l’installation nucléaire, de même que les mesures pour alerter le titulaire de permis;
m) les responsabilités, le programme de formation, les exigences de qualification et les mesures de requalification des travailleurs;
n) les résultats obtenus grâce à l’application du programme de recrutement, de formation et de qualification des travailleurs liés à l’exploitation et à l’entretien de l’installation nucléaire.

Permis d’abandon

8. La demande de permis pour abandonner une installation nucléaire de catégorie I comprend les renseignements suivants, outre
information required by sections 3 and 4 of the General Nuclear Safety and Control Regulations:

(a) the results of the decommissioning; and
(b) the results of the environmental monitoring programs.

CERTIFICATION OF PERSONS

Application for Certification

9. (1) This section and sections 10 to 13 do not apply in respect of Class IB nuclear facilities.

(2) The Commission or a designated officer authorized under paragraph 37(2)(b) of the Act may certify a person referred to in paragraph 44(1)(k) of the Act for a position referred to in a licence after receiving from the licensee an application stating that the person

(a) meets the applicable qualification requirements referred to in the licence;
(b) has successfully completed the applicable training program and examination referred to in the licence; and
(c) is capable, in the opinion of the licensee, of performing the duties of the position.

(3) The Commission or a designated officer authorized under paragraph 37(2)(b) of the Act may renew a certification after receiving from a licensee an application stating that the certified person

(a) has safely and competently performed the duties of the position for which the person was certified;
(b) continues to receive the applicable training referred to in the licence;
(c) has successfully completed the applicable requalification tests referred to in the licence for renewing the certification; and
(d) is capable, in the opinion of the licensee, of performing the duties of the position.

(4) A certification expires five years after the date of its issuance or renewal.

Application for Examination

10. (1) If a licence requires a person to successfully complete an examination administered by the Commission in order to be certified, the person may take the examination after the Commission receives from the licensee an application that includes

(a) the name of the person;
(b) the name of the applicable examination; and
(c) a statement that the person has successfully completed the applicable training program referred to in the licence.

(2) The Commission shall notify the licensee and the person of the examination results.

(3) The notice of examination results shall include a description of the licensee’s and the person’s right to be provided with an opportunity to be heard in accordance with the procedure referred to in section 13.

Refusal to Certify

11. (1) The Commission or a designated officer authorized under paragraph 37(2)(b) of the Act shall notify a licensee who has applied for the certification of a person and the person in respect of

certification requirements referred to in the licence;
(a) the results of the balance sheet of the company;
(b) the results of the performance evaluation.

ACCÉRÉDITATION

Demande d’accréditation

9. (1) Le présent article et les articles 10 à 13 ne s’appliquent pas aux installations nucléaires de catégorie IB.

(2) La Commission ou un fonctionnaire désigné autorisé en vertu de l’alinéa 37(2)b) de la Loi peut accréditer une personne visée à l’alinéa 44(1)kb) de la Loi pour occuper un poste mentionné dans le permis, sur réception d’une demande du titulaire de permis précisant que la personne :

(a) satisfait aux exigences de qualification prévues dans le permis;
(b) a réussi le programme de formation et l’examen applicables prévus dans le permis;
(c) est capable, de l’avis du titulaire de permis, d’exercer les fonctions du poste.

(3) La Commission ou un fonctionnaire désigné autorisé en vertu de l’alinéa 37(2)b) de la Loi peut renouveler une attestation sur réception d’une demande du titulaire de permis précisant que la personne ayant reçu l’attestation :

(a) a exercé de façon compétente et en toute sécurité les fonctions du poste pour lequel l’attestation a été accordée;
(b) continue de recevoir la formation applicable prévue dans le permis;
(c) a réussi les épreuves de requalification applicables prévues dans le permis;
(d) est capable, de l’avis du titulaire de permis, d’exercer les fonctions du poste.

(4) L’attestation est valide durant les cinq ans suivant la date de sa délivrance ou de son renouvellement.

Demande d’examen

10. (1) La personne qui, aux termes du permis, doit réussir l’examen administré par la Commission pour recevoir l’attestation peut se présenter à l’examen après que la Commission a reçu du titulaire de permis une demande comprenant ce qui suit :

(a) le nom de la personne;
(b) le titre de l’examen applicable;
(c) une déclaration précisant que la personne a réussi le programme de formation applicable prévu dans le permis.

(2) La Commission avise le titulaire de permis et la personne des résultats de l’examen.

(3) L’avis mentionne également le droit du titulaire de permis et de la personne de se voir accorder la possibilité d’être entendus conformément à la procédure prévue à l’article 13.

Refus d’accréditer

11. (1) La Commission ou un fonctionnaire désigné autorisé en vertu de l’alinéa 37(2)b) de la Loi avise le titulaire de permis qui a demandé l’accréditation et la personne pour laquelle
of whom certification is being sought of a proposed decision not to certify the person, as well as the basis for the proposed decision, at least 30 days before refusing to certify the person.

(2) The notice shall include a description of the licensee’s and the person’s right to be provided with an opportunity to be heard in accordance with the procedure referred to in section 13.

