



# 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.

For information on the implementation of regulatory documents and on the graded approach, see [REGDOC-3.5.3, Regulatory Fundamentals](#) [1]. Information on the relevance of the graded approach to this REGDOC 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.

## Table of Contents

<b>1.</b>	<b>Introduction.....</b>	<b>4</b>
1.1	Purpose.....	4
1.2	Scope.....	4
1.3	Relevant legislation.....	5
1.4	Waste management framework and standards.....	6
<b>2.</b>	<b>Overview of Site Preparation.....</b>	<b>6</b>
2.1	Site evaluation.....	7
2.2	Site characterization.....	8
2.3	Post-closure safety case .....	8
<b>3.</b>	<b>Regulatory Requirements and Guidance.....</b>	<b>9</b>
3.1	Management system .....	9
3.2	Human performance management .....	11
3.3	Operating performance .....	11
3.4	Safety analysis .....	11
3.5	Physical design .....	12
3.6	Fitness for service .....	13
3.7	Radiation protection.....	13
3.8	Conventional health and safety .....	13
3.9	Environmental protection.....	13
3.10	Emergency management and fire protection .....	14
3.11	Waste management .....	15
3.12	Security .....	15
3.13	Safeguards and non-proliferation.....	16
3.14	Packaging and transport.....	17
3.15	Reporting .....	17
3.16	Indigenous and public engagement.....	17
<b>4.</b>	<b>Standard application information .....</b>	<b>17</b>
4.1	Statement of purpose .....	17
4.2	Licence period.....	18
4.3	Description of site.....	18
4.4	Applicant's name and business address .....	18
4.5	Mailing address.....	18
4.6	Authority to act .....	18
4.7	Applicant authority .....	19
4.8	Proof of legal status .....	19
4.9	Owner or authority for the site.....	19
4.10	Other information .....	19
4.11	Cost recovery .....	20
4.12	Financial guarantees .....	20
4.13	Billing contact person .....	20
4.14	Notification .....	20
4.15	Structuring the application.....	20
4.16	Submitting the application .....	20

**Appendix A: Reference Documents by Safety and Control Area..... 22**  
**Appendix B: Sample Format for Supporting Documentation..... 30**  
**Glossary ..... 31**  
**References..... 32**  
**Additional Information ..... 34**

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# Licence to Prepare Site for a Deep Geological Repository

## 1. Introduction

### 1.1 Purpose

This regulatory document provides clarity about the requirements and provides guidance on the information needed to apply for a licence to prepare site for a DGR facility.

A 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 provide 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: the pre-closure period encompasses site preparation, construction, operation and closure, including the decommissioning of ancillary facilities, 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 site is suitable for a facility's full lifecycle

### 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 a site for a DGR, in particular the requirements and guidance associated with the specific areas relevant to this licensing stage.

This document is not intended to:

- provide guidance on finding or selecting a site
- apply to surface and near-surface waste management facilities
- apply to waste from uranium mines and mills
- describe the requirements and guidance needed for a safety case for disposal facilities
- 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](http://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](#) (CNSCCRFR):

- part 2

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

- section 3
- subsections 14(1), (2)
- paragraphs 3(a), (b), (d), (d.1), (e), (f), (g), (h), (i) and (k), 4(a), (b), (c), (d) and (e)

[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.

