



Licence Application Guide: Licence to Prepare Site for a Deep Geological Repository

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Licence Application Guide: Licence to Prepare Site for a Deep Geological Repository

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Preface

This regulatory document is part of the CNSC’s regulated facilities and activities series of regulatory documents. The full list of regulatory document series is included at the end of this document and can also be found on the CNSC’s website.

In accordance with the [*Nuclear Safety and Control Act \(NSCA\)*](#) and regulations made under it, a person must have a licence issued by the CNSC to prepare a site for a Deep Geological Repository (DGR).

The CNSC uses a comprehensive licensing system that covers the lifecycle of a DGR. This regulatory document, REGDOC-1.2.3, *Licence Application Guide: Licence to Prepare Site for a Deep Geological Repository*, provides clarity on the requirements and guidance for preparing an application for a licence to prepare a site for a DGR.

A graded approach, commensurate with risk, may be defined and used when applying the requirements and guidance contained in this regulatory document. The use of a graded approach is not a relaxation of requirements. With a graded approach, requirements are applied in proportion to the risks and particular characteristics of the facility or licensed activity.

For information on the implementation of regulatory documents and the graded approach, see REGDOC-3.5.3, *Regulatory Fundamentals* [1]. Information on the relevance of the graded approach to this regulatory document is found in clause 4.4 of CSA N-292.7, Deep geological disposal of radioactive waste and irradiated fuel [2]

The words “shall” and “must” are used to express requirements to be satisfied by the licensee or licence applicant. “Should” is used to express guidance or that which is advised. “May” is used to express an option or that which is permissible within the limits of this regulatory document. “Can” is used to express possibility or capability.

Nothing contained in this document is to be construed as relieving any licensee from any other pertinent requirements. It is the licensee’s responsibility to identify and comply with all applicable regulations and licence conditions.

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Licence to Prepare Site for a Deep Geological Repository

1. Introduction

1.1 Purpose

This document is a licence application guide, which is a specific type of guidance document that maps relevant regulatory documents and technical standards to topics, to inform the licence application process. This regulatory document provides clarity about the requirements and guidance on the information needed to apply for a licence to prepare site for a DGR facility.

A deep geological repository (DGR) is a facility where radioactive waste is placed in a deep, stable, geological formation (usually several hundred metres or more below the surface). The facility is engineered to isolate and contain radioactive waste to ensure the long-term isolation of nuclear substances from the biosphere.

In this document, two key terms are used with respect to a DGR's lifecycle: pre-closure and post-closure. The pre-closure period encompasses site preparation, construction, operation and closure, while the post-closure period follows the closure of a DGR facility.

The information in an application for a licence to prepare site and its referenced documents serves several purposes:

- provides the safety case for the site preparation phase of the project, which is incorporated into the licensing basis for the site preparation activities
- documents the conditions of the site and surrounding region that must be addressed in any technologies being considered, and associated safety and control measures
- demonstrates that any technologies under consideration for the site will be able to withstand the conditions imposed on the facility by the site and its surroundings
- demonstrates that the available site characteristic data support the post-closure safety case

Note: Applicants are to apply the graded approach as outlined in REGDOC-3.5.3 [1] to any requirements or guidance referenced in this document.

1.2 Scope

This document describes the licensing requirements and guidance associated with the [*Nuclear Safety and Control Act*](#) (NSCA) and its regulations, to obtain a licence to prepare site for a DGR, in particular the requirements and guidance associated with the specific areas relevant to this licensing stage.

This document does:

- not provide guidance on finding or selecting a site
- not apply to disposal facility types other than DGR facilities
- not apply to surface and near-surface waste management facilities
- not apply to waste from uranium mines and mills
- not apply to surface facilities and other ancillary facilities associated with a DGR, such as packaging plants, storage facilities, and water treatment plants
- not describe the requirements and guidance needed for a safety case for disposal facilities

- not replace the federal impact assessment requirements

Under Canada's current environmental review framework, a proposed DGR facility is a designated project under the [Impact Assessment Act](#) (IAA). Information on the integrated impact assessment process can be found at canada.ca/IAAC.

1.3 Relevant legislation

The following provisions of the NSCA and the regulations made under it are relevant to this document:

[NSCA](#):

- subsection 24(2), 24(4)
- paragraphs 21(1)(a), 26(a), (b) and (e)

[Canadian Nuclear Safety Commission Cost Recovery Fees Regulations](#) (CNSSCRFR):

- part 2

[Class I Nuclear Facilities Regulations](#) (CINFR):

- sections 3, 4

[General Nuclear Safety and Control Regulations](#) (GNSCR):

- sections 3, 15, 17, 21, 22, 23, 27, 28, 29, 30, 31 and 32
- subsections 3(2), 12(1), 23(2), 28(1)
- paragraph 3(1)(b), (c), (d), (e), (f), (g), (h), (i), (j) and (k), 10(b), 12(1)(a), (b), (c), (d), (e), (f), (g), (h), (i) and (j), 17(b), (c) and (e), 20(d), 21(1)(a), 29(1)(d), (h), and (i)

[Nuclear Non-Proliferation Import and Export Control Regulations](#) (NNPIECR):

- section 3

[Nuclear Security Regulations](#) (NSR):

- section 48

[Nuclear Substances and Radiation Devices Regulations](#) (NSRDR):

- paragraphs 36(1)(a) and (d)
- subsection 36(1)

[Radiation Protection Regulations](#) (RPR):

- sections 4, 13, 14, 15, 20, 21, 22 and 23
- subsection 1(3)
- paragraph 4(b)
- subparagraph 4(a)(ii)

Note: While each section of the regulatory document addresses select requirements related to the safety and control area (SCA) or other topic of regulatory importance, applicants are responsible for ensuring that all requirements for the proposed activities under the NSCA and regulations are addressed in an application.

The CNSC also considers pertinent legislation from other government departments, such as:

- *Impact Assessment Act*
- *United Nations Declaration on the Rights of Indigenous Peoples Act*
- *Canadian Environmental Protection Act, 1999*
- *Species at Risk Act*
- *Migratory Birds Convention Act, 1994*

1.4 Waste management framework and standards

The CNSC's regulatory framework for waste management includes the following relevant [regulatory documents](#):

- REGDOC-1.2.1, *Guidance on Deep Geological Repository Site Characterization* [3]
- REGDOC-2.11, *Framework for Radioactive Waste Management and Decommissioning in Canada* [4]
- REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste* [5]
- REGDOC-2.11.1, *Waste Management, Volume III: Safety Case for Disposal of Radioactive Waste* [6]
- REGDOC-2.11.2, *Decommissioning* [7]
- REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities* [8]

Key principles and elements articulated in this document are consistent with national and international standards. This document is complemented by CSA N292.7, *Deep geological disposal of radioactive waste and irradiated fuel* [2], which provides specific criteria associated with many of the topics covered.

