



# Challenges for Regulators

## *Past, Present and Future*

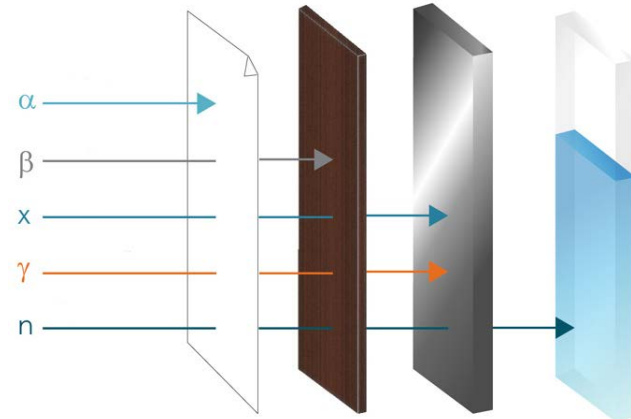


## Dr. Michael Binder

President and Chief Executive Officer  
Canadian Nuclear Safety Commission

*Presentation to the Federal Provincial Territorial  
Radiation Protection Committee*

*October 26, 2017*





# My Background: A Brief Overview



## Ph.D. in theoretical physics

- University of Alberta, 1971

## First 10 years

- Defence Research Board; Ministry of State for Urban Affairs;  
Canada Mortgage and Housing Corporation

## Next 10 years

- Treasury Board Secretariat, Office of the Comptroller General;  
Department of Communications, Assistant Deputy Minister,  
Corporate Management

## Subsequent 17 years

- Department of Communications, Industry Canada

**Many experiences in over 40 years of public service**





# A Career Full of Regulatory Challenges

## Policy

- Spectrum auction; foreign ownership

## Organizational

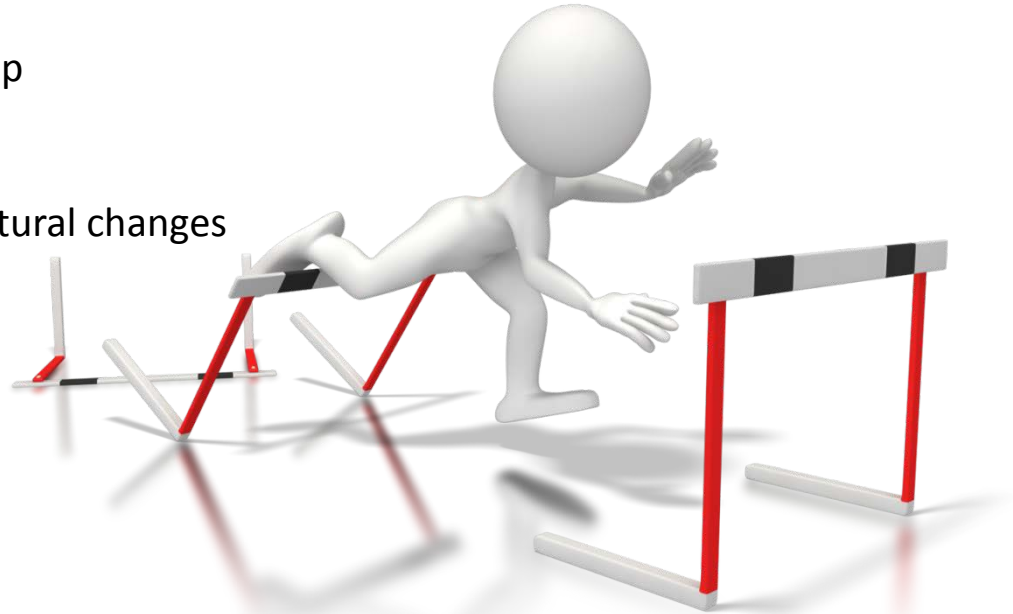
- Intergovernmental squabbles; structural changes

## Technological

- Broadband; wireless

## Credibility

- Info highway



**Never a dull moment in Canada's Public Service**





# I Received an Unexpected Call in Early 2008...



**...and switched focus from non-ionizing to ionizing radiation**





# I Stepped Into My First CNSC Challenge: *The Aftermath of the Isotope Crisis*

- New CEO
- Health directive
- Regulatory credibility
- Licensee relations
- Stability