#### 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]

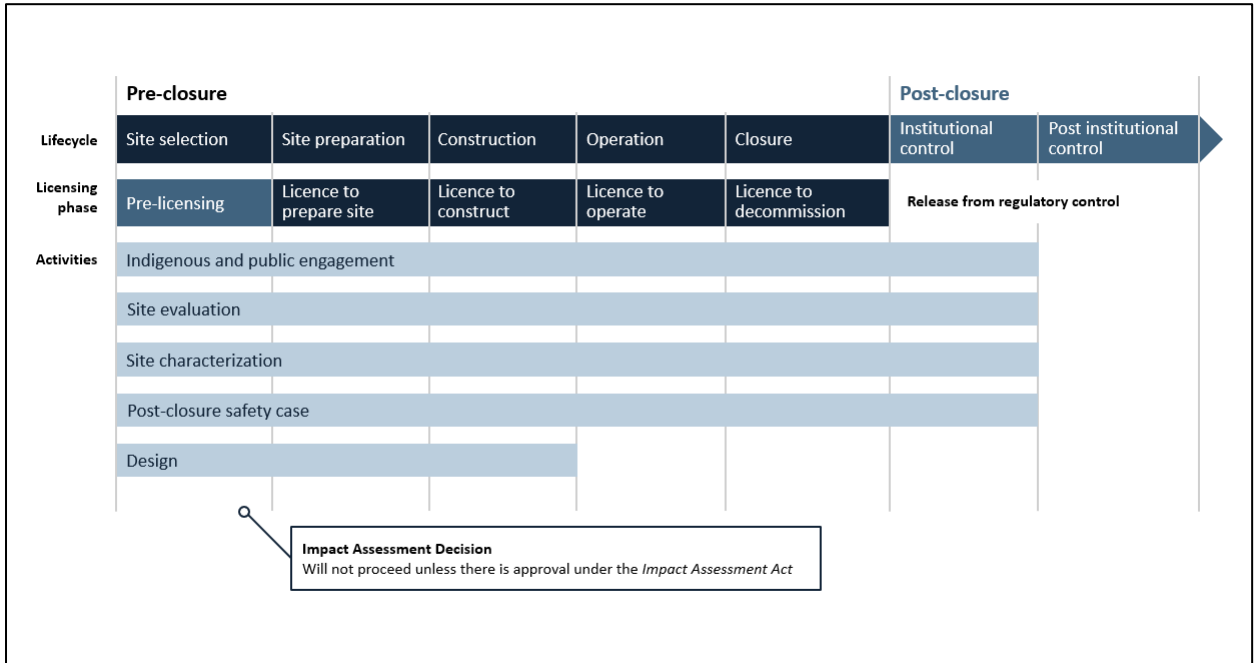
Key principles and elements articulated in this document are consistent with national and international standards. This document is complemented by [CSA N292.7, \*Deep geological disposal of radioactive waste and irradiated fuel\*](#) [2], which provides specific criteria associated with many of the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

## 2. Overview of Site Preparation

The licensing stages for the entire lifecycle of a DGR facility are illustrated below, from pre-closure to post-closure periods. The licensing stages list is sequential; however, activities associated with a particular stage may occur in parallel and continue across licensing stages. Many activities will continue throughout the lifecycle of the DGR facility, including site evaluation, site characterization, design, development of the post-closure safety case and consultation with the public and Indigenous communities.



**Title: Pre-closure and post-closure licensing stages and lifecycle activities for a deep geological repository**



Caption: The graphic above shows the licensing stages and lifecycle activities for a deep geological repository before and after facility closure. Site evaluation, site characterization and the post-closure safety case are described in the text that follows, while information on design is found in section 3.5 and information on Indigenous and public engagement is provided in section 3.16.

The applicant is required to have a licence to prepare a 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, such as:

- 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

**2.1 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. This 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, including continued optimization of the facility design up until final closure.

Site evaluation activities carried out during the pre-closure period of a DGR facility include site characterization and the development and iterative updates of a safety case for both the pre- and post-closure safety assessment.

## 2.2 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 demonstrates how radioactive waste will be contained and isolated from the environment over a geologically long timeframe and is supported by the post-closure safety case. The applicant begins collecting data before submitting a licence application and continues doing so throughout the lifecycle 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].

## 2.3 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 modeling 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 areas within each SCA.

#### 3.1 Management system

The application must describe the management system programs, processes and procedures that have been or will be put in place to protect health, safety, security and the environment and provide a description of the organizational management structure for the application's site preparation work activities, in accordance with [CSA N286-12, Management system requirements for nuclear facilities](#) [15].

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
  - policy for the use of contractors' resources to supplement in-house capability
  - how organizational changes will be managed

- a work schedule
- procedures to control the effectiveness of assessments and engineering activities performed in the different stages of the site evaluation process, including records of all work carried out during site evaluation and characterization, which must include a description of the measures for preservation of the 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 carrying activities specified in the application
- all sub-suppliers will provide right of access to their premises by those clients who are suppliers

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 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 these 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\*](#) [16].