2. Background on the DGR Licensing Process

The CNSC's licensing of a DGR facility begins after site selection, starting with site preparation and ending with decommissioning. The licensing phases are sequential; however, activities associated with a particular phase are expected to occur in parallel and continue across licensing phases. These activities are shown at the bottom of Figure 1 and include site evaluation and characterization, monitoring and surveillance, design, development of the post-closure safety case and engagement with the public and Indigenous Nations and communities.

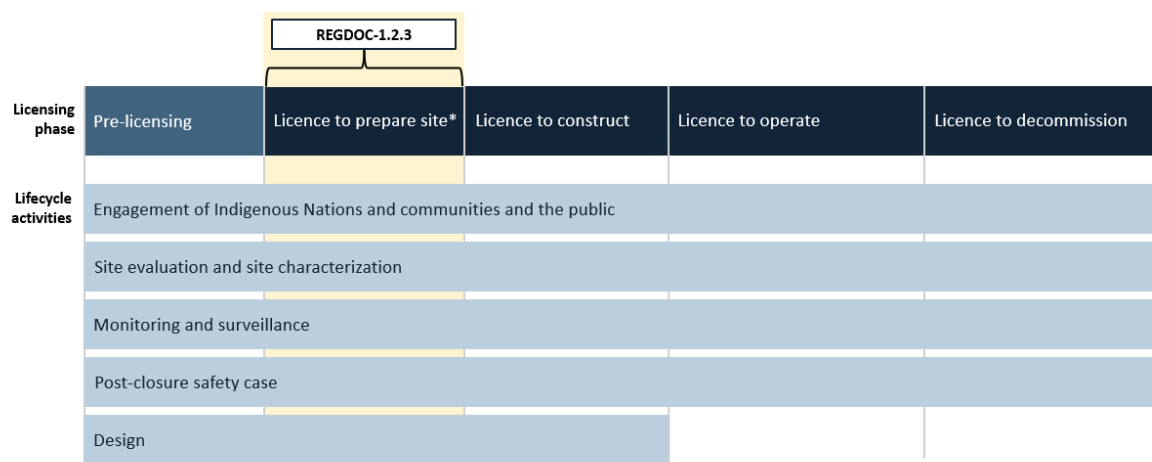
The safety case for disposal is the main tool used to assess the safety of a DGR facility over its lifecycle (see section 3.4 of this document). The safety case is updated iteratively at each licensing phase and is reviewed by the Commission before making any decision.

The CNSC's lifecycle approach also requires an applicant to plan for decommissioning throughout the duration of each licensed activity. The requirements associated with

decommissioning planning during site preparation are provided in REGDOC-2.11.2 [7] (see also section 3.11 of this document).

This document provides information for DGR site preparation and does not provide guidance on future DGR licensing phases.

Figure 1: Licensing stages and lifecycle activities for a deep geological repository



*Before a licensing decision is made, the project must undergo an environmental review under the current federal environmental legislation.

Caption: The figure above shows the licensing phases and typical activities for a DGR.

Note that at each licensing phase, the applicant will consider information gathered from its public and Indigenous engagement activities as an input into site evaluation and for the development of environmental monitoring and surveillance programs, for example. This includes considering Indigenous knowledge and historical and current land use by members of the public and Indigenous Nations and communities. The applicant must also consider the other lifecycle activities at each licensing phase, except for design.

2.1 Overview of site preparation

The applicant is required to have a licence to prepare site before any site preparation work for a DGR facility begins. Site preparation is expected to take place over several years and typically involves a range of activities, including the following:

- clearing vegetation and grubbing
- grading
- fencing
- installation of project infrastructure, including a power supply and utilities
- establishing site access roads and parking
- construction of flood protection and erosion control measures
- construction of surface non-nuclear facility structures, systems and components (SSCs), such as foundation structures

2.2 Site evaluation

Site evaluation determines whether the characteristics of a site and the surrounding region are appropriate for the lifecycle activities of a nuclear facility regulated under the NSCA. The process of site evaluation begins before the applicant applies for a licence to prepare a site and continues throughout the lifecycle of a DGR facility. Information from the site evaluation is a key input into DGR facility design and safety case and informs environmental reviews. Continued evaluation ensures that the facility's design basis and safety case will remain current with potential changing environmental conditions or modifications to the facility itself.

Site evaluation activities carried out during the site preparation stage of a DGR facility include site characterization and the continued development and update of a safety case for both the pre- and post-closure periods.

The expectations regarding site evaluation for a DGR facility are provided in CSA N292.7 [2].

2.3 Site characterization

The applicant must describe the planned activities and provide data about the site characteristics in their application for a licence to prepare site for a DGR facility. Site characterization data are used to develop an understanding of the site and how it is expected to evolve over time. It is essential information for assessing radioactive waste containment and isolation from the environment over a geologically long timeframe. Site characterization information is part of site evaluation and a component of the post-closure safety case. The applicant begins collecting data before submitting a licence application and continues doing so throughout the licensed phases of the DGR facility.

The CNSC's requirements for site characterization for radioactive waste disposal facilities, which include DGRs, are found in the following regulatory documents:

- REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste* [5], subsection 11.2, which specifies the requirement for the site to be characterized at a level of detail sufficient to support an understanding of the current site characteristics and how the site is expected to evolve over time.
- REGDOC-2.11.1, *Waste Management, Volume III: Safety Case for the Disposal of Radioactive Waste* [6], subsection 7.3, which specifies that site characterization is required information as part of the disposal system description and in subsection 7.4 that, as part of the safety assessment, the quality of the site characterization data must also be ensured.
- CSA N292.7 [2], clause 6 provides detailed criteria and guidance for site evaluation and site characterization for a DGR facility. Table 1 in CSA N292.7 [2] also describes the role of site characterization throughout the lifecycle of a DGR facility.

For guidance on site characterization for DGR facilities and the role of site characterization in the CNSC's regulatory process, see REGDOC-1.2.1 [3].

2.4 Monitoring and surveillance

The applicant must provide a plan for monitoring the effects of site preparation activities on the environment as part of the application for a licence to prepare site (section 3.9).

The expectations regarding a monitoring and surveillance program for a DGR facility are provided in CSA N292.7 [2] and in REGDOC-2.11.1, *Waste Management, Volume I* [5].

2.5 Post-closure safety case

The applicant must provide a post-closure safety case in support of a licence to prepare site application for a DGR facility. The requirements and guidance for developing a post-closure safety case are provided in REGDOC-2.11.1, *Waste Management, Volume III* [6].

CSA N292.7 [2], clause 9 outlines the criteria for ongoing site evaluation using analytical assessment, such as quantitative modelling of the facility over time. Table 2 in CSA N292.7 [2] further describes the role of analytical assessments, including those central to the post-closure safety case, throughout the lifecycle of a DGR facility.

3. Regulatory Requirements and Guidance

For activities that take place during the site preparation stage for the development of a future nuclear facility, the applicant must clearly demonstrate what measures will be taken to protect health, safety, security and the environment.

