N285.7-15
(reaffirmed 2020)

Periodic inspection of CANDU nuclear power plant balance of plant systems and components

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Preface

This is the first edition of CSA N285.7, *Periodic inspection of CANDU nuclear power plant balance of plant systems and components*.

This Standard is one of a series of Standards intended to provide uniform requirements for CANDU® nuclear power plants.

Note: *CANDU (CANada Deuterium Uranium) is a registered trademark of Atomic Energy of Canada Limited (AECL).*

This Standard provides requirements for the periodic inspection of balance of plant systems and components.

The CSA N-Series of Standards provides 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 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 may provide more specific direction for those requirements.

Users of this Standard are reminded that the operation of nuclear facilities in Canada is subject to the requirements of the *Nuclear Safety and Control Act* and Regulations. The Canadian Nuclear Safety Commission may impose additional requirements to those specified in this Standard.

Portions of this Standard have been developed using the Risk-Informed In-service Inspection (RI-ISI) methodologies and definitions from ASME *BPVC* Section XI with 2011 Addenda, Code Case N-578-1, ASME RA-Sa-2009 and EPRI RI-ISI TR-112657 Rev B-A. Excerpts reprinted with permission from The American Society of Mechanical Engineers, Electric Power Research Institute, Inc., and International Atomic Energy Agency.

This Standard was prepared by the Technical Committee on Periodic Inspection of CANDU Nuclear Power Plants, under the jurisdiction of 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:*
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   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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   d) *rationale for the change.*

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N285.7-15
Periodic inspection of CANDU nuclear power plant balance of plant systems and components

1 Scope

1.1

This Standard defines requirements for the periodic inspection of balance of plant pressure retaining systems, components, and supports that form part of a CANDU nuclear power plant using a risk informed in-service inspection (RI-ISI) methodology. Periodic inspection (see Annex A for additional guidance) is considered to include the fluid boundary portions of balance of plant systems, components and piping, including their supports that comprise a complete nuclear power plant, excluding the following systems or portions thereof:

a) Systems, and systems connected thereto, containing the fluid that, under normal conditions, directly transports heat from nuclear fuel, and other systems whose failure can result in a significant release of radioactive substances.

   Note: *These systems or portions of systems are subject to inspection in accordance with Clause 3.3.1(a) in CSA N285.4.*

b) Systems essential for the safe shutdown of the reactor and/or the safe cooling of the nuclear fuel in the event of a process system failure.

   Note: *These systems or portions of systems are subject to inspection in accordance with Clause 3.3.1(b) in CSA N285.4.*

Compressors, turbines, generators, engines, and hydraulic or pneumatic cylinders are exempt from the inspection requirements of this Standard. This includes piping internal to equipment or mounted upon equipment that carries fluid from one chamber to another on the same foundation.

Note: *To arrive at a periodic inspection program, the user should consider the inspections, examinations, and tests performed by other programs such as pipe wall thinning, vessel inspections, equipment reliability, and maintenance programs in addition to RI-ISI. Inspections performed as part of supporting programs are not expected to be repeated in this periodic inspection program, but should be credited to this periodic inspection program to provide assurance that the program satisfies the intended purpose as described in Annex A.*

1.2

This Standard addresses the following requirements

a) failure aspects;
b) classification of areas subject to inspection;
c) provision for access;
d) inspection techniques and procedures;
e) personnel qualifications;
f) frequency of inspection;
g) responsibilities;
h) documentation;
i) records;

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