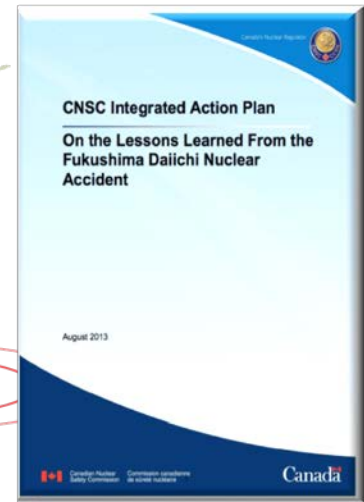
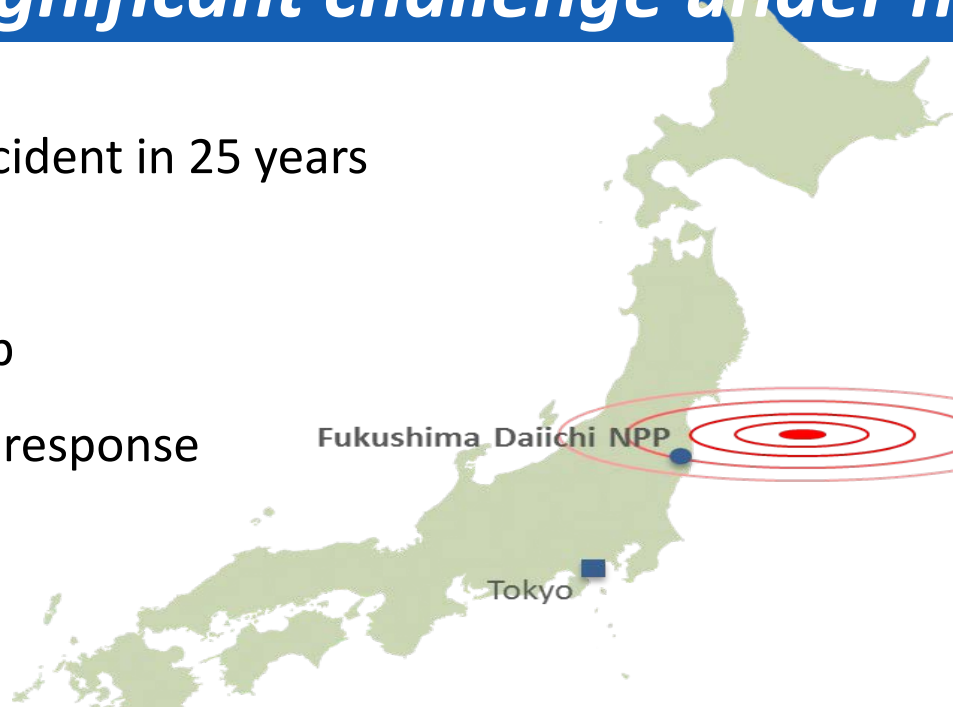
**Many issues to sort through**





# Fukushima: *The first significant challenge under my watch*

- First nuclear accident in 25 years
- Public concerns
- CNSC leadership
- Global industry response



## Unexpected test of planning, response and communications





# Canadian Nuclear Safety Commission

Regulates the use of nuclear energy and materials to protect  
**health, safety, security** and the **environment**



Implements Canada's **international commitments** on the peaceful  
use of nuclear energy



Disseminates **objective** scientific, technical and regulatory  
**information** to the public

***Nuclear Safety and Control Act – modern, clear legislation***







# A Vision In Place...

## Vision

- To be the best nuclear regulator in the world
- Employer of choice

## Core + 4

- Commitments to ongoing improvements
- Clarity of licensing framework
- Capacity for action
- Communications