To demonstrate this, the licence to prepare site application must provide information to address all:

- relevant requirements in the NSCA
- requirements in regulations made under the NSCA
- relevant requirements in the CNSC's regulatory framework

This includes providing sufficiently detailed information about the safety policies, programs, procedures and safety and control measures. CNSC staff use 14 SCAs to assess, review, verify and report on regulatory requirements and performance across all regulated facilities and activities.

For each SCA, the applicant must consider the proposed design of the DGR when addressing any requirements. The applicant should also provide information to address the associated guidance, relative to the design of the proposed DGR facility.

This section describes the requirements and guidance for the SCAs that are applicable to site preparation for a DGR, as well as other regulatory areas, including reporting and public and Indigenous engagement.

For more information on the SCAs and licensing basis, see REGDOC-3.5.3. *Regulatory Fundamentals* [1]. Note that Appendix A provides a list of reference documents by relevant specific area within each SCA.

3.1 Management system

The application must describe the management system programs, processes and procedures that have been or will be defined and implemented to protect health, safety, security and the environment, as well as provide a description of the organizational management structure for the

application's site preparation work activities, in accordance with CSA N286, *Management system requirements for nuclear facilities* [9].

The applicant's management system must include:

- a clear structure that reflects a logical hierarchy of processes and procedures that is aligned and integrated with the applicant's business purpose and safety culture
- the applicant's organizational structure and resources for the duration of the activities, including:
 - verification that adequate organizational structures and resources will be in place to meet the nuclear safety management needs of the activities
 - top-level organizational charts with references to the full organizational charts, including the staffing levels
 - use of contracted resources to supplement in-house capability
 - how organizational changes will be managed
 - key dates and milestones for the anticipated site preparation work activities
- procedures to control the effectiveness of assessments and engineering activities performed in the different stages of the site evaluation process
- records of all work carried out during site evaluation and site characterization
- methods for preservation of records
- respective design and safety analysis; supply chain and contractor management programs; processes and procedures in cases where there may be the need for early procurement of SSC to accommodate early use or long (critical path) procurement spans, such as long-lead items
- documentation about technical knowledge that will be maintained and managed
- documentation on the resources to control the work performed by contractors; in particular, defining the requirements for the activities, and description of oversight and integration
- documentation on the results of studies, including models and simulations; and investigations in sufficient detail to permit independent review
- a configuration management program to ensure and maintain consistency among design requirements, physical configuration and configuration documentation

The applicant must also ensure, as a contractual obligation, that the applicant and the CNSC will have right of access to the premises of any supplier and sub-supplier carrying out licensed activities.

The applicant's management system should account for:

- data control, verification and validation
- data format
- traceability of data
- configuration control, including data, for environmental, meteorological, geological, geophysical, survey, hydrological, biological factors
- measuring and test equipment
- use and control of computer modelling
- field and laboratory work control
- calculations and analyses
- measures to ensure that the results of the site characterization are accurate, complete, reproducible, traceable and verifiable

- reporting the results of all site evaluation and site characterization work, laboratory tests and geotechnical analyses and evaluations
- changes to prescribed information

The applicant should involve workers with extensive experience and knowledge who can perform technical and engineering analyses and synthesize data from multiple disciplines to provide correct information about the site's current and future state when establishing management system parameters related to site evaluation. Note: The parameters and analyses may not lend themselves to direct verification by inspections, tests, or other techniques that can be defined and controlled. In such cases, evaluations should be reviewed and verified by individuals or groups that are independent of those who did the work and the criteria for any review or verification activity should be documented.

The applicant should demonstrate that they have an approach to foster a healthy safety culture in accordance with REGDOC-2.1.2, *Safety Culture* [10].

REGDOC-2.1.1, *Management System* [11] provides general guidance on management systems.

3.2 Human performance management

For site preparation, human performance management, including worker training, is addressed under the [management system](#) SCA. This means that applicable worker training and human performance management provisions and considerations must be described in the management system. For information on worker training, see CSA N286 [9], clause 4.5.2.

3.3 Operating performance

For activities conducted under the licence to prepare site, the applicant must:

- characterize the risks to health, safety and the environment that may be encountered by workers and the public
- outline the strategy that the applicant will take, including development of mitigation measures, upon discovery of additional risks to the health and safety of the public that were not anticipated during the licence application process

Risks to the health and safety of the public in site preparation include:

- noise hazards from blasting and operation of heavy machinery
- chemical hazards from the handling of fuels, lubricants and other conventional chemicals used in the construction equipment
- mechanical hazards from excavation, earth movement and road building
- electrical hazards from installation of construction infrastructure
- dust from overburden and rock removal and movement
- ground vibration and flying rock hazards from blasting

The applicant's assessment of risks to the health and safety of workers and the public resulting from the activities encompassed by the licence to prepare site should include consideration of accidents and malfunctions that could occur during site preparation activities.

Where risks to the health and safety of either workers or the public are identified, the applicant should provide credible research supporting the potential consequences and measures to mitigate the risks. For example, if site investigation has indicated the presence of a sub-surface hazardous substance, the applicant should provide an investigation of the effects of that substance, if unearthed, on the health and safety of workers and the local public. See [3.8 Conventional health and safety](#) for more information.

3.4 Safety analysis

The application must include:

- a pre-closure safety analysis that is in accordance with REGDOC-2.4.4, *Safety Analysis for Class IB Nuclear Facilities* [12], including a deterministic safety analysis focusing on activities under this licence
- a hazard analysis focusing on activities under this licence, including:
 - the analysis of external hazards at the site evaluation stage to confirm that the facility will withstand events as described in Appendix C of REGDOC-2.4.4 [12]
 - considerations for both design-basis events and beyond-design-basis events for the operational phase in accordance with section 4.1 of REGDOC-2.4.4 [12]
- a post-closure safety assessment that is in accordance with REGDOC-2.11.1, *Waste Management, Volume III* [6]

Assessment of site suitability forms part of the overall site evaluation. The general criteria for assessing site suitability includes a detailed and methodical site evaluation. The associated expectations regarding site evaluation for a DGR facility are provided in CSA N292.7 [2], clause 6.

The applicant should have a credible program for managing safety issues, which includes any planned or ongoing research and development activities.

3.5 Physical design

The application must include:

- a description of the overall physical design of the facility, the design practices and the safety concepts commensurate with the activities being proposed in the licence
- a description of the approach followed for the general design and the performance of the SSCs, including the means for preparing equipment maintenance and the monitoring of SSCs to confirm that they will continue to operate during site preparation, as required by the design
- the principles, policies, programs, processes and procedures for carrying out site preparation activities
- a description of the design considerations related to human factors as outlined in REGDOC-2.5.1, *General Design Considerations: Human Factors* [13]
- information on the frequency and severity derived from the characterization of the hazards resulting from external events in establishing the design basis hazard level, including uncertainties in the design basis hazard level

The applicant must also provide information on the proposed exclusion zone, including size and boundary, and on the proposed emergency planning regions.

