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CSA N290.19:18

Risk-informed decision making for nuclear power plants

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Preface

This is the first edition of CSA N290.19, *Risk-informed decision making for nuclear power plants*.

This Standard provides requirements and guidance regarding the risk-informed decision making (RIDM) process employed for nuclear power plants (NPPs). It reflects Canadian regulatory requirements, operating experience of the Canadian nuclear industry, and international good practices, including those of the International Atomic Energy Agency.

Users of this Standard are reminded that the site selection, design, manufacture, construction, installation, commissioning, operation, and decommissioning of nuclear facilities in Canada are subject to the *Nuclear Safety and Control Act* and its *Regulations*. The Canadian Nuclear Safety Commission might impose additional requirements to those specified in this Standard.

The CSA “N” Standards provide an interlinked set of requirements for the management of nuclear facilities and activities. CSA N286 Standard 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 was prepared by the Subcommittee on Risk-Informed Decision Making for Nuclear Power Plants, under the jurisdiction of the Technical Committee on Reactor Safety and Risk 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.*
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 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

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Risk-informed decision making for nuclear power plants

0 Introduction

0.1 General

Risk-informed decision making (RIDM) is a process that provides a formalized, rational, and systematic methodology for identifying, assessing, and communicating the various factors that support making a risk-informed decision. It helps ensure consistency from one decision to the next, helps ensure that important considerations are not overlooked, and provides a framework for the comprehensive documentation of the basis on which decisions are made.

0.2 Overview

The objective of this Standard is to provide a systematic approach to assist in decision making at nuclear power plants (NPPs) using a RIDM process.

This Standard describes the application of RIDM, the bases for risk-informed decisions, the key steps in the RIDM process, and management of the RIDM process.

This Standard is intended specifically to address matters of concern that have potential safety implications as well as those that have an adverse impact on operations of NPPs.

0.3 Users

This Standard is primarily intended for use by designers, operators, regulators, and individuals or organizations providing support to regulators and utilities.

0.4 Benefits of using RIDM

0.4.1

An RIDM process supports a consistent, transparent, and balanced approach to safety. Its benefits include

- a) improved safety by providing enhanced awareness of factors influencing safety and taking each of these factors into account in a decision and in implementation;
- b) optimized maintenance activities by evaluating risk, including reducing radiological exposure;
- c) improved efficiency through increased installation performance, operational flexibility, and cost effectiveness of operations; and
- d) support for the development and improvement of accident management measures and procedures aimed at ensuring that the risk of accidents with undesirable consequences is extremely low.

0.4.2

The RIDM approach is particularly valuable where

- a) the decision has the potential to involve significant costs or adverse safety impacts;
- b) the ramifications of alternatives are complex or difficult to understand;