## Priority Setting and Analysis

- Strategic Planning Framework: Environmental Scan;  
Enterprise Risk Management



**...and the means to achieve it**

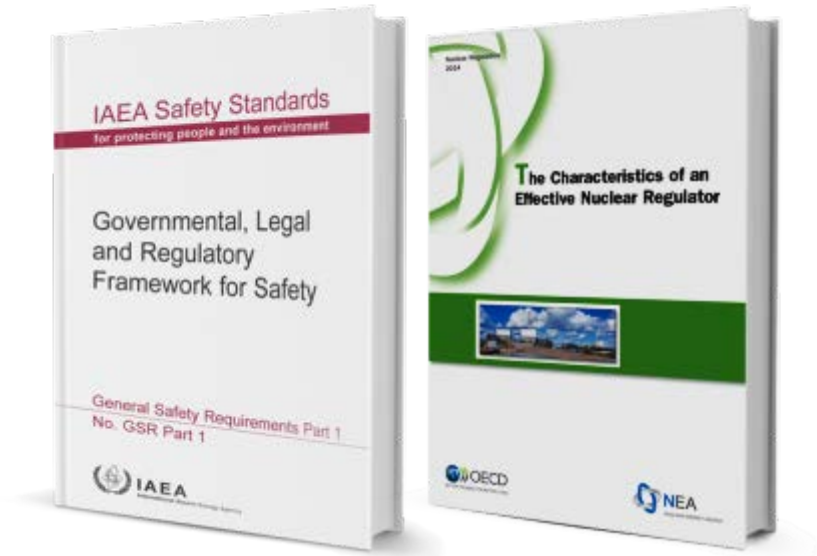






# Consider International Best Practices

- The CNSC applies international best practices
- Aligned with the International Atomic Energy Agency's and the Nuclear Energy Agency's recommendations on further improving regulatory effectiveness and strengthening safety culture



**Always room for customization and improvement**





# Top 10 Attributes of a Best in Class Regulator

1. Clear legislation and regulations
2. Safety focus
3. Independent
4. Openness and transparency
5. Technical competence
6. Modern, flexible regulatory framework
7. Science-based decision making
8. Dissemination of information
9. Well-managed and well-resourced organization
10. Continuous improvement

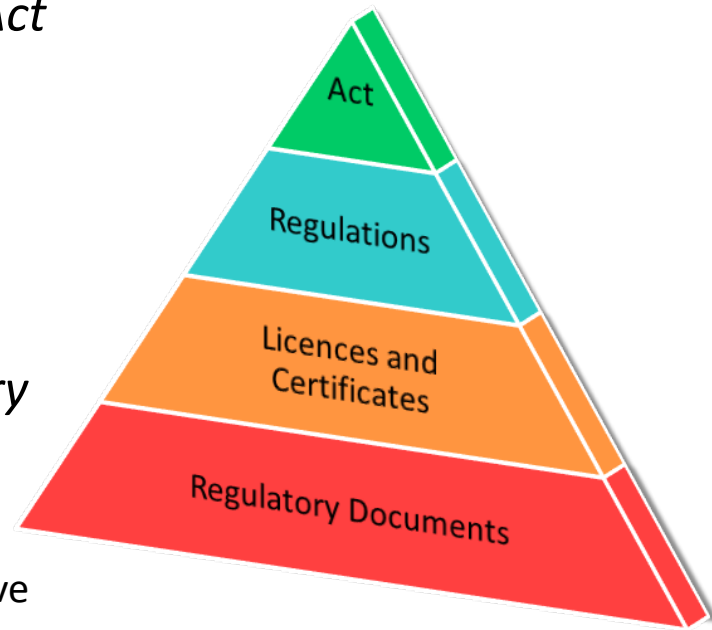




# CNSC Regulatory Framework

[nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-framework/index.cfm](https://nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-framework/index.cfm)

- Governed by the *Nuclear Safety and Control Act*
- Requirements in regulations
- Comprehensive suite of documents
  - cover requirements and guidance, focusing on regulated facilities and activities, safety and control areas, and other regulatory areas
- Adheres to the *Cabinet Directive on Regulatory Management*
- Regulatory Framework Plan
  - ensure that the framework is current and responsive



**Check out what we are working on in Annex A**





# CNSC Regulations

[nuclearsafety.gc.ca/eng/acts-and-regulations/regulations/index.cfm](http://nuclearsafety.gc.ca/eng/acts-and-regulations/regulations/index.cfm)

