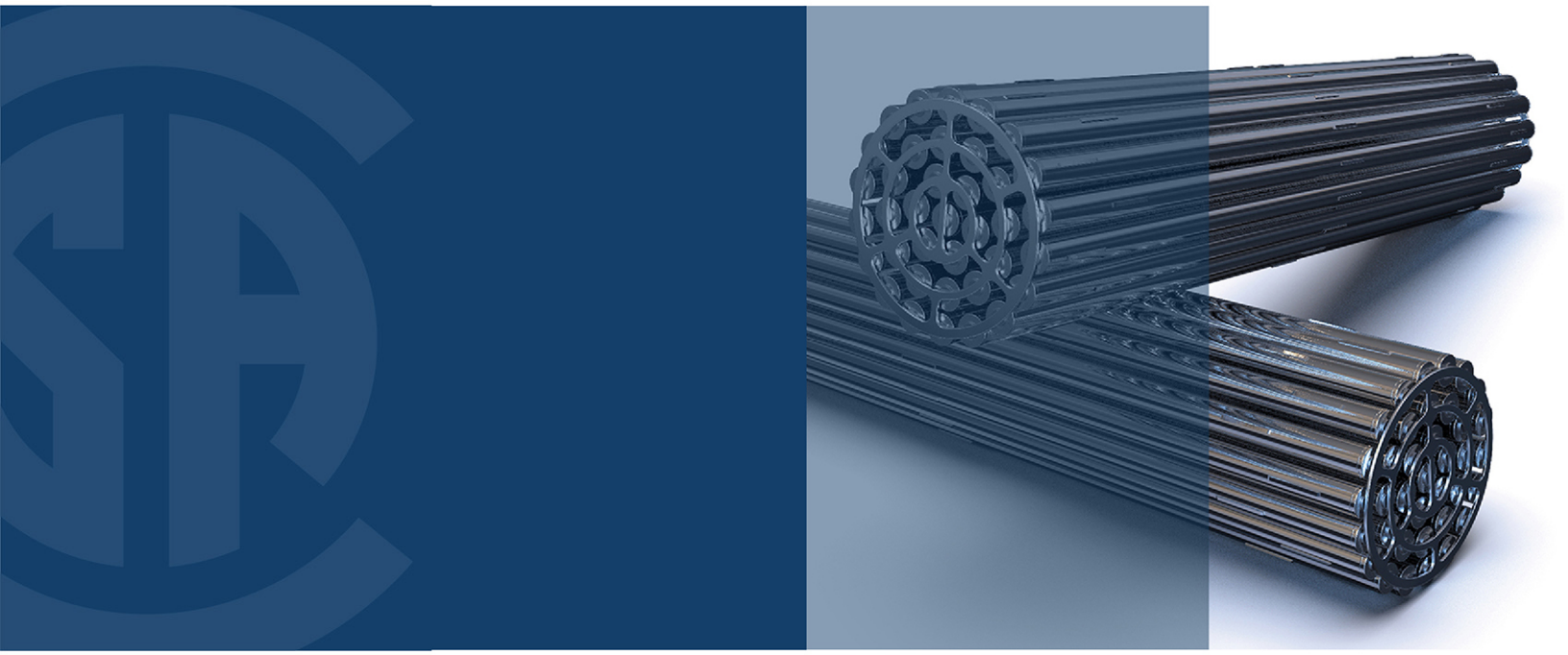
CSA N288.5:22

Effluent and emissions monitoring programs at nuclear facilities



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J. Lee	CSA Group, Toronto, Ontario, Canada	*Project Manager*

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Preface

This is the second edition of CSA N288.5, *Effluent and emissions monitoring programs at nuclear facilities*. It supersedes the previous edition published in 2011, under the title *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills*. It is part of a series of Standards and guidelines on environmental management of nuclear facilities.

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

This Standard addresses the design, implementation, and management of an effluent and emissions monitoring program that meets legal and business requirements and incorporates current best practices and technologies used internationally.

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.

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 Effluent and Emissions Monitoring Programs at 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.*
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.*

   Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization *and are available on the* Current Standards Activities *page at standardsactivities.csa.ca.*
5) *This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line:*
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   b) *relevant clause, table, and/or figure number;*

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c) *wording of the proposed change; and*
d) *rationale for the change.*

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0 Introduction

0.1 Regulatory requirements for nuclear and hazardous substances

0.1.1
Nuclear facilities or licensed activities can release hazardous or nuclear substances to the surrounding environment. These facilities are required by the Authority Having Jurisdiction (AHJ) to monitor and report on the characteristics of airborne emissions and waterborne effluents (e.g., the quantity and concentration of nuclear and hazardous substances that are emitted to the environment). This Standard expands on some of the basic regulatory requirements and provides specific details on developing acceptable effluent and emissions monitoring programs.

0.1.2
Nuclear facilities can be required to comply with the AHJ. Examples of applicable regulations include
a) *Radiation Protection Regulations (*SOR/2000-203);
b) *General Nuclear Safety and Control Regulations* (SOR/2000-202);
c) *Class I Nuclear Facilities Regulations* (SOR/2000-204);
d) *Uranium Mines and Mills Regulations* (SOR/2000-206);
e) *Metal and Diamond Mining Effluent Regulations* (SOR/2002-222); and
f) other applicable requirements (e.g., municipal or provincial/territorial requirements).

0.1.3
Section 4(b) of the *Radiation Protection Regulations* requires operators of a nuclear facility to implement a radiation protection program and to "ascertain the quantity and concentration of any nuclear substance released as a result of the licensed activity (i) by direct measurement as a result of monitoring, or (ii) if the time and resources required for direct measurement as a result of monitoring outweigh the usefulness of ascertaining the quantity and concentration using that method, by estimating them" (SOR/2000-203). Section 4(b) of the *Radiation Protection Regulations* applies to all activities that are licensed with the Canadian Nuclear Safety Commission (CNSC).

0.1.4
Operators are required by the *General Nuclear Safety and Control Regulations* to submit with the application for a licence the proposed action levels. Action levels can be used to help monitor and maintain the effectiveness of the radiation protection program and environmental protection program implemented.

Note: *CSA N288.8 provides requirements and guidance on establishing and implementing action levels for releases to the environment.*

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