Additional considerations for the exclusion zone include:

- site footprint optimization from the onset of the project
- implications for emergency preparedness based on the physical layout of the facility
- security considerations

For structure design and system design at the site preparation stage for a DGR facility, the applicant should propose design descriptions and guides.

3.6 Fitness for service

The application must include an aging management plan, listing all SSCs important to safety, to provide for the timely detection and mitigation of the aging effects to ensure integrity and functional capacity of the SSCs throughout the pre-closure period. It will also ensure that they are as described in the pre- and post-closure safety assessments (see [Safety analysis](#)). For more information, see Appendix A of REGDOC-2.6.3, *Aging Management* [14].

3.7 Radiation protection

The application must describe the approaches for meeting the requirements of the [Radiation Protection Regulations](#) for activities conducted under the licence to prepare site.

The application must describe a radiation protection program and should demonstrate how the design of that program is commensurate with any radiological hazards associated with, or encountered during, the licensed activity.

The application must also describe how radiological hazards will be monitored and controlled during any site preparation activities, as applicable.

For additional guidance on meeting regulatory expectations for radiation protection, including the development of a radiation protection program and monitoring doses, see REGDOC-2.7.1, *Radiation Protection* [15] and REGDOC 2.7.2, *Dosimetry, Volume I: Ascertaining Occupational Dose* [16].

3.8 Conventional health and safety

The application must describe the program and implementation of policies to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace, including the management of workplace safety hazards and the protection of workers.

The application must provide information detailing compliance to all applicable requirements under the [Canada Labour Code](#), including all occupational exposure limits for all chemical compounds listed under its regulations.

For more information, see REGDOC-2.8.1, *Conventional Health and Safety* [17].

3.9 Environmental protection

The application must include a comprehensive set of applicable environmental protection measures, including an environmental risk assessment, environmental management systems,

effluent and emissions control and monitoring program, environmental monitoring program and groundwater protection and monitoring program that meet all requirements applicable to site preparation activities in REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* [18].

For site preparation, environmental monitoring consists of monitoring the effects of site preparation activities on the environment.

The applicant must provide the proposed environmental protection policies, programs and procedures needed for the licensing phase.

3.10 Emergency management and fire protection

Emergency management

The application must describe an emergency preparedness program that meets the requirements associated with REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response* [19].

The applicant must provide details of the site emergency response organizations and other applicable organizations, including the numbers and positions of all site staff who are assigned to emergency response duties for site preparation activities.

For site preparation activities, applicants must demonstrate that they have:

- included information on arrangements with first responders, provisions for mutual support or aid, and interagency communication requirements (if a memorandum of understanding is established with a first responders' agency, the same must be provided as part of the application)
- an emergency response plan to ensure that adequate and timely emergency assistance is available to protect workers, the public and the integrity of site security, while mitigating adverse environmental effects during project activities
- an emergency preparedness program that maintains an adequate response capability to respond to and mitigate the emergency situations that could occur at the site, including malevolent acts, medical emergencies, accidents and malfunctions for the site preparation phase

The applicant's emergency preparedness program should contain the following elements:

- a training program for emergency response personnel, commensurate with evolving hazards at the site
- a site hazard change program which, when implemented, can inform emergency preparedness staff of changing hazards on the licensed site to maintain adequate emergency response capability for all potential accident situations, including a notification process to allow emergency response organizations to prepare adequately prior to the introduction of new hazards on the licensed site
- references to population studies and emergency planning considerations related to the site

All aspects of the emergency preparedness program should be commensurate with the hazards on the licensed site.

Although hazards of a malevolent nature are not described in this section of the licence application, the applicant must consider the emergency response to such hazards. It should be noted that the effects of such hazards are likely to be similar to those of conventional accidents and malfunctions.

Fire protection

The application must describe a fire protection program to ensure adequate protection against fires. It should describe how the fire protection activities will be implemented, managed and monitored to ensure that fire risks are minimized during site preparation activities, as applicable.

3.11 Waste management

Site preparation activities for a DGR facility should not involve the handling of radioactive materials or the generation of any radioactive wastes. The applicant should consider how to manage existing onsite hazardous substances that are identified during the site evaluation, as well as the hazardous substances that will be produced during activities encompassed by the licence to prepare site.

The applicant must address:

- quantities and physical characteristics, including hazards posed to health and safety, of each substance or waste, including by-products for each substance or by-product to be regulated or controlled, and the relevant list of regulations governing their control
- transport, storage and use of hazardous substances
- processing and disposal of hazardous wastes

The applicant should characterize all potential hazardous substances and hazardous wastes in a list as follows:

- name of hazardous substance or hazardous waste
- origin of hazardous substance or hazardous waste
- possible by-products that could evolve from the hazardous substance or hazardous waste
- any interactions between the hazardous substances or hazardous wastes, or between the possible by-products
- anticipated quantity or volume and anticipated form
- risks to workers and the public who may be exposed to the hazardous substance hazardous waste or by-products
- how the hazardous substance, hazardous waste or by-products will be processed or disposed of at the site

Preliminary decommissioning plan

As part of the application to prepare site, the applicant must:

- demonstrate that the site evaluation process has appropriately considered future decommissioning in the planning for the nuclear facility and has adequately considered end-of-life decommissioning
- prepare a preliminary decommissioning plan in accordance with REGDOC-2.11.2 [7]

3.12 Security

Applicant submissions and associated correspondence related to security are prescribed information under the NSCA and must be submitted in a secure manner.

The security program must include an inventory change control process for prescribed information.

The security measures must provide oversight, management and control, with documented policies and procedures for prescribed information.

At the site preparation stage, the security program is primarily focused on the protection of prescribed information. Prescribed equipment is not expected to be part of a licence to prepare site. The security program is developed in view of the project progressing to the construction stage.

For site preparation activities, the applicant should include in their security measures:

- a description of the site security policy, which demonstrates that the security quality assurance criteria are integrated into overall quality assurance
- the applicable quality assurance criteria referenced in ISO/IEC 27002:2022, *Information security, cybersecurity and privacy protection — Information security controls* [20]
 - a description of procedures and processes that ensure that the required quality is defined and consistently achieved within the applicant's security policy
- documentation of how site personnel will be trained in security
- information on the security system and subsystem availability program, which accounts for documentation and archiving, and maintaining records of functional testing and routine field testing

The application must describe the cyber security program, processes and procedures that have been or will be defined and implemented to comply with CSA N290.7, *Cyber security for nuclear facilities* [21].

The applicant's cyber security program must describe each element of the program specified in section 4.2 of CSA N290.7 [21], with sufficient detail to show that the cyber threats, vulnerabilities and risks identified in the Site Selection Threat and Risk Assessment (SSTRA) are properly considered.

The applicant should define operational procedures for protecting cyber essential assets from a cyber attack.

Additional guidance is also available in International Atomic Energy Agency (IAEA) NSS No. 17-T, *Computer Security Techniques for Nuclear Facilities* [22].

3.13 Safeguards and non-proliferation

The applicant must provide a description of the arrangements, as applicable to site preparation, that will permit the CNSC to discharge Canada's obligations and provide information to the IAEA, in accordance with REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy* [23].

