CSA N292.7:22

Deep geological disposal of radioactive waste and irradiated fuel

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This edition of CSA N292.7 is dedicated to the memory of Michael Stephens.

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Preface

This is the first edition of CSA N292.7, *Deep geological disposal of radioactive waste and irradiated fuel*. This Standard is part of the CSA N292 series of Standards on radioactive waste management.

This Standard works in concert with CSA N292.0, *General principles for the management of radioactive waste and irradiated fuel*, which specifies common requirements for the management of radioactive waste and irradiated fuel.

The CSA N-series Standards provide an interlinked set of requirements for the management of nuclear facilities and activities. CSA N286 provides overall direction to management to develop and implement sound management practices and controls, while the other CSA Group nuclear Standards provide technical requirements and guidance that support the management system. This Standard works in harmony with CSA N286 and does not duplicate the generic requirements of CSA N286; however, it might provide more specific direction for those requirements.

This Standard draws on the experience both in Canada and internationally in developing deep geological disposal facilities and reflects current best practices.

Users of this Standard are reminded that the design, manufacture, construction, commissioning, operation, and decommissioning of nuclear facilities in Canada are subject to the provisions of the *Nuclear Safety and Control Act* and its supporting Regulations.

This Standard was prepared by the Subcommittee on Disposal of Radioactive Waste and Irradiated Fuel, under the jurisdiction of the Technical Committee on Radioactive Waste Management and the Strategic Steering Committee on Nuclear Standards, and has been formally approved by the Technical Committee.

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include "Request for interpretation" in the subject line:*
   a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
   b) *provide an explanation of circumstances surrounding the actual field condition; and*
   c) *where possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.*

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   a) *Standard designation (number);*
   b) *relevant clause, table, and/or figure number;*
   c) *wording of the proposed change; and*
   d) *rationale for the change.*

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Deep geological disposal of radioactive waste and irradiated fuel

1 Scope

1.1 Lifecycle activities

This Standard specifies the requirements for the following activities that occur during the lifecycle of a deep geological disposal facility for radioactive waste and irradiated fuel:

a) Indigenous and public engagement (see Clause 5);
b) site evaluation (see Clause 6);
c) design (see Clause 7);
d) monitoring and surveillance (see Clause 8);
e) safety assessment (see Clause 9);
f) site preparation (see Clause 10);
g) construction (see Clause 11);
h) commissioning (see Clause 12);
i) operation (see Clause 13);
j) closure (see Clause 14); and
k) institutional controls (see Clause 15).

Notes:

1) *Within this Standard, a deep geological disposal facility is also referred to as a "disposal facility".*
2) *Within this Standard, both the terms "waste" and "radioactive waste" are used to refer to "radioactive waste and irradiated fuel".*
3) *Surface facilities or structures that interface with the underground portion of a disposal facility and fulfil an underground function are included in the scope of this Standard (e.g., a shaft headframe).*

1.2 Informative annexes

This Standard includes informative annexes to clarify

a) the stages associated with licensing of a deep geological disposal facility in Canada, and the lifecycle activities that are typically performed during each stage (see Annex A); and
b) the complementary content about the impact assessment (IA) process (see Annex B).

Notes:

1) *The term "stages" could also be referred to as "phases".*
2) *Each licensing stage represents the dominant activity occurring at a point in time. For example, during the operation stage, the dominant activity is operation, but this stage could also include construction, commissioning, and closure activities.*

1.3 Exclusions

This Standard excludes

a) requirements for the siting of a deep geological disposal facility, apart from siting-related aspects during the lifecycle activities of Indigenous and public engagement, site evaluation, design, and safety assessment;
b) disposal facility types other than deep geological disposal facilities, such as near surface disposal facilities and deep boreholes; and

