

Request for Information on the Proposed Implementation of REGDOC-2.4.3., *Nuclear Criticality Safety*

1. Preface

This request for information document provides additional context on the proposed regulatory document REGDOC-2.4.3, *Nuclear Criticality Safety* – a revision and reaffirmation of the information originally published in 2010 as RD-327, *Nuclear Criticality Safety* and GD-327, *Guidance for Nuclear Criticality Safety*. The Canadian Nuclear Safety Commission (CNSC) welcomes comments on this request for information document as well as on the proposed regulatory document itself.

Comments could include additional information on the regulatory document's implementation, potential impacts or potential alternative approaches that meet the document's safety objectives. Should stakeholders decide to submit impact estimates, the CNSC encourages them to clearly state assumptions and provide enough detail to allow an independent observer to understand how the estimate was derived.

The CNSC will consider comments received. In fulfilling its mandate as a federal regulator, the CNSC must also consider values and principles that are difficult to quantify with a dollar value. It must also give consideration to fulfilling its responsibility under the *Nuclear Safety and Control Act* (NSCA) to disseminate objective scientific and regulatory information. In all cases, safety is the CNSC's top priority.

All comments received will become part of the public record.

2. Background

Draft REGDOC-2.4.3, *Nuclear Criticality Safety* is part of the CNSC's safety analysis series of regulatory documents, which also covers deterministic and probabilistic safety analysis.

If approved, REGDOC-2.4.3, *Nuclear Criticality Safety* will supersede RD-327, *Nuclear Criticality Safety* and GD-327, *Guidance for Nuclear Criticality Safety*, previously published in 2010. Most of the changes in this regulatory document reflect the reaffirmation and revision of the relevant ANSI/ANS standards.

3. Objectives

As in the original RD-327 and GD-327, the draft REGDOC-2.4.3 sets out requirements for nuclear criticality safety and provides guidance on how those requirements may be met. It provides information for the prevention of criticality accidents in the handling, storage, processing and transportation of fissionable materials and the long-term management of nuclear waste. The document clarifies the minimum physical constraints and limits on fissionable materials in order to ensure nuclear criticality safety during the construction, operation, decommissioning or abandonment of the licensed facility. It applies to operations with fissionable materials outside nuclear reactors, except for the assembly of these materials under controlled conditions (such as in critical experiments).

4. Regulatory approach

There is no change to the CNSC's regulatory approach. Draft REGDOC-2.4.3 is intended to replace and update RD-327, *Nuclear Criticality Safety* and GD-327, *Guidance for Nuclear Criticality Safety*.

Key principles and elements used in developing this document are consistent with national and international standards. Some sections of this document are extracted from the specified American National Standards, with permission of the publisher, the American Nuclear Society. Where necessary, the text has been adapted to make it applicable to Canada's international obligations to the International Atomic Energy Agency (IAEA) and consistent with the CNSC's regulatory requirements.

5. Potential impacts

CNSC staff anticipate little regulatory impact on applicants or licensees. The majority of the revisions reflect the changes made to revised ANSI/ANS standards. One addition (to section 16.4.1, describing a "representative nuclear criticality accident") was made to include information that was previously included in some licensees' licence conditions handbooks.

The glossary has been replaced by a cross-reference to REGDOC-3.6, *Glossary of CNSC Terminology*.

The French title has been abbreviated by recommendation of the French editors, due to standardization of the terminology during the development of REGDOC-3.6, *Glossary of CNSC Terminology*. The original title of *Sûreté en matière de criticité nucléaire* has been changed to *Sûreté-criticité nucléaire*.

Note: For ease in review, all proposed revisions are shown in "track changes" in the draft REGDOC-2.4.3 posted on the CNSC's external website.

6. Implementation

If approved, REGDOC-2.4.3 will become effective upon publication (following public consultation). Where applicable, it is intended to form part of the licensing basis for a nuclear facility or activity. It will replace RD-327, *Nuclear Criticality Safety* and GD-327, *Guidance for Nuclear Criticality Safety*.

All applicants for licence renewal or for a licence for a proposed new activity or facility where nuclear criticality safety is required will be expected to fully address this regulatory document.

7. Feedback requested

Please submit comments or feedback to the CNSC by August 14, 2017, in one of the following ways:

- Email: cnsconsultation.ccsn@canada.ca
- Mail: Canadian Nuclear Safety Commission
P.O. Box 1046, Station B
280 Slater Street
Ottawa ON K1P 5S9

- Fax: 613-995-5086