The applicant should describe the plan to document measures related to a safeguards program for the full lifecycle of the DGR.

3.14 Packaging and transport

The packaging and transport SCA is not included in an application for a licence to prepare site for a DGR.

3.15 Reporting

With respect to site preparation, the applicant must describe how they will meet the requirements of REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills* [24].

3.16 Indigenous and public engagement

The applicant must provide the CNSC with information about its public and Indigenous engagement activities as part of its licence application.

The applicant must also describe how their proposed public information and disclosure program meets the requirements in REGDOC-3.2.1, *Public Information and Disclosure* [25].

As an agent of the Crown, the CNSC is responsible for fulfilling Canada's legal duty to consult and, where appropriate, accommodate Indigenous peoples when CNSC decisions may have adverse effects on potential or established Indigenous and/or treaty rights.

In fulfilling its consultation obligations, the CNSC may use the information collected and measures proposed by licensees to avoid, mitigate or offset adverse effects. REGDOC-3.2.2, *Indigenous Engagement* [26] outlines requirements and guidance for applicants whose proposed projects may raise the Crown's duty to consult and accommodate. In addition, sections 3.2 and 5 of REGDOC-1.2.1, *Guidance on Deep Geological Repository Site Characterization* [3], identify considerations related to Indigenous knowledge and land use.

Conducting engagement activities with the public and Indigenous peoples early in the project development process, including site evaluation, is expected to result in more effective and efficient consultation practices, strengthen relationships and assist the Crown in meeting its obligations regarding any potential legal duty to consult and accommodate, as well as reduce the risk of delays in the regulatory review process.

4. Standard application information

4.1 Statement of purpose

An applicant must complete a licence application when:

- requesting a new licence
- renewing, amending, replacing or revoking an existing CNSC licence

The application provides details for the licence, which will consequently authorize only specified activities. The applicant must provide:

- a description of any nuclear facility and any prescribed equipment or information to be encompassed by the licence
- information on all activities to be licensed, as described in any of paragraphs 26(a) to (f) of the NSCA, and their purpose

For a licence renewal, the activities requested in this application must match those currently listed on the existing CNSC licence.

This information may be provided in summary format; for example, by listing facilities, equipment or information.

4.2 Licence period

The applicant should state the requested licence period. The licensee may request a specific licence period to match planned activities or an anticipated change in status.

4.3 Description of site

The application must contain a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone.

For Class I nuclear facilities, the applicant must provide plans showing the location, perimeter, areas, structures and systems of the facility.

4.4 Applicant's name and business address

The applicant must provide the applicant's name and business address.

The name must be that of the persons or organization applying for the licence, as it appears on the proof of legal status documentation, such as the proof of incorporation or sole proprietorship.

The applicant should name an individual only if that person is a sole proprietor or will be solely responsible for the licence.

The business address must be the legal, physical address of the applicant's head office, including the complete street name and number, city, province or territory and postal code. A post office box number is not acceptable.

4.5 Mailing address

If the mailing address is different from the business address, the applicant must provide the mailing address, including the complete street name and number, city, province or territory and postal code.

If no address is provided, any licence issued in response to the application will be mailed to the head office address. A post office box number is acceptable as a mailing address.

4.6 Authority to act

The applicant must notify the Commission of the persons authorized to act on their behalf in their dealings with the Commission.

The applicant should provide a list of names, positions and contact information of all persons who are authorized by the applicant to interact with the CNSC.

Note: The applicant may request, for security reasons, this information be subject to confidentiality requirements.

4.7 Applicant authority

The applicant must provide the name, title and contact information—address, email address and telephone number—of the individual who has the legal signing authority for the application.

The signature of the applicant authority indicates that all statements and representations made in the application and on supplementary pages are binding on the applicant.

4.8 Proof of legal status

Applicants should provide proof of legal status by appending proof of incorporation, corporation number or charter. When submitting an application to renew, a revised proof of legal status should be provided if the applicant's original organization name has changed.

If the applicant is a corporation, the application should include the following information:

- corporation's legal name
- corporation number
- date of incorporation
- jurisdiction of incorporation
- registered office address (if different from the head office address)

4.9 Owner or authority for the site

The applicant must provide evidence that the applicant is the owner of the site or has authority from the owner of the site to carry out the activity to be licensed.

4.10 Other information

If applicable, the applicant should describe the relationship of this application to any previous licences issued by the CNSC for activities at this facility, including any changes to the licensing basis contained in previous licences.

The applicant should reference any other CNSC licences that apply to the use of other nuclear substances and authorized activities conducted at the facility; for example, licences for nuclear substances and radiation devices, dosimetry service, and import/export of controlled nuclear and nuclear-related substances, equipment and information.

Where applicable, the applicant may provide supporting information, including:

- the results of experimental programs, tests or analyses (for example, results of manufacturers' material tests and qualification data)
- those that have been submitted to, received from, or published by a foreign national regulatory body

- information published by a national agency or an international nuclear agency

4.11 Cost recovery

Where applicable, the application must be accompanied by the appropriate regulatory fee as outlined in the [Canadian Nuclear Safety Commission Cost Recovery Fees Regulations](#). Any questions can be addressed to the [CNSC Cost Recovery Advisory Group](#).

4.12 Financial guarantees

The application must describe the financial guarantees for the costs of decommissioning the facility or licensed activity according to the NSCA and the [GNSCR](#). The applicant should also provide a cross-reference to the supporting document regarding the value and form of the financial guarantee.

For more information about financial guarantees and licensing, consult REGDOC-3.3.1 [8].

4.13 Billing contact person

The applicant must provide the following information for the person responsible for the licence fee payments:

- name
- position
- contact information (email, telephone, facsimile)
- mailing address, if different from the business address

4.14 Notification

The applicant must notify the CNSC within 15 days of any changes to the contact names identified in the application.

4.15 Structuring the application

The application may be completed in either of Canada's official languages. The applicant may choose to organize the information in any structure. However, the applicant is encouraged to organize the licence application according to the SCA framework to facilitate CNSC staff review. The CNSC uses SCAs as the technical topics to assess, review, verify and report on regulatory requirements and performance across all regulated facilities and activities, as outlined in REGDOC-3.5.3 [1]. This REGDOC also contains information on licensing and certification, including the licensing basis and other key regulatory concepts, such as the graded approach.

4.16 Submitting the application

The applicant must ensure that the application is complete, dated and signed by the appropriate authority, that all supporting documents are clearly identified and cross-referenced and submitted in a secure format to the CNSC Registry at registry-greffe@cnsccsn.gc.ca.

If the applicant chooses to submit the licence application in printed format, the applicant should provide two signed and dated printed copies of the application to:

Canadian Nuclear Safety Commission
280 Slater Street
P.O. Box 1046, Station B
Ottawa, ON K1P 5S9
Canada

All information submitted is subject to the [Access to Information Act](#) and the [Privacy Act](#). The applicant must identify, with justification, any material that is subject to confidentiality requirements and not suitable for public disclosure. Any information that is submitted may be presented to the Commission to support the licensing decision. Any such information is also made available to the public upon request, in total or in a redacted form, according to the CNSC's legal obligations.