Decertification

12. (1) The Commission or a designated officer authorized under paragraph 37(2)(b) of the Act shall notify a person in respect of whom a certificate has been issued and the licensee concerned of a proposed decision to decertify the person, as well as the basis for the proposed decision, at least 30 days before decertifying the person.

(2) The notice shall include a description of the licensee’s and the person’s right to be provided with an opportunity to be heard in accordance with the procedure referred to in section 13.

Opportunity to Be Heard

13. (1) If a licensee or a person referred to in section 10, 11 or 12 has received a notice and has requested, within 30 days after the date of receipt of the notice, an opportunity to be heard either orally or in writing, the licensee or the person shall be provided with such an opportunity in accordance with the request.

(2) On completion of a hearing held in accordance with subsection (1), the licensee and the person shall be notified of the decision and the reasons for it.

RECORDS TO BE KEPT AND RETAINED

14. (1) Every licensee shall keep a record of the results of the effluent and environmental monitoring programs referred to in the licence.

(2) Every licensee who operates a Class I nuclear facility shall keep a record of

(a) operating and maintenance procedures;
(b) the results of the commissioning program referred to in the licence;
(c) the results of the inspection and maintenance programs referred to in the licence;
(d) the nature and amount of radiation, nuclear substances and hazardous substances within the nuclear facility; and
(e) the status of each worker’s qualifications, requalification and training, including the results of all tests and examinations completed in accordance with the licence.

(3) Every licensee who decommissions a Class I nuclear facility shall keep a record of

(a) the progress achieved in meeting the schedule for the decommissioning;
(b) the implementation and results of the decommissioning;
(c) the manner in which and the location at which any nuclear or hazardous waste is managed, stored, disposed of or transferred;
(d) the name and quantity of any radioactive nuclear substances, hazardous substances and radiation that remain at the nuclear facility after completion of the decommissioning; and
(e) the status of each worker’s qualifications, requalification and training, including the results of all tests and examinations completed in accordance with the licence.

l’accréditation a été demandée de la décision proposée de ne pas accréditer la personne, ainsi que du fondement de cette décision, au moins trente jours avant de refuser de l’accréditer.

(2) L’avis mentionne également le droit du titulaire de permis et de la personne de se voir accorder la possibilité d’être entendus conformément à la procédure prévue à l’article 13.

Retrait de l’attestation

12. (1) La Commission ou un fonctionnaire désigné autorisé en vertu de l’alinéa 37(2)b) de la Loi avise la personne accréditée et le titulaire de permis concerné de la décision proposée de retirer l’attestation, ainsi que du fondement de cette décision, au moins trente jours avant de la retirer.

(2) L’avis mentionne également le droit de la personne et du titulaire de permis de se voir accorder la possibilité d’être entendus conformément à la procédure prévue à l’article 13.

Possibilité d’être entendu

13. (1) Le titulaire de permis ou la personne visé aux articles 10, 11 ou 12 a reçu un avis et qui, dans les trente jours suivant la date de réception de l’avis, a demandé d’être entendu de vive voix ou par écrit est entendu conformément à la demande.

(2) Au terme de l’audience tenue conformément au paragraphe (1), le titulaire de permis et la personne sont avisés de la décision et des motifs de celle-ci.

DOCUMENTS À TENIR ET À CONSERVER

14. (1) Le titulaire de permis tient un document sur les résultats des programmes de surveillance de l’environnement et des effluents qui sont prévus dans le permis.

(2) Le titulaire de permis qui exploite une installation nucléaire de catégorie I tient un document sur :

a) les procédures d’exploitation et d’entretien;

b) les résultats du programme de mise en service prévu dans le permis;

c) les résultats des programmes d’inspection et d’entretien prévus dans le permis;

d) la nature et la quantité des rayonnements, des substances nucléaires et des substances dangereuses présentes dans l’installation nucléaire;

e) l’état des qualifications, de la formation et de la requalification de chaque travailleur, y compris les résultats de tous les examens et épreuves subis conformément au permis.

(3) Le titulaire de permis qui déclasse une installation nucléaire de catégorie I tient un document sur :

a) les progrès réalisés pour respecter le calendrier des travaux de déclassement;

b) la mise en oeuvre et les résultats du déclassement;

c) la façon dont les déchets nucléaires ou dangereux sont gérés, stockés de façon provisoire ou permanente, évacués, éliminés ou transférés;

d) le nom et la quantité des substances nucléaires radioactives, des substances dangereuses et des rayonnements qui subsistent à l’installation nucléaire après les travaux de déclassement;

e) l’état des qualifications, de la formation et de la requalification de chaque travailleur, y compris les résultats de tous les examens et épreuves subis conformément au permis.
(4) Every person who is required by this section to keep a record referred to in paragraph (2)(a) to (d) or (3)(a) to (d) shall retain the record for 10 years after the expiry date of the licence to abandon issued in respect of the Class I nuclear facility.

(5) Every person who is required by this section to keep a record referred to in paragraph (2)(e) or (3)(e) shall retain the record for the period that the worker is employed by the licensee and for five years after the worker ceases to be so employed.

COMING INTO FORCE

15. These Regulations come into force on the day on which they are approved by the Governor in Council.

15. Le présent règlement entre en vigueur à la date de son agrément par le gouverneur en conseil.