[REGDOC-2.1.1, \*Management System\*](#) [17] provides general guidance on management systems. In addition, the management system may be graded in accordance with [REGDOC-3.5.3](#) [1].

### 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 N286-12](#) [15], 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 could be higher than for a conventional project, 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.

### 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\*](#) [18], 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](#) [18]
  - considerations for both design-basis events and beyond-design-basis events for the operational phase, with a focus on the concept of potential cliff-edge effects when analyzing external hazards, where a small change of conditions may lead to a catastrophic increase in the severity of consequences
- 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 for 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 a research and development program.

### 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](#) [10]
- information on 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 and 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](#) [9].

### 3.7 Radiation protection

The application must describe the approaches for meeting the requirements of the [RPR](#) 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](#) [19] and [REGDOC 2.7.2, Dosimetry, Volume I: Ascertaining Occupational Dose](#) [20].

### 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](#) [21].

### 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 of [REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures](#) [22].

For site preparation, environmental monitoring consists of defining baseline characteristics and 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\*](#) [23].

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 that, 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, which include a notification process to allow emergency response organizations to adequately prepare 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 should consider the emergency response to those hazards. Note that the effects of such hazards are likely to be similar to those of conventional accidents and malfunctions.

The applicant must demonstrate a fire response capability as described in [CSA N393:22, \*Fire Protection for Facilities that Process, Handle, or Store Radioactive Substances\*](#) [24].

#### Fire Protection Program

The application must describe a fire protection program to ensure adequate protection against fires. It should describe how the fire protection activities are controlled, managed and monitored



to prevent fire from occurring and mitigate consequences during site preparation activities, as applicable.

Information on the fire protection program can be found in [CSA N393:22](#) [24].

### 3.11 Waste management

For site preparation of a DGR facility, activities should not involve handling radioactive materials nor the generation of any radioactive wastes. The applicant should consider how to manage existing onsite hazardous substances that are identified during 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 all substances or by-products that will be regulated or controlled, and the appropriate list of regulations governing their control
- transport, storage and use of hazardous substances
- processing and disposing 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
- hazards 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 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
  - use a graded approach
- the applicable quality assurance criteria referenced in ISO/IEC 27002:2022, *Information security, cybersecurity and privacy protection — Information security controls* [25]
  - 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 applicant must provide a cyber security policy that defines the objectives and requirements of the cyber security program. The cyber security policy must consider the cyber threats, vulnerabilities and risks identified in the Site Selection Threat and Risk Assessment (SSTRA).

The application must describe how the cyber security program is designed, implemented, and maintained to comply with [N290.7-14, Cyber security for nuclear power plants and small reactor facilities](#) [26], and provide information on the elements of the program described in clause 4.2 of the standard, with sufficient detail to show that the SSTRA is 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](#) [27].

### 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](#) [11].

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

Not applicable: 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](#) [14].

### 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](#) [12].

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

To meet the CNSC's obligations for consultation, 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](#) [13] outlines requirements and guidance for applicants whose proposed projects may raise the Crown's duty to consult and accommodate.

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 about 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 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 who have authority to act for them 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 on 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 that were included 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](mailto: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 found 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 SCAs, which are subdivided into specific areas.

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

**Table 1: Applicable reference documents by SCA and specific area**

Safety and control area	Specific area	Standard(s) or regulatory documents
Management system	Management system	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17] <a href="#">IAEA GSR Part 2, Leadership and Management for Safety: General Safety Requirements</a> [A1] <a href="#">IAEA GS-G-3.1, Application of the Management System for Facilities and Activities</a> [A2] <a href="#">IAEA GS-G-3.5, The Management System for Nuclear Installations</a> [A3] ISO 14001:2015, <i>Environmental management systems - Requirements with guidance for use</i> [A4] ISO 9001:2015, <i>Quality management systems – Requirements</i> [A5] <a href="#">IAEA, No. GS-G-3.4, The Management System for the Predisposal Management and Disposal of Radioactive Waste</a> [A6]
	Organization	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17] <a href="#">IAEA GSR Part 2</a> [A1] ISO 14001:2015 [A4] ISO 9001:2015 [A5] <a href="#">IAEA, No. GS-G-3.4</a> [A6]
	Performance assessment, improvement and management review	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17]
	Operating experience (OPEX)	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17] ISO 14001:2015 [A4] ISO 9001:2015 [A5] <a href="#">IAEA, No. GS-G-3.4</a> [A6]
	Change management	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17]
	Safety culture	<a href="#">REGDOC-2.1.1</a> [17]