The applicant must keep a record of all licence information, as required by section 27 of the GNSCR.

The CNSC may request additional information from the applicant to further substantiate claims made in the application or to address any gaps identified in the application.

Appendix A: Reference Documents by Safety and Control Area

The CNSC's regulatory requirements and expectations for the safety performance of programs are organized into a framework made up of 14 safety and control areas (SCAs), which are subdivided into specific areas.

The table that follows outlines each applicable SCA, their applicable specific areas, and reference materials that relate to an application to prepare site for a DGR or subsequent licensing stage to facilitate planning.

Table 1: Reference documents by applicable SCA and specific area

Safety and control area	Specific area	Standard(s) or regulatory documents
Management system	Management system	CSA N286-12 <i>Management System Requirements for Nuclear Facilities</i> [9] REGDOC-2.1.1, <i>Management System</i> [11] IAEA GSR Part 2, <i>Leadership and Management for Safety: General Safety Requirements</i> [A1] IAEA GS-G-3.1, <i>Application of the Management System for Facilities and Activities</i> [A2] IAEA GS-G-3.5, <i>The Management System for Nuclear Installations</i> [A3] ISO 9001:2015, <i>Quality management systems – Requirements</i> [A5] IAEA, No. GS-G-3.4, <i>The Management System for the Predisposal Management and Disposal of Radioactive Waste</i> [A6]
	Organization	CSA N286-12 [9] IAEA GSR Part 2 [A1] ISO 9001:2015 [A5] IAEA, No. GS-G-3.4 [A6]
	Performance assessment, improvement and management review	CSA N286-12 [9]
	Operating experience (OPEX)	CSA N286-12 [9] ISO 9001:2015 [A5] IAEA, No. GS-G-3.4 [A6]
	Change management	CSA N286-12 [9]
	Safety culture	REGDOC 2.1.2 <i>Safety Culture</i> [10] CSA N286-12 [9]
	Configuration management	CSA N286-12 [9] ISO 9001: 2015 [A5]

Safety and control area	Specific area	Standard(s) or regulatory documents
		IAEA, No. GS-G-3.4 [A6]
	Records management	CSA N286-12 [9] ISO 9001: 2015 [A5] IAEA, GS-G-3.4 [A6] NEA 7421, <i>Preservation of Records, Knowledge and Memory (RK&M) Across Generations: Final Report of the RK&M Initiative</i> [A7] NEA 7423, <i>Preservation of Records, Knowledge and Memory (RK&M) Across Generations: Compiling a Set of Essential Records for a Radioactive Waste Repository</i> [A8]
	Management of contractors	CSA N286-12 [9] ISO 9001:2015 [A5]
Human performance management	Personnel training	CSA N286-12 [9] REGDOC-2.2.2, <i>Personnel Training</i> [A9]
Operating performance	Reporting and trending	REGDOC-3.1.2 <i>Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills</i> [24]
Safety analysis	Deterministic safety analysis	CSA N292.0:19 <i>General principles for the management of radioactive waste and irradiated fuel</i> [A10] REGDOC 2.4.4 <i>Safety Analysis for Class IB Nuclear Facilities</i> [12] REGDOC-2.11.1, <i>Waste Management, Volume III</i> [6]
	Hazard analysis	CCME, <i>Canadian Environmental Quality Guidelines</i> [A13] CEAA, <i>Incorporating climate change considerations in environmental assessment: general guidance for practitioners</i> [A14] REGDOC-1.2.1 <i>Guidance on Deep Geological Repository Site Characterization</i> [3] REGDOC 2.4.4 [12] REGDOC-2.11.1 [6] REGDOC-2.7.1 <i>Radiation Protection</i> [15]
	Criticality safety	CSA N292.0:19 [A10] CSA N292.7 <i>Deep geological disposal of radioactive waste and irradiated fuel</i> [2] REGDOC-2.4.3, <i>Nuclear Criticality Safety</i> [A16]

Safety and control area	Specific area	Standard(s) or regulatory documents
Physical design	Site characterization	REGDOC-1.2.1 [3] REGDOC-2.9.1 <i>Environmental Protection: Environmental Principles, Assessments and Protection Measures</i> [18] CCME, <i>Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life</i> [A17] CCME, <i>Canadian Environmental Quality Guidelines, Sediment Quality Guidelines for the Protection of Aquatic Life</i> [A18] IAEA, SSG-18, <i>Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations</i> [A19] CSA N292.7 [2] REGDOC-2.11.1, <i>Waste Management, Volume I</i> [5] REGDOC-2.11.1, <i>Waste Management, Volume III</i> [6]
	Facility design	REGDOC-2.5.1 <i>General Design Considerations: Human Factors</i> [13] CSA N292.7 [2] REGDOC-2.11.1 [6] National Building Code of Canada [A20]
	Structure, system and component design	IAEA, SSG-14, <i>Geological Disposal Facilities for Radioactive Waste</i> [A43] National Building Code of Canada [A20] CSA N285.0, <i>General requirements for pressure-retaining systems and components in CANDU nuclear power plants/Material Standards for reactor components for CANDU nuclear power plants</i> [A21] CSA G40.20-13/G40.21-13, <i>General requirements for rolled or welded structural quality steel / Structural quality steel</i> [A22] CSA W59-13, <i>Welded steel construction (metal arc welding)</i> [A23] ASME Boiler and Pressure Vessel Code (BPVC), Section II, Part A: <i>Ferrous Material Specification; Part C: Specifications of Welding Rods, Electrodes and Filler Metals</i> [A24] ASME BPVC, Section III, Division 1, <i>Rules for the Construction of Nuclear Facility Components</i> [A25] ASME BPVC, Section III, Division 3, <i>Containments for Transportation and Storage of Spent Nuclear Fuel and High-level Radioactive Material and Waste</i> [A26] ASME BPVC, Section V, <i>Nondestructive Examination</i> [A27] ASME BPVC, Section IX, <i>Welding and Brazing Qualification</i> [A28] CAN/CGSB-48.9712-2014 / (ISO 9712:2012, IDT), <i>Non-destructive testing – Qualification and certification of NDT Personnel</i> [A29]
Fitness for service	Aging management	REGDOC-2.11.1, <i>Waste Management, Volume I</i> [5] REGDOC-2.6.3 <i>Aging Management</i> [14] CSA N292.0:19 [A10]

