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N285.0.1-18

Commentary on CSA N285.0-17, General requirements for pressure-retaining systems and components in CANDU nuclear power plants



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In addition to the members listed above, the Task Force would like to recognize B. Chan, S. Milidrag, and N. Simpson for their contributions to the development of this Commentary.

Preface

This is the second edition of CSA N285.0.1, *Commentary on CSA N285.0-17*, General requirements for pressure-retaining systems and components in CANDU nuclear power plants. It supersedes the previous edition published in 2016.

This Commentary is based on the document titled *Explanation of requirements in the CSA N285 series for CANDU nuclear power plants*, which was written by Geoff Legg (AECL) and published in 1998 for members of the N285A Technical Committee only. The discussion provided in this Commentary is directed towards the requirements in CSA N285.0-17 and does not address the amendments released since 2017. This Commentary also does not address CSA N285.6, *Material standards for reactor components for CANDU nuclear power plants*, which was released in conjunction with CSA N285.0. This Commentary does not provide formal interpretations of CSA N285.0 and should be viewed only as an informative annotation of portions of CSA N285.0. It has been written in informative (non-mandatory) language and is not intended to be adopted by users of CSA N285.0 or regulatory authorities as additional requirements. Significant changes between editions of CSA N285.0 are outlined, along with rationale for the changes, where needed.

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This Commentary responds to questions and comments raised by those who have participated in developing and implementing CSA N285.0. It provides a context and explanation for the structure and content of CSA N285.0, and outlines the governing principles and requirements. The Commentary does not cover the entire content of every clause of CSA N285.0.

The intent is to update this Commentary after the publication of each new edition of CSA N285.0 so as to incorporate information associated with amendments to published editions and new editions, and to expand the Commentary as additional needs are identified.

This Commentary was prepared by the Task Force H — Commentary on CSA N285.0, under the jurisdiction of the Technical Committee on CANDU Nuclear Power Plant Pressure-Retaining Systems and Components and the Nuclear 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 Commentary is stated in its scope, it is important to note that it remains the responsibility of the users of the Commentary to judge its suitability for their particular purpose.*
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N285.0.1-18

Commentary on CSA N285.0-17, General requirements for pressure-retaining systems and components in CANDU nuclear power plants

1 Scope

1.1 General

The purpose of this Commentary is to provide background information for specific clauses and requirements in CSA N285.0. This background information can help the user to clarify the context of the CSA N285.0 requirements. Also, this Commentary refers to sources of material that were used during the formulation of some of the requirements in CSA N285.0. With the exception of the Annexes, the main clause headings and the main clause numbers used in this Commentary correspond to those in CSA N285.0-17. The numbering for subclauses in the Commentary does not necessarily correspond to those in CSA N285.0-17.

This Commentary focuses on CSA N285.0 and is organized as follows:

- a) the original intent of CSA N285.0, including
 - i) historical background — how the nuclear industry developed in Canada; and
 - ii) the differences between ASME *Boiler and Pressure Vessel Code (BPVC)*, Section III, Division 1, and CSA N285.0, CANDU-specific requirements;
- b) the aim of CSA N285.0, including the provision of
 - i) rules for the design of the CANDU reactors consistent with regulatory requirements;
 - ii) requirements not covered by ASME *BPVC*, Section III, Division 1;
 - iii) classification requirements;
 - iv) registration requirements, including those for welding procedures; and
 - v) requirements for repairs, replacements, and modifications;
- c) the rationale for many of the requirements, which are derived from
 - i) industry practice or experience;
 - ii) engineering or safety analysis;
 - iii) research or test programs; and
 - iv) good engineering judgment; and
- d) the development of CSA N285.0 through significant changes in various editions.

This Commentary addresses requirements relating to the design and construction of pressure-retaining systems and components. Standards that relate to periodic inspection of pressure-retaining components are not addressed. Also, the requirements of other interfacing Standards and ASME *BPVC*, Section III, Division 1 are not addressed in this Commentary. The discussion provided in this Commentary is directed towards the requirements in CSA N285.0-17 and does not address the amendments released since 2017. Generally, the text is presented in the same sequence used in CSA N285.0, tracing the activities during the design, fabrication, and installation of an item.