Safety and control area	Specific area	Standard(s) or regulatory documents
		<a href="#">REGDOC 2.1.2</a> [16] <a href="#">CSA N286-12</a> [15]
	Configuration management	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17] ISO 9001: 2015 [A5] <a href="#">IAEA, No. GS-G-3.4</a> [A6]
	Records management	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17] ISO 14001:2015 [A4] ISO 9001: 2015 [A5] <a href="#">IAEA, GS-G-3.4</a> [A6] <a href="#">NEA 7421, Preservation of Records, Knowledge and Memory (RK&amp;M) Across Generations: Final Report of the RK&amp;M Initiative</a> [A7] <a href="#">NEA 7423, Preservation of Records, Knowledge and Memory (RK&amp;M) Across Generations: Compiling a Set of Essential Records for a Radioactive Waste Repository</a> [A8]
	Management of contractors	<a href="#">CSA N286-12</a> [15] <a href="#">REGDOC-2.1.1</a> [17] <a href="#">REGDOC-2.2.2, Personnel Training</a> [A9] ISO 14001:2015 [A4] ISO 9001:2015 [A5]
	Business continuity	<a href="#">REGDOC-2.1.1</a> [17]
Human performance management	Personnel training	<a href="#">CSA N286-12</a> [15]

Safety and control area	Specific area	Standard(s) or regulatory documents
Operating performance	Conduct of licensed activities	<a href="#">REGDOC 2.11</a> [4] <a href="#">REGDOC-2.11.1, Waste Management, Volume I</a> [5] <a href="#">CSA N292.0:19, General principles for the management of radioactive waste and irradiated fuel</a> [A11] <a href="#">CSA N292.2-13, Interim dry storage of irradiated fuel</a> [A12] <a href="#">CSA N292.5-11, Guideline for the exemption or clearance from regulatory control of materials that contain, or potentially contain, nuclear substances</a> [A31] <a href="#">CSA N292.6-18, Long-term management of radioactive waste and irradiated fuel</a> [A13] <a href="#">CSA N292.8:21, Characterization of radioactive waste and irradiated fuel</a> [A39] ECCC, Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities [A10]
	Reporting and trending	<a href="#">REGDOC-3.1.2</a> [14]
Safety analysis	Deterministic safety analysis	<a href="#">CSA N292.0:19</a> [A11] <a href="#">CSA N292.2-13</a> [A12] <a href="#">CSA N292.6-18</a> [A13] <a href="#">CSA N292.7</a> [2] <a href="#">REGDOC-2.4.4</a> [18] <a href="#">REGDOC-2.11.1, Waste Management, Volume III</a> [6]
	Hazard analysis	<a href="#">CCME, Canadian Environmental Quality Guidelines</a> [A14] <a href="#">CEAA, Incorporating climate change considerations in environmental assessment: general guidance for practitioners</a> [A15] <a href="#">REGDOC-1.2.1</a> [3] <a href="#">REGDOC 2.4.4 Safety Analysis for Class IB Nuclear Facilities</a> [18] <a href="#">REGDOC 2.11.1, Waste Management, Volume III</a> [6] <a href="#">CSA N393:22</a> [24] <a href="#">REGDOC-2.7.1</a> [19] <a href="#">Government of Canada, Canadian Climate Normals</a> [A16]