## Regulations of Facilities and Activities

- *Class I Nuclear Facilities Regulations*
- *Class II Nuclear Facilities and Prescribed Equipment Regulations*
- *Uranium Mines and Mills Regulations*
- *Nuclear Substances and Radiation Devices Regulations*

## Regulations of Conduct of CNSC Business

- *Canadian Nuclear Safety Commission Cost-Recovery Fees Regulations*
- *Canadian Nuclear Safety Commission Rules of Procedure*
- *Canadian Nuclear Safety Commission By-laws*

## Regulations of General Application

- *General Nuclear Safety and Control Regulations*
- *Radiation Protection Regulations*
- *Nuclear Security Regulations*
- *Packaging and Transport of Nuclear Substances Regulations*
- *Nuclear Non-Proliferation Import and Export Control Regulations*
- *Administrative Monetary Penalties Regulations*

**Reviewed on a 5 year cycle**





# CNSC Regulatory Documents

[nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-documents/index.cfm](http://nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-documents/index.cfm)

## 1.0 Regulated facilities and activities

- 1.1 Reactor facilities
- 1.2 Class IB facilities
- 1.3 Uranium mines and mills
- 1.4 Class II facilities
- 1.5 Certification of prescribed equipment
- 1.6 Nuclear substances & radiation devices

## 3.0 Other regulatory areas

- 3.1 Reporting requirements
- 3.2 Public and Aboriginal engagement
- 3.3 Financial guarantees
- 3.4 Commission proceedings
- 3.5 Information dissemination
- 3.6 CNSC Glossary

## 2.0 Safety and control areas

- 2.1 Management system
- 2.2 Human performance management
- 2.3 Operating performance
- 2.4 Safety analysis
- 2.5 Physical design
- 2.6 Fitness for service
- 2.7 Radiation protection
- 2.8 Conventional health and safety
- 2.9 Environmental protection
- 2.10 Emergency management and fire protection
- 2.11 Waste management
- 2.12 Security
- 2.13 Safeguards and non-proliferation
- 2.14 Packaging and transport





# Regulatory Challenges

- Status of radiation protection regulations in provinces and territories
- NORM disposal guidance
- Control of equipment not approved in Canada that is brought into Canada
- Demand for handheld X-ray equipment



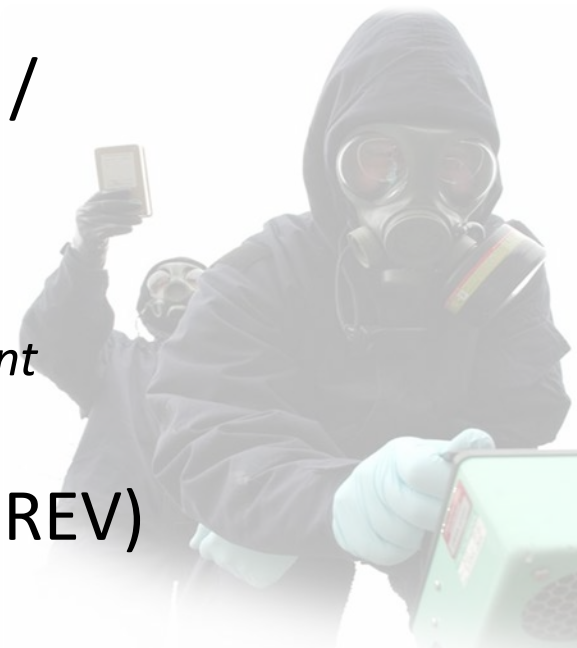
**Clarity is essential for safety**





# Emergency Preparedness and Response

- Importance of federal and provincial / territorial coordination
- Post-accident recovery
  - DIS-17-01, *Framework for Recovery in the Event of a Nuclear or Radiological Emergency*
- Emergency Preparedness Review (EPREV)
  - IAEA peer review mission to Canada



**Ready to respond; hopefully never need to**







# Radiation Safety

- New dose limit for lens of the eye
- REGDOC-2.7.3, *Radiation Protection Guidelines for the Safe Handling of Decedents*
  - out for consultation until November 19, 2017
  - body preparation
  - autopsy
  - cremation



**Inadequate knowledge can result in unnecessary harm**





# Public Education and Communication

- Schools
  - Geigers in Schools
- Communities
- Elected officials
- Influencers



**No progress without knowledge**



# Correcting the Record

## Misinformation

- Fearmongering vs. ignorance
- Amplifying effect of social media
- Social licence

not in my  
back yard!

