

**Commentary on N286-12, *Management system requirements for nuclear facilities***



# Legal Notice for Standards

Canadian Standards Association (operating as “CSA Group”) develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

## Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document’s fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party’s intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document’s compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

## Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group’s and/or others’ intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by treaty or by law, CSA Group reserves all intellectual property rights in this document.

## Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

## Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF form.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way, or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



# ***Standards Update Service***

***CSA N286.0.1:14***

***June 2014***

**Title:** *Commentary on N286-12, Management system requirements for nuclear facilities*

To register for e-mail notification about any updates to this publication

- go to [store.csagroup.org](http://store.csagroup.org)
- click on **CSA Update Service**

The **List ID** that you will need to register for updates to this publication is **24231-1**

If you require assistance, please e-mail [techsupport@csagroup.org](mailto:techsupport@csagroup.org) or call 416-747-2233.

Visit CSA Group's policy on privacy at [www.csagroup.org/legal](http://www.csagroup.org/legal) to find out how we protect your personal information.

*CSA N286.0.1:14*  
***Commentary on N286-12,***  
***Management system requirements***  
***for nuclear facilities***



*®A trademark of the Canadian Standards Association, operating as "CSA Group"*

*Published in June 2014 by CSA Group  
A not-for-profit private sector organization  
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3*

*To purchase standards and related publications, visit our Online Store at [store.csagroup.org](http://store.csagroup.org)  
or call toll-free 1-800-463-6727 or 416-747-4044.*

*ISBN 978-1-77139-609-7*

*© 2014 Canadian Standards Association  
All rights reserved. No part of this publication may be reproduced in any form whatsoever  
without the prior permission of the publisher.*

# Contents

Technical Committee on Management Systems	3
Drafting Task Force on Commentary on N286-12, Management System Requirements for Nuclear Facilities	6
Preface	7
<b>0 Introduction</b>	<b>9</b>
0.1 Background	9
0.2 The management system	10
<b>1 Scope</b>	<b>10</b>
<b>3 Definitions</b>	<b>11</b>
<b>4 Generic requirements for the management system</b>	<b>11</b>
4.1 Application	11
4.1.2 Management system principles	11
4.1.3 Graded approach	12
4.2 Safety culture	13
4.8 Work management	14
4.8.1 Work planning	14
4.8.2 Work control	15
4.8.3 Independent verification of work	15
4.9 Problem identification and resolution	16
4.11 Assessment	17
4.11.1 Self-assessment	17
4.11.2 Independent assessment	17
<b>5 Specific requirements for uranium mines and mills</b>	<b>18</b>
5.4 Supply chain	18
5.4.1 General	18
5.4.2 Purchasing requirements	19
5.4.3 Supplier accessibility	19
5.4.4 Provision of the purchasing requirements to suppliers	19
5.4.5 Supplier selection and award	19
5.4.6 Supplier-customer relationship	20
5.4.7 Verification of services	20
5.4.8 Receipt and inspection of items	20
5.4.9 Segregation and disposition of problem items	20
5.4.10 Storage and handling	20
<b>6 Specific requirements for uranium processing and fuel manufacturing facilities</b>	<b>20</b>
6.4 Safety analysis	20
6.5 Supply chain	21
<b>8 Specific requirements for research and isotope processing facilities</b>	<b>21</b>

8.4 Safety analysis 21

8.5 Supply chain 21

**9 Specific requirements for radioactive waste management facilities 22**

9.4 Safety analysis 22

9.5 Supply chain 22

---

Annex A — Developmental references 23

Annex B — Bibliography 26

# Drafting Task Force on Commentary on N286-12, Management System Requirements for Nuclear Facilities

<b>J. Krane</b>	Laird Constructors Port Elgin, Ontario	<i>TF Lead</i>
<b>R. Black</b>	TransCanada, Toronto, Ontario	
<b>F. Dobri</b>	Cameco Corporation Fuel Services, Division Headquarters, Port Hope, Ontario	
<b>P. Jones</b>	TRIUMF, Vancouver, British Columbia	
<b>R. Schewaga</b>	AREVA Resources Canada Inc., Saskatoon, Saskatchewan	
<b>P. Schultz</b>	Canadian Nuclear Safety Commission, Ottawa, Ontario	
<b>M. Khan</b>	CSA Group, Mississauga, Ontario	<i>Project Manager</i>

In addition to the members of the Drafting Task Force, the following individuals made valuable contributions to the development of this Commentary:

<b>J. Lotoski</b>	Whitby, Ontario
<b>K. MacGibbon</b>	Lepreau, New Brunswick

# Preface

This is the second edition of CSA N286.0.1, *Commentary on N286-12, Management system requirements for nuclear facilities*. It supersedes the previous edition titled *Commentary on the Principles for Quality Assurance Programs of CSA N286 Series Standards*, which was published in 1992, reaffirmed in 1998, and withdrawn in 2003. The commentary provided in this document is directed only towards the requirements in CSA N286-12 *Management system requirements for nuclear facilities*. The scope of this edition expands beyond nuclear power plants to include nuclear facilities as defined by CSA N286. This Commentary does not provide formal interpretations of CSA N286 and should be viewed only as an informative annotation of portions of CSA N286.

The purpose of this Commentary is to provide background information concerning certain clauses and requirements in CSA N286. This background information can help the user clarify the context of the CSA N286 requirements. Also, this Commentary refers to research materials that were used during the formulation of some of the requirements in CSA N286. The clause headings and numbers used in this Commentary correspond to those in CSA N286.