Safety and control area	Specific area	Standard(s) or regulatory documents
	Criticality safety	<a href="#">CSA N292.0:19</a> [A11] <a href="#">CSA N292.2-13</a> [A12] <a href="#">CSA N292.6-18</a> [A13] <a href="#">CSA N292.7</a> [2] <a href="#">REGDOC-2.4.3, Nuclear Criticality Safety</a> [A17]
Physical design	Site characterization	<a href="#">REGDOC-1.2.1</a> [3] <a href="#">REGDOC-2.9.1</a> [22] <a href="#">CCME, Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life</a> [A18] <a href="#">CCME, Canadian Environmental Quality Guidelines, Sediment Quality Guidelines for the Protection of Aquatic Life</a> [A19] <a href="#">IAEA, SSG-18, Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations</a> [A20] <a href="#">Government of Canada, Canadian Climate Normals</a> [A16]
	Facility design	<a href="#">REGDOC-2.5.1</a> [10] <a href="#">CSA N292.7</a> [2] <a href="#">REGDOC-2.11.1, Waste Management, Volume III</a> [6] <a href="#">National Building Code of Canada</a> [A21] <a href="#">CSA N393:22</a> [24] <a href="#">CSA N292.2-13</a> [A12]
	Structure, system and component design	<a href="#">IAEA, SSG-14, Geological Disposal Facilities for Radioactive Waste</a> [A54] <a href="#">National Building Code of Canada</a> [A21] <a href="#">CSA N393:22</a> [24] <a href="#">CSA N292.2-13</a> [A12] <a href="#">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</a> [A22] <a href="#">CSA G40.20-13/G40.21-13, General requirements for rolled or welded structural quality steel / Structural quality steel</a> [A23] <a href="#">CSA W59-13, Welded steel construction (metal arc welding)</a> [A24] 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> [A25] ASME BPVC, Section III, Division 1, <i>Rules for the Construction of Nuclear Facility Components</i> [A26]

Safety and control area	Specific area	Standard(s) or regulatory documents
		ASME BPVC, Section III, Division 3, <i>Containments for Transportation and Storage of Spent Nuclear Fuel and High-level Radioactive Material and Waste</i> [A27] ASME BPVC, Section V, <i>Nondestructive Examination</i> [A28] ASME BPVC, Section IX, <i>Welding and Brazing Qualification</i> CAN/CGSB-48.9712-2014 / (ISO 9712:2012, IDT), <i>Non-destructive testing – Qualification and certification of NDT Personnel</i> [A30]
Fitness for service	Aging management	<a href="#">REGDOC-2.11.1, Waste Management, Volume I</a> [5] <a href="#">REGDOC-2.6.3</a> [9] <a href="#">CSA N292.0:19</a> [A11]
Radiation protection	Application of ALARA	<a href="#">REGDOC-2.7.1</a> [19]
	Worker dose control	<a href="#">REGDOC-2.7.1</a> [19] <a href="#">REGDOC 2.7.2, Dosimetry, Volume I</a> [20]
	Radiation protection program performance	<a href="#">REGDOC-2.7.1</a> [19]
	Radiological hazard control	<a href="#">REGDOC-2.7.1</a> [19] <a href="#">CSA N292.5-11</a> [A31]
Conventional health and safety	Performance, practices and awareness	<a href="#">Canada Labour Code</a> <a href="#">REGDOC-2.8.1</a> [21]
Environmental protection	Effluent and emissions control (releases)	<a href="#">REGDOC-2.9.1</a> [22] <a href="#">CSA N288.1:20, Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities</a> [A32] <a href="#">CSA N288.5:22, Effluent and emissions monitoring programs at nuclear facilities</a> [A35] <a href="#">CSA N288.8-17, Establishing and implementing action levels for releases to the environment from nuclear facilities</a> [A33]
	Environmental management system (EMS)	<a href="#">REGDOC-2.9.1</a> [22] ISO 14001: 2015 [A4]

