Use of IAEA Safety Standards in Canada’s Regulatory Framework

Waste Safety Standards Committee (WASSC)
40th meeting
November 2-3, 2015

Pamela Doughty
Senior Project Officer
Canadian Nuclear Safety Commission

nuclearsafety.gc.ca
Outline

• Canadian Nuclear Safety Commission (CNSC)
• CNSC’s Legislative & Regulatory Framework
• Use of IAEA Standards
• Reference Examples
• Summary
Canadian Nuclear Safety Commission

• Established in May 2000, under the *Nuclear Safety and Control Act*

• Replaced the Atomic Energy Control Board of the 1946 *Atomic Energy Control Act*

*69 Years of Nuclear Safety*
Our Mandate

- Regulate the use of nuclear energy and materials to protect health, safety, security and the environment
- Implement Canada's international commitments on the peaceful use of nuclear energy
- Disseminate objective scientific, technical and regulatory information to the public

Independent Nuclear Regulator
The Commission

- Independent, quasi-judicial tribunal and court of record
- Consists of up to seven members appointed under the authority of the *Nuclear Safety and Control Act*
- One member is designated as President of the Commission and Chief Executive Officer of the CNSC
- Supported by scientific, technical and professional staff

*Only the Federal Court can review the Commission’s decision*
Who We Regulate: The CNSC Regulates All Nuclear-Related Facilities and Activities

- Uranium mines and mills
- Uranium fuel fabrication and processing
- Nuclear power plants
- Nuclear substance processing
- Industrial and medical applications
- Nuclear research and education
- Transport
- Import/export control
- Security and safeguards
- Waste management facilities
Legislative Framework in Canada

- Nuclear regulation falls under federal jurisdiction

- CNSC is Canada’s sole nuclear regulator
  - Independent – reports to Parliament through the Minister of Natural Resources
  - *Nuclear Safety and Control Act* (2000) includes safe used nuclear fuel and radioactive waste management

- Government of Canada’s legislative framework
  - *Nuclear Liability Act* (1985, to be replaced in 2016)
Government of Canada

• **The Government of Canada** will ensure that long-term radioactive waste management is carried out in a safe, environmentally sound, comprehensive, cost-effective and integrated manner

• **The Government of Canada** has the responsibility to develop policy, to regulate and to oversee owners to ensure that they comply with legal requirements and meet their funding and operational responsibilities in accordance with approved disposal plans

• **Waste owners** are responsible for the funding, organization and operation of the waste management facilities required for their wastes
CNSC Regulatory Framework and Philosophy

- The *Nuclear Safety and Control Act* is the enabling legislation
- The *Commission* makes regulations through a transparent process
- Regulatory requirements are continuously updated based on a systematic and transparent process
- Extensive consultation is held with all stakeholders
- Regulatory philosophy is risk-informed
CNSC Regulatory Framework

The CNSC's regulatory framework consists of:

• Laws passed by Parliament that govern the regulation of Canada's nuclear industry
• Regulations
• Licences, Certificates, Licence Conditions
• CNSC Regulatory Documents
USE OF IAEA STANDARDS
CNSC Regulatory Framework

Canada relies on IAEA documents in developing its regulatory framework:

• By direct reference in regulation (ie. CNSC *Packaging and Transport of Nuclear Substances Regulations*)
• As core references when developing CNSC Regulatory Documents
• As core references in the development of CSA Group Nuclear standards
• As best practice when revising/updating existing documents
• As additional guidance in Licence Conditions Handbooks that give direction on how to meet existing requirements
CNSC Regulatory Framework

Key benefits to this approach

- Documents reflect current international best practices
- Documents reflect the most recent international OPEX
- IAEA Requirements are already familiar to Canadian Licensees
- Requirements are technology neutral
CNSC Regulatory Framework

• Canada has used IAEA standards for decades
• Canada participates in the development of IAEA Safety Fundamentals, Safety Requirements, Safety Standards, Safety Guides and Safety Reports
• Canada participates in the approval process for IAEA documents i.e. Commission on Safety Standards (CSS), Nuclear Safety Standards Committee (NUSSC), Radiation Safety Standards Committee (RASSC), Transportation Safety Standards Committee (TRANSSC), Waste Safety Standards Committee (WASSC), Nuclear Security Guidance Committee (NSGC)
• Canada benefits from this knowledge in the development of its own regulatory framework
GSR Part-1, *Governmental, Legal and Regulatory Framework for Safety*

Canada is consistent with the purpose of *General Safety Requirements GSR Part 1*

- Canada’s legal and regulatory framework
- Responsibilities and functions of government and the regulatory body
- The global safety regime
- Scope in Canada includes what is in GSR Part 1
- Participation and support for the draft update to address lessons learned from the incident at Fukushima Daiichi
CNSC Regulatory Document: REGDOC-2.4.1

Deterministic Safety Analysis

Document references and is consistent with:

• Safety Standards Series No. GSR Part 4, Safety Assessment for Facilities and Activities General Safety Requirements Part 4, 2009
• Safety Reports Series No. 55, Safety Analysis for Research Reactors, 2008
• Safety Standards Series No. NS-R-4, Safety of Research Reactors, 2005
CNSC Regulatory Document: RD-327 Nuclear Criticality Safety

