

Canadian Nuclear Safety Commission / Commission canadienne de sûreté nucléaire

Environmental Risk Assessments for Non-Human Species and Environmental Resources The Canadian Experience

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RIC
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nuclearsafety.gc.ca

Canadian Nuclear Safety Commission



Established May 2000, under the **Nuclear Safety and Control Act (NSCA)**
Replaced the AECB of the 1946 **Atomic Energy Control Act**

Celebrating 65 years of nuclear safety!



Canadian Nuclear Safety Commission

Our Mission Is Clear



Regulates the use of nuclear energy and materials to protect the **health, safety and security** of Canadians and the **environment**; and to **implement Canada's international commitments** on the peaceful use of nuclear energy

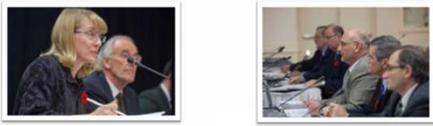
Canada's nuclear watchdog



Canadian Nuclear Safety Commission

Independent Commission

- Quasi-judicial administrative tribunal
- Reports to Parliament through the Minister of Natural Resources Canada
- Commission members are independent
- Commission hearings are public and Webcast
- Decision can only be reviewed by Federal Court



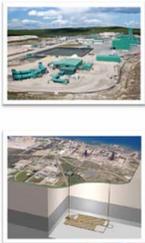
Transparent, Science-based Decision-making

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CNSC Regulates All Nuclear-Related Facilities and Activities

- Uranium mines and mills
- Uranium fuel fabricators and processing
- Nuclear power plants
- Waste management facilities
- Nuclear substance processing
- Industrial and medical applications
- Nuclear research and educational
- Export/import control

...From Cradle to Grave

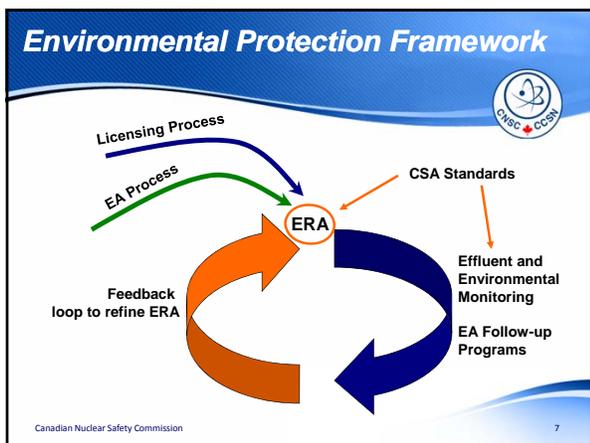


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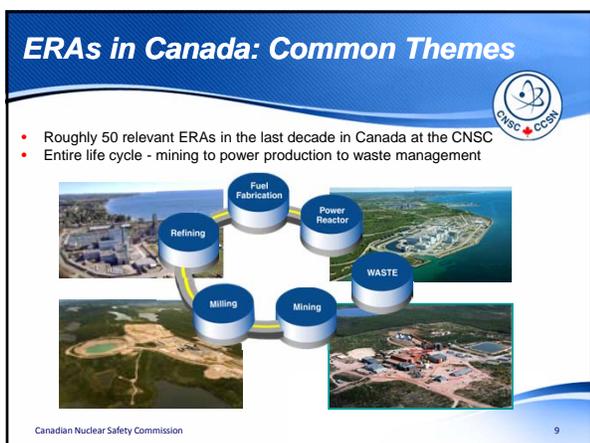
CNSC's Regulatory Framework

- **Nuclear Safety and Control Act (NSCA)**
 - Mandate to protect the environment
- **Regulations**
 - "...take all reasonable precautions to protect the environment ..."
 - "...take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances..."
- **ERA is a fundamental component**
 - NSCA in relation to other legislation

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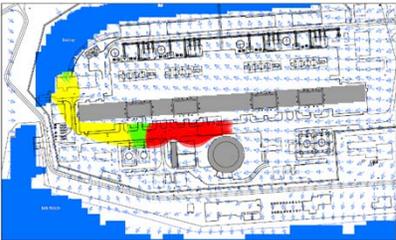


- ### Risk Assessment Methods
- Canadian Environmental Protection Act ecological risk assessment approach for hazardous substances
 - 2003 - Releases of Radionuclides from Nuclear Facilities (Impact on Non-Human Biota)*
 - Original literature review to develop group-specific benchmarks
 - Compilation of Canadian environmental data
 - Simple, conservative dosimetry methods
 - Spreadsheet approach similar to US Department of Energy
 - Basic approach is still valid and still in use, updated for new environmental data and more realistic dosimetry
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Groundwater Protection: Tritium Groundwater as a "Resource"

2001 Tritium Generic Screening Criterion
of 3,000,000 Bq/L (context specific)



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DIS-12-01 [Discussion paper]

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Conclusions

- Simple, conservative biota dose assessment methods are "fit for purpose" for both modern operations and future activities
- All regulated facilities are safe
- No significant environmental effects
- Potential risks are being effectively monitored and managed
- Need for methods to be "harmonisable" with methods for chemical contaminants (mixed effluent)
- Need to develop new paradigms for protection of ecosystems and important resources (groundwater)

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