Safety and control area	Specific area	Standard(s) or regulatory documents
	Assessment and monitoring	<a href="#">REGDOC-2.9.1</a> [22] <a href="#">CSA N288.4:19, <i>Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills</i></a> [A34] <a href="#">CSA N288.7:15, <i>Groundwater protection programs at Class I nuclear facilities and uranium mines and mills</i></a> [A36]
	Protection of the public	<a href="#">REGDOC-2.9.1</a> [22] <a href="#">CSA N288.1:20</a> [A32] <a href="#">CSA N288.4:19</a> [A34] <a href="#">CSA N288.5:22</a> [A35] <a href="#">CSA N288.7:15</a> [A36] <a href="#">CSA N288.8-17</a> [A33]
	Environmental risk assessment	<a href="#">REGDOC-2.9.1</a> [22] <a href="#">CSA N288.6-12, <i>Environmental risk assessments at class I nuclear facilities and uranium mines and mills</i></a> [A37] <a href="#">Health Canada, <i>Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment</i></a> [A38]
	Protection of people	<a href="#">REGDOC-2.7.1</a> [19] <a href="#">CSA N288.1:20</a> [A32]
Emergency management and fire protection	Conventional emergency preparedness and response	<a href="#">REGDOC-2.10.1</a> [23] <a href="#">CSA N393:22</a> [24] <a href="#">REGDOC-3.2.1</a> [12]
	Nuclear emergency preparedness and response	<a href="#">REGDOC-2.10.1</a> [23]
	Fire emergency preparedness and response	<a href="#">REGDOC-2.10.1</a> [23] <a href="#">National Building Code of Canada</a> [A21] <a href="#">CSA N393:22</a> [24]
Waste management	Waste characterization	<a href="#">CSA N292.0:19</a> [A11] <a href="#">CSA N292.8:21</a> [A39] <a href="#">REGDOC-2.11.1, <i>Waste Management, Volume I</i></a> [5]
	Waste minimization	<a href="#">REGDOC-2.11.1, <i>Waste Management, Volume I</i></a> [5] <a href="#">CSA N292.0:19</a> [A11] <a href="#">CSA N292.5-11</a> [A31]

Safety and control area	Specific area	Standard(s) or regulatory documents
	Waste management practices	<a href="#">REGDOC 2.11</a> [4] <a href="#">REGDOC-2.11.1, Waste Management, Volume I</a> [5] <a href="#">CSA N292.0:19</a> [A11] <a href="#">CSA N292.8:21</a> [A39] <a href="#">CSA N292.5-11</a> [A31]
	Decommissioning plans	<a href="#">REGDOC-2.11.2</a> [7] <a href="#">CSA N294:19, Decommissioning of facilities containing nuclear substances</a> [A40]
Security	Facilities and equipment	<a href="#">REGDOC-2.12.2, Site Access Security Clearance</a> [A44] <a href="#">REGDOC-2.12.1, High-Security Sites: Volume II: Criteria for Nuclear Security Systems and Devices</a> [A45] <a href="#">REGDOC-2.12.3, Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material</a> [A46] <a href="#">REGDOC-2.2.2</a> [A9] <a href="#">REGDOC-2.2.4, Fitness for Duty, Managing Worker Fatigue</a> [A47] <a href="#">REGDOC-2.2.4, Fitness for Duty, Volume II: Managing Alcohol and Drug Use</a> [A48]
	Response arrangements	<a href="#">REGDOC-2.2.4, Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness</a> [A49]
	Security practices	<a href="#">REGDOC-2.12.2</a> [A44] <a href="#">REGDOC-2.12.3</a> [A46] <a href="#">IAEA Nuclear Security Series No.23-G, Security of Nuclear Information</a> [A50] <a href="#">IAEA NSS No. 7, Nuclear Security Culture</a> [A51] <a href="#">IAEA NSS No. 8, Preventative and Protective Measures against Insider Threats</a> [A52] <a href="#">IAEA NSS No. 26-G, Security of Nuclear Material in Transport</a> [A53] <a href="#">IAEA NSS No. 30-G, Sustaining a Nuclear Security Regime</a> [A43]
	Cyber security	<a href="#">CSA N290.7</a> [26] <a href="#">IAEA Nuclear Security Series No.17: Computer Security at Nuclear Facilities</a> [A42]
Safeguards and non-proliferation	Nuclear material accountancy and control	<a href="#">REGDOC-2.13.2, Import and Export</a> [A41] <a href="#">REGDOC-2.13.1</a> [11] <a href="#">IAEA INFCIRC/164, Agreement between Government of Canada and IAEA for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons</a> [28] <a href="#">IAEA INFCIRC/164/Add.1, Protocol additional to INFCIRC/164</a> [29]