Document references and is consistent with:

• Safety Standards No. SSG-5, Safety of Conversion Facilities and Uranium Enrichment Facilities, 2010
• Safety Standards No. NS-R-5, Safety of Nuclear Fuel Cycle Facilities Safety Requirements, 2009
• Safety Standards SSG-6, Safety of Uranium Fuel Fabrication Facilities, 2010
• Safety Standards No. GS-R-2, Preparedness and Response for a Nuclear or a Radiological Emergency, Safety Requirements, 2002
CNSC Regulatory Document: REGDOC-2.12.3
Security of Nuclear Substances: Sealed Sources

Document references and is consistent with:

- Safety Guide No. RS-G-1.9, *Categorization of Radioactive Sources*
- IAEA TECDOC-1344, *Categorization of Radioactive Sources*, 2003
CNSC Regulatory Document: REGDOC-2.3.2

Accident Management

Document references and is consistent with:

- IAEA Safety Fundamentals No. SF-1, *Fundamental Safety Principles*
- IAEA Safety Requirements No. SSR-2/2, *Safety of Nuclear Power Plants: Commissioning and Operation*
- IAEA Safety Guide No. NS-G-2.15, *Severe Accident Management Programmes for Nuclear Power Plants*
- IAEA INSAG-10, *Defence in Depth in Nuclear Safety*
- IAEA INSAG-12, 75-INSAG-3 Rev. 1, *Basic Safety Principles for Nuclear Power Plants*
- IAEA TECDOC-1440, *Overview of Training Methodology for Accident Management at Nuclear Power Plants*
- IAEA Safety Services No. 9, IAEA-SVS-09, *Guidelines for the Review of Accident Management Programmes in Nuclear Power Plants*
CSA Group Standards: N286-12, Management system requirements for nuclear facilities, 2012

Document references:

- Safety Series No 75-INSAG-4, *Safety Culture*, 1999
- TECDOC-1101, *A Framework for Quality Assurance Program for PSA*
- TECDOC-1491, *Management of Continual Improvement for Facilities and Activities: A Structured Approach*
 CSA Group Standards: N292.0-14, General principles for the management of radioactive waste and irradiated fuel, 2014

Document references:

• INFCIRC/164 Agreement Between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons
• INFCIRC/225/Revision 5 Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (IAEA Nuclear Security Series No. 13)
• Safety Requirements No. TS-R-1 [1996 (Withdrawn) or 2012 Edition]
• Safety Glossary (2007) Terminology Used in Nuclear Safety and Radiation Protection
• Safety Guide No. SSG-15 (2012), Storage of Spent Nuclear Fuel
• Safety Standard Series No. GS-R-2 (2002), Preparedness and Response for a Nuclear or Radiological Emergency: Safety Requirements
• IAEA-TECDOC-1325 (2002), Management of Low- and intermediate-level Radioactive Waste with regard to their Chemical Toxicity
CSA Group Standards: N292.2-13, *Interim dry storage of irradiated fuel, 2013*

Document references:

- INFCIRC/164 (1972), Agreement between Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons
- INFCIRC/164/Add.1 (2000) Protocol Additional to the Agreement Between Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons
- Safety Standard Series No. GS-R-2 (2002), Preparedness and Response for a Nuclear or Radiological Emergency
CSA Group Standards: N292.3-14, Management of low- and intermediate-level radioactive waste, 2014

Document references:

• IAEA Safety Guide No. GSG-1, Classification of Radioactive Waste, 2009
• TECDOC Series No. 1325, Management of low and intermediate level radioactive wastes with regard to their chemical toxicity, 2002
• TECDOC Series No. 1397, Long term behaviour of low and intermediate level waste packages under repository conditions, 2004
• Technical Reports Series No. 412, Scientific and Technical Basis for the Near Surface Disposal of Low and Intermediate Level Waste, 2002
CSA Group Standards: N294-09, Decommissioning of facilities containing nuclear substances, update 2014

Document references:

• IAEA-TECDOC-1476, Financial Aspects of Decommissioning, 2005


• IAEA Technical Report Series No. 420, Transition from Operation to Decommissioning of Nuclear Installations, 2004
CSA Group Standards: N292.1-16, Wet storage of irradiated fuel and other radioactive materials (Pre-Publication Draft)

Document references:

- Safety Reports Series No. 55, Safety Analysis for Research Reactors, 2008
- Safety Standards Series No GS-R-2, Preparedness and Response for a Nuclear or Radiological Emergency, 2002
- Specific Safety Guide No SSG-8, Radiation Safety of Gamma, Electron, and X Ray Irradiation Facilities, 2010
- Specific Safety Guide No SSG-9, Seismic Hazards in Site Evaluation for Nuclear Installations, 2010
Summary

• Canada relies on IAEA documents
• IAEA documents are incorporated into Canada’s regulatory framework
• Canada participates in the development and approval of IAEA documents
• IAEA documents are key references in CNSC Regulatory Documents, CSA Group Nuclear Standards and in Licence Conditions Handbooks
Thank You

Find out More About Us

- Visit us online
- Like us on Facebook
- Follow us on Twitter
- View us on YouTube
- Subscribe to updates
- Contact us