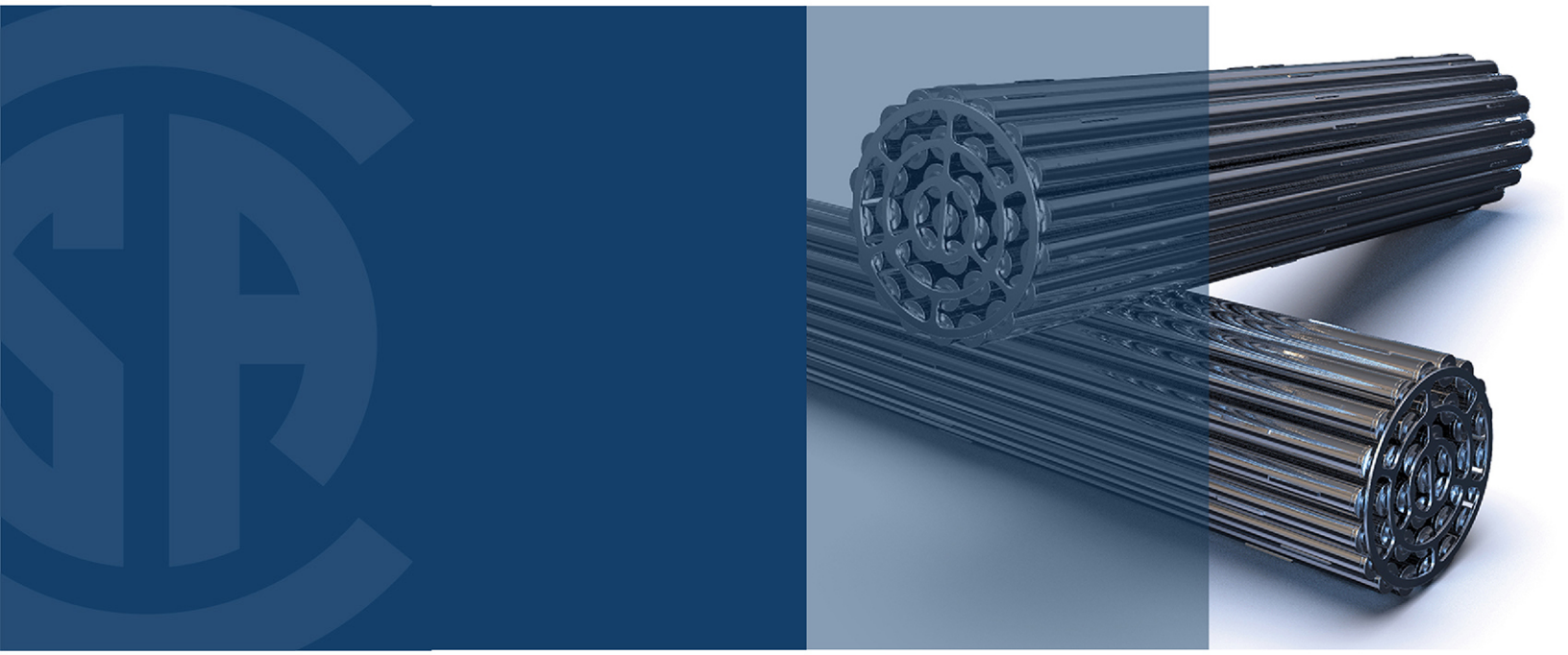
CSA N288.6:22

Environmental risk assessments at nuclear facilities and uranium mines and mills



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R. Parker	EcoMetrix Incorporated, Mississauga, Ontario, Canada	
J. Peng	Kinectrics, Toronto, Ontario, Canada	
K. Potter	Calian Nuclear, Ottawa, Ontario, Canada	
P. Simpson	Orano Canada Inc., Saskatoon, Saskatchewan, Canada	
J. Lee	CSA Group, Toronto, Ontario, Canada	*Project Manager*

Preface

This is the second edition of CSA N288.6, *Environmental risk assessments at nuclear facilities and uranium mines and mills*. It supersedes the previous edition published in 2012.

It is part of the CSA N288 series of Standards and guidelines on environmental management of nuclear facilities.

The major changes in this edition include the following:
a) alignment with the CSA N288 series of Standards; and
b) improved guidance and clarity.

The CSA N series of Standards provides an interlinked set of requirements for the management of nuclear facilities and activities. CSA N286-12, *Management system requirements for nuclear power plants*, provides overall direction to management to develop and implement sound management practices and controls, while the other CSA nuclear Standards provide specific technical requirements and guidance that support the management system. This Standard, which addresses the design, implementation, and management of an environmental risk assessment program that incorporates best practices used in Canada and internationally, 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.

Users of this Standard are reminded that additional and site-specific requirements might be specified by federal, provincial/territorial, or municipal authorities. This Standard should not be considered a replacement for the requirements contained in any
a) applicable federal or provincial/territorial statute, including the *Nuclear Safety and Control Act*; or
b) regulation, licence, or permit issued pursuant to an applicable statute.

This Standard was prepared by the Subcommittee on Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills, under the jurisdiction of the Technical Committee on Environmental Management for Nuclear Facilities and the Nuclear Strategic Steering Committee, 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.*
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   d) *rationale for the change.*

CSA N288.6:22
Environmental risk assessments at nuclear facilities and uranium mines and mills

0 Introduction

0.1 Environmental risk assessment

0.1.1 General

0.1.1.1
Environmental risk assessment (ERA) of nuclear facilities is a systematic process used to identify, quantify, and characterize the risk posed by contaminants and physical stressors in the environment on biological receptors, including the magnitude and extent of the potential effects associated with a facility. Receptors should include humans as well as non-human biota (see Clause 0.3.3). Human receptors are addressed through a human health risk assessment (HHRA) and non-human biota are addressed through an ecological risk assessment (EcoRA).

0.1.1.2
An ERA should
a) identify and prioritize the contaminants and physical stressors of concern;
b) identify and prioritize the sources or points of release of the contaminants and physical stressors of concern;
c) identify and prioritize the potential receptors (human and non-human biota) of concern;
d) include a conceptual model of the environment representing the relationship between sources and receptors;
e) provide an assessment of the exposure to the contaminants and physical stressors of concern (to be used with the benchmark value [BV] to assess the risk);
f) identify the BVs used to assess the potential effects of the contaminants and physical stressors of concern on the receptors;
g) provide an assessment of the environmental risk to receptors posed by the facility; and
h) identify and, if possible, quantify the uncertainties in the assessment of the environmental risk.

0.1.1.3
The ERA approach takes into consideration the fact that many contaminants can be present simultaneously in several media such as food, air, water, soil, dust, or consumer products and that they can reach the receptors through multiple exposure pathways. An ERA can have both predictive and retrospective elements (as defined in Clause 3.1).

0.1.2 Need for an ERA
The need to conduct an ERA arises from one or more of the following factors:
a) a desire for risk-based environmental management;
b) a desire to address stakeholder concerns about environmental protection; or
c) regulatory requirements for characterization of environmental risks.