Safety and control area	Specific area	Standard(s) or regulatory documents
	Access and assistance to the IAEA	<a href="#">REGDOC-2.13.2</a> [A41] <a href="#">REGDOC-2.13.1</a> [11] <a href="#">IAEA INFCIRC/164</a> [28] <a href="#">IAEA INFCIRC/164/Add.1</a> [29]
	Operational and design information	<a href="#">REGDOC-2.13.2</a> [A41] <a href="#">REGDOC-2.13.1</a> [11] <a href="#">IAEA INFCIRC/164</a> [28] <a href="#">IAEA INFCIRC/164/Add.1</a> [29]
	Safeguards equipment, containment and surveillance	<a href="#">REGDOC-2.13.1</a> [11] <a href="#">IAEA INFCIRC/164</a> [28] <a href="#">IAEA INFCIRC/164/Add.1</a> [29]
	Import and export	<a href="#">REGDOC-2.13.2</a> [A41] <a href="#">REGDOC-2.13.1</a> [11] <a href="#">IAEA INFCIRC/164</a> [28] <a href="#">IAEA INFCIRC/164/Add.1</a> [29]

## 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, see [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 (période post-fermeture)**

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 (période préfermeture)**

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](#)”.

1. CNSC, REGDOC-3.5.3, Regulatory Fundamentals, Ottawa, 2021.
2. CSA Group, CSA N292.7, 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. CNSC, REGDOC-2.6.3, Aging Management, Ottawa, 2014.
10. CNSC, REGDOC-2.5.1, General Design Considerations: Human Factors, Ottawa, 2019.
11. CNSC, REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy, Ottawa, 2018.
12. CNSC, REGDOC-3.2.1, Public Information and Disclosure, Ottawa, 2018.
13. CNSC, REGDOC-3.2.2, Indigenous Engagement, Ottawa, 2022.
14. CNSC, REGDOC-3.1.2, Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills, Ottawa, 2022.
15. CSA Group, CSA N286-12, Management system requirements for nuclear facilities, Mississauga, 2012.
16. CNSC, REGDOC-2.1.2, Safety Culture, Ottawa, 2018.
17. CNSC, REGDOC-2.1.1, Management System, Ottawa, 2019.
18. CNSC, REGDOC-2.4.4, Safety Analysis for Class IB Nuclear Facilities, Ottawa, 2020.
19. CNSC, REGDOC-2.7.1, Radiation Protection, Ottawa, 2021.
20. CNSC, REGDOC 2.7.2, Dosimetry, Volume I: Ascertaining Occupational Dose, Ottawa, 2021.
21. CNSC, REGDOC-2.8.1, Conventional Health and Safety, Ottawa, 2019.
22. CNSC, REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures, Ottawa, 2020.
23. CNSC, REGDOC-2.10.1, Nuclear Emergency Preparedness and Response, Ottawa, 2016.
24. CSA Group, CSA N393:22, Fire Protection for Facilities that Process, Handle, or Store Radioactive Substances, Mississauga, 2022.
25. International Organization for Standardization (ISO), ISO 27002:2022, Information security, cybersecurity and privacy protection — Information security controls, 2022.
26. CSA Group, CSA N290.7-14, Cyber security for nuclear power plants and small reactor facilities, Mississauga, 2014.
27. IAEA, Computer Security Techniques for Nuclear Facilities, IAEA Nuclear Security Series No. 17-T (Rev. 1), Vienna, 2021.
28. 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.