**A regulator's obligation is to the truth**



# Current Challenges at the CNSC

- Government reviews / initiatives
  - Environmental assessments
  - *Fisheries Act; Navigation Protection Act*
  - Renewing relationship with Indigenous Peoples
- Power plant refurbishments / life extensions continued operation
- Radioactive waste management
- Alcohol and drug testing
- New technologies

**Never a dull moment**





# Concluding Thoughts

- Social media will continue to enhance the ability to communicate and miscommunicate on issues
- Public is counting on us as regulators to help sort fact from fiction
- Need to find ways to properly inform and engage the public

Cutting  
Through  
the Noise

**Communicating about radiation is hard!**





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# Annex A: Regulatory Framework Activities

## Current work on discussion papers

### DIS-16-02, *Radiation Protection and Dosimetry*

- Feedback from discussion paper is informing the development of two new regulatory documents, REGDOC-2.7.1, *Radiation Protection*, and REGDOC-2.7.2, *Dosimetry*

### DIS-16-03, *Radioactive Waste Management and Decommissioning*

- The CNSC will publish a What We Heard Report in the fall that will outline some of the next steps regarding the regulatory framework for waste and decommissioning







# Annex A: Regulatory Framework Activities (2)

## Current work on discussion papers (2)

DIS-16-04, *Small Modular Reactors: Regulatory Strategy, Approaches and Challenges*

- Workshop in November 2017 on the application of the graded approach
- The CNSC is developing a licence application guide

DIS-16-05, *Human Performance*

- The CNSC will publish What We Heard Report in the fall that will outline some of the next steps

DIS-17-01, *Framework for Recovery in the Event of a Nuclear or Radiological Emergency*

- Public comment period is open until December 27, 2017





# Annex A: Regulatory Framework Activities (3)

## Current work on regulations

### Fukushima-related amendments

- Published in the *Canada Gazette*, Part II. on October 4, 2017
- Came into force on the day of publication

### ***Radiation Protection Regulations***

- Proposed amendments reflect current science on radiation protection and align with international standards
- Targetting public consultation in the *Canada Gazette*, Part I, in early 2018





# Annex A: Regulatory Framework Activities (4)

## Current work on regulations (2)

### ***Nuclear Non-proliferation Import Export Control Regulations (NNIECR)***

- Proposed amendments update NNIECR to align with international guidelines
- CNSC staff will provide a briefing to the Commission in late fall 2017
- Targeting public consultation in the *Canada Gazette*, Part I, in spring 2018

### ***Nuclear Security Regulations (NSR)***

- Conducted early consultation with stakeholders to identify opportunities to modernize the NSR based on operational experience and evolving technologies
- Consultation is ongoing
- Targeting public consultation in the *Canada Gazette*, Part I, in 2019





# Annex A: Regulatory Framework Activities (5)

## Regulatory documents coming to the Commission

CNSC staff plan to present the following to the Commission in the coming months

- December 2017
  - REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*
  - REGDOC-3.1.2, *Volume I, Reporting Requirements for Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*
- March 2018
  - REGDOC-1.1.1, *Licence to Prepare Site and Site Evaluation for New Reactor Facilities*
  - REGDOC-2.1.2, *Safety Culture*
  - REGDOC-2.7.3, *Radiation Protection Guidelines for the Safe Handling of Decedents*





# Annex A: Regulatory Framework Activities (6)

## Nuclear standards

CSA Group nuclear standards are an important component of the CNSC regulatory document framework

- Standards available on the CSA Group's website
- Notification of draft standard issued for public review forwarded to CNSC's stakeholders through its distribution email list
- The CNSC and CSA Group meet several times a year to discuss program planning

Others: International Atomic Energy Agency (IAEA), American Society of Mechanical Engineers (ASME), American National Standards Institute (ANSI), etc.