Safety and control area	Specific area	Standard(s) or regulatory documents
Radiation protection	Application of ALARA	REGDOC-2.7.1 [15]
	Worker dose control	REGDOC-2.7.1 [15] REGDOC 2.7.2, Dosimetry, Volume I [16]
	Radiation protection program performance	REGDOC-2.7.1 [15]
	Radiological hazard control	REGDOC-2.7.1 [15]
Conventional health and safety	Performance, practices and awareness	Canada Labour Code REGDOC-2.8.1 <i>Conventional Health and Safety</i> [17]
Environmental protection	Effluent and emissions control (releases)	REGDOC-2.9.1 [18] CSA N288.0:22, <i>Environmental management of nuclear facilities: Common Requirements of the CSA N288 series of Standards</i> [A12] CSA N288.5:22, <i>Effluent and emissions monitoring programs at nuclear facilities</i> [A34] CSA N288.8-17, <i>Establishing and implementing action levels for releases to the environment from nuclear facilities</i> [A32]
	Environmental management system (EMS)	REGDOC-2.9.1 [18] CSA N288.0:22 [A12] ISO 14001: 2015 <i>Environmental management systems</i> [A4]
	Assessment and monitoring	REGDOC-2.9.1 [18] CSA N288.0:22 [A12] CSA N288.4:19, <i>Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills</i> [A33] CSA N288.7:15, <i>Groundwater protection programs at Class I nuclear facilities and uranium mines and mills</i> [A35]
	Environmental risk assessment	REGDOC-2.9.1 [18] CSA N288.6-22, <i>Environmental risk assessments at nuclear facilities and uranium mines and mills</i> [A36] CSA N288.0:22 [A12] Health Canada, <i>Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment</i> [A37]
	Protection of people	REGDOC-2.9.1 [18] REGDOC-2.7.1 [15]

Safety and control area	Specific area	Standard(s) or regulatory documents
		CSA N288.0:22 [A12] CSA N288.6:22 [A36] CSA N288.1:20 <i>Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities</i> [A31]
Emergency management and fire protection	Conventional emergency preparedness and response	REGDOC-2.10.1 <i>Nuclear Emergency Preparedness and Response</i> [19] REGDOC-3.2.1 <i>Public Information and Disclosure</i> [25]
	Nuclear emergency preparedness and response	REGDOC-2.10.1 [19]
	Fire emergency preparedness and response	REGDOC-2.10.1 [19] National Building Code of Canada [A20]
Waste management	Waste characterization	CSA N292.0:19 [A10] CSA N292.8:21 <i>Characterization of radioactive waste and irradiated fuel</i> [A38] REGDOC-2.11.1, <i>Waste Management, Volume I</i> [5]
	Waste minimization	REGDOC-2.11.1 [5] CSA N292.0:19 [A10] CSA N292.5-11 <i>Guideline for the exemption or clearance from regulatory control of materials that contain, or potentially contain, nuclear substances</i> [A30]
	Waste management practices	REGDOC 2.11 [4] REGDOC-2.11.1 [5] CSA N292.0:19 [A10] CSA N292.8:21 [A38] CSA N292.5-11 [A30]
	Decommissioning plans	REGDOC-2.11.2 <i>Decommissioning</i> [7]
Security	Facilities and equipment	REGDOC-2.12.1, <i>High-Security Sites: Volume II: Criteria for Nuclear Security Systems and Devices</i> [A41]

Safety and control area	Specific area	Standard(s) or regulatory documents
	Security practices	IAEA Nuclear Security Series No.23-G, <i>Security of Nuclear Information</i> [A42] IAEA NSS No. 30-G, <i>Sustaining a Nuclear Security Regime</i> [A40]
	Cyber security	CSA N290.7-21 [21] IAEA Nuclear Security Series No.17-T: <i>Computer Security at Nuclear Facilities</i> [A39]
Safeguards and non-proliferation	Access and assistance to the IAEA	REGDOC-2.13.1 <i>Safeguards and Nuclear Material Accountancy</i> [23] IAEA INFCIRC/164 [A15] IAEA INFCIRC/164/Add.1 [A11]
	Operational and design information	REGDOC-2.13.1 [23] IAEA INFCIRC/164 [A15] IAEA INFCIRC/164/Add.1 [A11]

Appendix B: Sample Format for Supporting Documentation

The applicant should ensure that the licence application addresses all of the information requested in this licence application guide. The applicant is encouraged to map the information provided in the application to the related sections and subsections of this document.

The table below provides a sample format that the applicant may consider for providing a mapping of the supporting information to the SCA framework, which is how section 3 of this document is organized.

Document Identifier	Title	Version no.	Refers to which part
			e.g. 3.12 Security

Glossary

For definitions of terms used in this document, refer to [REGDOC-3.6, *Glossary of CNSC Terminology*](#), which includes terms and definitions used in the [NSCA](#) and the regulations made under it, and in CNSC regulatory documents and other publications. REGDOC-3.6 is provided for reference and information.

The following terms are either new terms being defined or include revisions to the current definition for that term. Following public consultation, the final terms and definitions will be submitted for inclusion in the next version of REGDOC-3.6, *Glossary of CNSC Terminology*.

[New]

post-closure period

The period associated with a disposal facility after the completion of closure activities.

Note: The post-closure period occurs for an indefinite time frame (Source: CSA N292.7, Deep geological disposal of radioactive waste and irradiated fuel).

[New]

pre-closure period

The period associated with a disposal facility up to and including the completion of closure activities (Source: CSA N292.7, Deep geological disposal of radioactive waste and irradiated fuel).

References

The CNSC may include references to information on best practices and standards such as those published by Canadian Standards Association (CSA) Group. With permission of the publisher, CSA Group, all nuclear-related CSA standards may be viewed at no cost through the CNSC web page “[How to gain free access to all nuclear-related CSA standards](#)”. REGDOCs are available on the CNSC web page “[Regulatory documents](#)”.

- [1] CNSC, REGDOC-3.5.3, Regulatory Fundamentals, Version 3, Ottawa, 2023.
- [2] CSA Group, CSA N-292.7, Deep geological disposal of radioactive waste and irradiated fuel, Mississauga, 2022.
- [3] CNSC, REGDOC-1.2.1, Guidance on Deep Geological Repository Site Characterization, Ottawa, 2021.
- [4] CNSC, REGDOC-2.11, Framework for Radioactive Waste Management and Decommissioning in Canada, Ottawa, 2021.
- [5] CNSC, REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste, Ottawa, 2021.
- [6] CNSC, REGDOC-2.11.1, Waste Management, Volume III: Safety Case for the Disposal of Radioactive Waste, Ottawa, 2021.
- [7] CNSC, REGDOC-2.11.2, Decommissioning, Ottawa, 2021.
- [8] CNSC, REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities, Ottawa, 2021.
- [9] CSA Group, CSA N286-12, Management System Requirements for Nuclear Facilities, Mississauga, 2012.
- [10] CNSC, REGDOC-2.1.2, Safety Culture, Ottawa, 2018.
- [11] CNSC, REGDOC-2.1.1, Management System, Ottawa, 2019.
- [12] CNSC, REGDOC-2.4.4, Safety Analysis for Class IB Nuclear Facilities, Ottawa, 2020.
- [13] CNSC, REGDOC-2.5.1, General Design Considerations: Human Factors, Ottawa, 2019.
- [14] CNSC, REGDOC-2.6.3, Aging Management, Ottawa, 2014.
- [15] CNSC, REGDOC-2.7.1, Radiation Protection, Ottawa, 2021.
- [16] CNSC, REGDOC-2.7.2, Dosimetry, Volume I: Ascertaining Occupational Dose, Ottawa, 2021.
- [17] CNSC, REGDOC-2.8.1, Conventional Health and Safety, Ottawa, 2019.