The document responds to questions and comments raised by those who have participated in implementing CSA N286. It provides context and explanation on the structure and content of CSA N286, including both the principles and requirements. Not every clause of CSA N286 nor the entire content of every clause is covered in the Commentary. Only areas identified as priority are included in this revision. Priority was determined by the technical committee based on comments raised during the ballot stage of CSA N286 and internal TC discussions.

This Commentary will be updated periodically in order to incorporate information associated with new editions of CSA N286 and to expand the Commentary as additional needs are identified.

This Commentary was prepared by the N286.0.1 Drafting Task Force, under the jurisdiction of the Technical Committee on Management Systems 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 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.
- 3) This Commentary 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 Commentary, please send the following information to [inquiries@csa.ca](mailto:inquiries@csa.ca) 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](http://standardsactivities.csa.ca).

- 5) *This Commentary is subject to review five years after publication, and 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](mailto:inquiries@csagroup.org) and include "Proposal for change" in the subject line:*
- a) *Standard designation (number);*
  - b) *relevant clause, table, and/or figure number;*
  - c) *wording of the proposed change; and*
  - d) *rationale for the change.*

# CSA N286.0.1:14

## Commentary on N286-12, Management system requirements for nuclear facilities

### 0 Introduction

#### 0.1 Background

CSA N286 identifies management system requirements for nuclear facilities including uranium mine and mills, uranium processing and fuel manufacturing facilities, high energy reactor facilities, research and isotope processing facilities, and radioactive waste management facilities. During the development of CSA N286, the authors considered other management system standards for health, safety, environment, security, economics and quality (see Annex A). CSA N286 integrates these requirements and enables users to develop an integrated management system if appropriate for the business.

The integration of management system requirements for health, safety, environment, security, economics and quality may help reduce or eliminate duplication of management system processes for identical or similar requirements. In consideration of CSA N286, Clause 4.3, where risks are considered during business planning, integration provides a more complete picture of the business and requirements, which provides an opportunity for improvement in terms of injury reduction, quality improvement, environmental management, dose reduction, economic viability, etc.

Top management is the highest ranking worker(s) responsible for a nuclear facility and should be explicitly identified by the business. CSA N286 emphasizes that top management is responsible for the implementation and continued improvement of a facility's management system. This responsibility is important because a holistic approach to business management is vital, especially if the goal is to integrate management system requirements.

CSA N286 emphasizes top management's role in the creation and maintenance of the business's management system. By emphasizing the responsibility of top management, CSA N286 supports the holistic approach to business management and also aligns CSA N286 with other international standards on management systems.

Integration is not a requirement of CSA N286. The choice to integrate management system requirements is a decision made by each individual facility based on its business needs. Benefits of integration may include, but are not limited to

- a) reducing duplication and thereby reducing risk of inconsistency;
- b) enhancing safety;
- c) combining and streamlining internal processes;
- d) focusing all management systems on achieving the purpose and objectives (Clause 4.3);
- e) reducing quantity of documentation;
- f) covering all aspects of the business in a single management system review; and
- g) leveraging best practices within the business including worker knowledge and experience.

It is important to note that CSA N286 has been developed to be read as a set of interrelated requirements. Additionally, the principles stated in Clause 4.1.2 of CSA N286 apply to each of the requirements in CSA N286.

## 0.2 The management system

The content of Clause 0.2 is new to CSA N286 and every business - regardless of size or facility type - should consider this information. This Clause describes the purpose of a management system and Figure 1 in the Clause presents a simplified model of a management system, which identifies and groups some key activities, concepts, and behaviours that provide input to or result in actions within a business.

Figure 1 of CSA N286 is meant to encourage a new approach to integration or harmonization of the requirements of management systems for health, safety, environment, security, economics, and quality, wherever practical. This new approach may help businesses understand integration and CSA N286 requirements at a higher level.

Although the success and sustainability of the management system depends on commitment from all levels and functions of the business, it is especially important for top management to be involved.

Top management:

- a) provides a key role in directing and using the business to identify and integrate requirements (where it is decided by top management that this integration makes sense for the business);
- b) commits the business to establish a management system that is understandable to the workers; and
- c) ensures the management system is implemented and is continually improved.

These concepts are emphasized in the model.

The capability requirements that a business defines and implements may vary across facilities and may change over time. These capability requirements are influenced by the purpose, commitment and continual improvement requirements of the business.

Continual improvement of the management system is an important concept that improves organizational performance, which typically has an overall positive impact on business success and sustainability.

In the simplified model of a management system (Figure 1 of CSA N286), "Action" represents the processes necessary to execute the management system; action needs to be reflective of the purpose, commitment, capability and continual improvement of the business. These four processes can be integrated and the level of integration is best determined by the business.

The processes represented in the model have generic requirements (such as business planning, organization, resources, communication, continual improvement, etc.), which are outlined in Clause 4 of CSA N286. When used in conjunction with each other, Clause 0 and Clause 4 of CSA N286 may facilitate a business's use and understanding of the key management system activities, concepts, and behaviours.

## 1 Scope

### 1.4

CSA N286 recognizes that a facility might not have the internal capability or capacity to address all of its facility life cycle activity needs. Where a supplier is needed to fill a gap, the supplier is required to adhere to the CSA N286 requirements, but only in relation to the specific life cycle activities the supplier will be providing. Suppliers might not be required to address all the requirements within CSA N286, rather only those required for the scope of life cycle activities being performed. For example, a