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## 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. ECCC, Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities
- A11. CSA Group, CSA N292.0:19, General principles for the management of radioactive waste and irradiated fuel, Mississauga, 2019.
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- A14. Canadian Council of Ministers of the Environment (CCME), Canadian Environmental Quality Guidelines, <https://ccme.ca/en/current-activities/canadian-environmental-quality-guidelines>.
- A15. Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment, Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners, Gatineau, 2003.
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- A17. CNSC, REGDOC-2.4.3, Nuclear Criticality Safety, Ottawa, 2020.
- A18. CCME, Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life, <https://ccme.ca/en/resources/water-aquatic-life>.
- A19. CCME, Canadian Environmental Quality Guidelines, Sediment Quality Guidelines for the Protection of Aquatic Life, <https://ccme.ca/en/resources/sediment>.
- A20. IAEA, Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations, IAEA Safety Standards Series No. SSG-18, Vienna, 2011.
- A21. National Building Code Canada.

- A22. 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.
- A23. CSA Group, G40.20-13/G40.21-13, General requirements for rolled or welded structural quality steel / Structural quality steel, Mississauga, 2018.
- A24. CSA Group, CSA W59 - Welded steel construction (metal arc welding), Mississauga, 2013.
- A25. ASME, Boiler and Pressure Vessel Code (BPVC) Section II-Materials-Part A-Ferrous Materials Specifications, New York, 2023.
- A26. ASME BPVC, Section III, Division 1, Rules for the Construction of Nuclear Facility Components, New York, 2023.
- A27. ASME BPVC, Section III, Division 3, Containments for Transportation and Storage of Spent Nuclear Fuel and High-level Radioactive Material and Waste, 2023.
- A28. ASME BPVC, Section V, Nondestructive Examination, 2023.
- A29. ASME BPVC, Section IX, Welding, and Brazing Fusing Qualifications, New York, 2023.
- A30. Canadian General Standards Board, CAN/CGSB-48.9712-2014 / (ISO 9712:2012, IDT), *Non-destructive testing – Qualification and certification of NDT Personnel*, 2014.
- A31. 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.
- A32. 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.
- A33. CSA Group, CSA N288.8, Establishing and implementing action levels for releases to the environment from nuclear facilities, Mississauga, 2017.
- A34. CSA Group, CSA N288.4:19, Environmental monitoring programs at nuclear facilities and uranium mines and mills, Mississauga, 2019.
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- A37. CSA Group, CSA N288.6-12, Environmental risk assessments at class I nuclear facilities and uranium mines and mills, Mississauga, 2012.
- A38. Health Canada, Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment, Ottawa, 2019.
- A39. CSA N292.8:21, Characterization of radioactive waste and irradiated fuel, Mississauga, 2021.
- A40. CSA Group, CSA N294:19, Decommissioning of facilities containing nuclear substances, Mississauga, 2019.
- A41. CNSC, REGDOC-2.13.2, Import and Export, Ottawa, 2018.
- A42. IAEA, IAEA Nuclear Security Series No.17: Computer Security at Nuclear Facilities, 2011.
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- A46. CNSC, REGDOC-2.12.3, Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material, Ottawa, 2020.
- A47. CNSC, REGDOC-2.2.4, Fitness for Duty, Managing Worker Fatigue, Ottawa, 2017.
- A48. CNSC, REGDOC-2.2.4, Fitness for Duty, Volume II: Managing Alcohol and Drug Use, Ottawa, 2021.
- A49. CNSC, REGDOC-2.2.4, Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness, Ottawa, 2018.
- A50. IAEA, IAEA Nuclear Security Series (NSS) No.23-G, Security of Nuclear Information, Vienna, 2015.

- A51. IAEA, IAEA NSS No. 7, Nuclear Security Culture, Vienna, 2008.
- A52. IAEA, IAEA NSS No. 8-G, Preventative and Protective Measures against Insider Threats, Vienna, 2020.
- A53. IAEA, IAEA NSS No. 26-G, Security of Nuclear Material in Transport, Vienna, 2015.
- A54. IAEA. IAEA NSS No. SSG-14, *Geological Disposal Facilities for Radioactive Waste*, Vienna, 2011.

## CNSC Regulatory Document Series

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                      |
|        | 1.3 | Uranium mines and mills                  |
|        | 1.4 | Class II facilities                      |
|        | 1.5 | Certification of prescribed equipment    |
|        | 1.6 | Nuclear substances and radiation devices |

### Safety and control areas

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|--------|------|--|
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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         |
|        | 2.14 | Packaging and transport                  |

### Other regulatory areas

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