- [18] CNSC, REGDOC-2.9.1, Environmental Principles, Assessments and Protection Measures, Version 1.1, Ottawa, 2017.
- [19] CNSC, REGDOC-2.10.1, Nuclear Emergency Preparedness and Response, Ottawa, 2016.
- [20] International Organization for Standardization (ISO), ISO 27002:2022, Information security, cybersecurity and privacy protection — Information security controls, 2022.
- [21] CSA Group, CSA N290.7:21, Cyber security for nuclear facilities, Mississauga, 2021.
- [22] IAEA, Computer Security Techniques for Nuclear Facilities, IAEA Nuclear Security Series No. 17-T (Rev. 1), Vienna, 2021.
- [23] CNSC, REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy, Ottawa, 2018.
- [24] CNSC, REGDOC-3.1.2, Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills, Ottawa, 2022.
- [25] CNSC, REGDOC-3.2.1, Public Information and Disclosure, Version 1, Ottawa, 2018.
- [26] CNSC, REGDOC-3.2.2, Indigenous Engagement, Ottawa, 2022.

Additional Information

The CNSC may recommend additional information on best practices and standards such as those published by CSA Group. With permission of the publisher, CSA Group, all nuclear-related CSA standards may be viewed at no cost through the CNSC webpage “[How to gain free access to all nuclear-related CSA standards](#)”.

The following documents provide additional information that may be relevant and useful for understanding the requirements and guidance provided in this regulatory document:

- A1. IAEA, Leadership and Management for Safety, IAEA Safety Standards Series No. GSR Part 2, Vienna, 2016.
- A2. IAEA, Application of the Management System for Facilities and Activities, IAEA Safety Standards Series No. GS-G-3.1, Vienna, 2006.
- A3. IAEA, The Management System for Nuclear Installations, IAEA Safety Standards Series No. GS-G-3.5, Vienna, 2009.
- A4. International Organization for Standardization (ISO), ISO 14001:2015, Environmental management systems - Requirements with guidance for use, 2015.
- A5. ISO, ISO 9001:2015, Quality management systems - Requirements, 2015.
- A6. IAEA, The Management System for the Disposal of Radioactive Waste, IAEA Safety Standards Series No. GS-G-3.4, Vienna, 2008.
- A7. Nuclear Energy Agency (NEA), NEA 7421, Preservation of Records, Knowledge and Memory (RK&M) Across Generations: Final Report of the RK&M Initiative, Organisation for Economic Co-operation and Development (OECD), Paris, 2019.
- A8. NEA, NEA 7423, Preservation of Records, Knowledge and Memory (RK&M) Across Generations: Compiling a Set of Essential Records for a Radioactive Waste Repository, OECD, Paris, 2019.
- A9. CNSC, REGDOC-2.2.2, Personnel Training, Ottawa, 2016.
- A10. CSA Group, CSA N292.0:19, General principles for the management of radioactive waste and irradiated fuel, Mississauga, 2019.
- A11. IAEA, Protocol Additional to the Agreement between Canada and the IAEA for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, IAEA INFCIRC/164/Add 1, 2000.
- A12. CSA Group, CSA N288.0:22, Environmental management of nuclear facilities: Common Requirements of the CSA N288 series of Standards, Mississauga, 2022.
- A13. Canadian Council of Ministers of the Environment (CCME), Canadian Environmental Quality Guidelines, <https://ccme.ca/en/current-activities/canadian-environmental-quality-guidelines>.
- A14. Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment, Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners, Gatineau, 2003.
- A15. IAEA, Agreement between Government of Canada and IAEA for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, IAEA INFCIRC/164, 1972.
- A16. CNSC, REGDOC-2.4.3, Nuclear Criticality Safety, Ottawa, 2020.
- A17. CCME, Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life, <https://ccme.ca/en/resources/water-aquatic-life>.
- A18. CCME, Canadian Environmental Quality Guidelines, Sediment Quality Guidelines for the Protection of Aquatic Life, <https://ccme.ca/en/resources/sediment>.

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- A19. IAEA, Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations, IAEA Safety Standards Series No. SSG-18, Vienna, 2011.
- A20. National Research Council of Canada, National Building Code of Canada, 2020.
- A21. CSA Group, CSA N285.0, General requirements for pressure-retaining systems and components in CANDU nuclear power plants/Material Standards for reactor components for CANDU nuclear power plants, Mississauga, 2017.
- A22. CSA Group, G40.20-13/G40.21-13, General requirements for rolled or welded structural quality steel / Structural quality steel, Mississauga, 2018.
- A23. CSA Group, CSA W59 - Welded steel construction (metal arc welding), Mississauga, 2013.
- A24. ASME, Boiler and Pressure Vessel Code (BPVC) Section II-Materials-Part A-Ferrous Materials Specifications, New York, 2023.
- A25. ASME BPVC, Section III, Division 1, Rules for the Construction of Nuclear Facility Components, New York, 2023.
- A26. ASME BPVC, Section III, Division 3, Containments for Transportation and Storage of Spent Nuclear Fuel and High-level Radioactive Material and Waste, 2023.
- A27. ASME BPVC, Section V, Nondestructive Examination, 2023.
- A28. ASME BPVC, Section IX, Welding, and Brazing Fusing Qualifications, New York, 2023.
- A29. Canadian General Standards Board, CAN/CGSB-48.9712-2014 / (ISO 9712:2012, IDT), Non-destructive testing – Qualification and certification of NDT Personnel, 2014.
- A30. CSA Group, CSA N292.5, Guideline for the exemption or clearance from regulatory control of materials that contain, or potentially contain, nuclear substances, Mississauga, 2011.
- A31. CSA Group, CSA N288.1:20, Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities, Mississauga, 2020.
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Facilities and activities within the nuclear sector in Canada are regulated by the CNSC. In addition to the *Nuclear Safety and Control Act* and associated regulations, these facilities and activities may also be required to comply with other regulatory instruments such as regulatory documents or standards. CNSC regulatory documents are classified under the following categories and series:

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	1.2	Class IB facilities
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	1.4	Class II facilities
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	1.6	Nuclear substances and radiation devices

Safety and control areas

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	2.2	Human performance management
	2.3	Operating performance
	2.4	Safety analysis
	2.5	Physical design
	2.6	Fitness for service
	2.7	Radiation protection
	2.8	Conventional health and safety
	2.9	Environmental protection
	2.10	Emergency management and fire protection
	2.11	Waste management
	2.12	Security
	2.13	Safeguards and non-proliferation
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Series	3.1	Reporting requirements
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