



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Canada

Regulatory Oversight of Canada's Major Decommissioning Projects

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CANADA 150



Canadian Nuclear Safety Commission (CNSC)

- Regulates the nuclear industry to protect the **health, safety** and **security** of people and to protect the **environment**
- Implements Canada's **international commitments** on the peaceful use of nuclear energy
- Disseminates objective scientific, technical and regulatory **information** to the public

More than 70 years of nuclear safety in Canada





Independent Commission

- Independent Commission members
- Quasi-judicial administrative tribunal
- Reports to Parliament through the Minister of Natural Resources
- Science-based decision making
- Open and transparent public participation in Commission decision-making process



Transparent, science-based decisions



CNSC Regulates All Nuclear-Related Facilities and Activities

- Uranium mines and mills
- Uranium fuel fabrication and processing
- Nuclear power plants
- Waste management facilities
- Nuclear substance processing
- Industrial and medical applications
- Nuclear research and education
- Transport
- Import/export controls

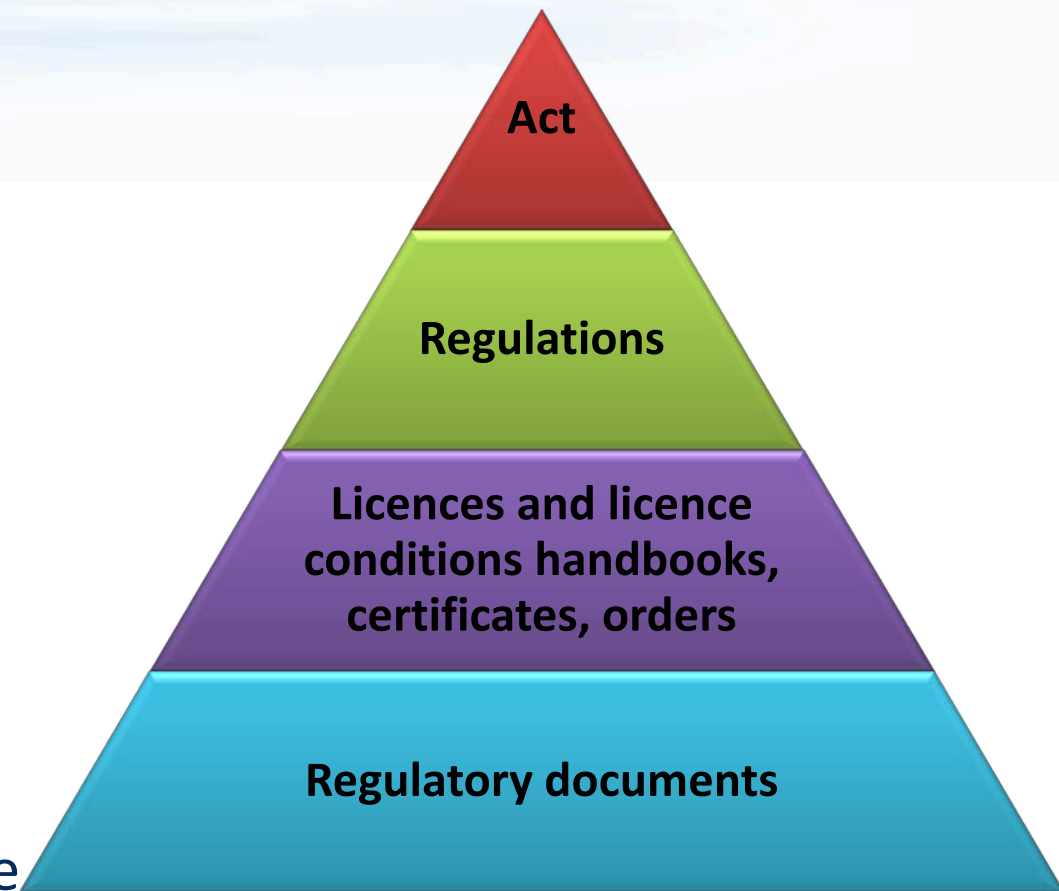
From cradle to grave





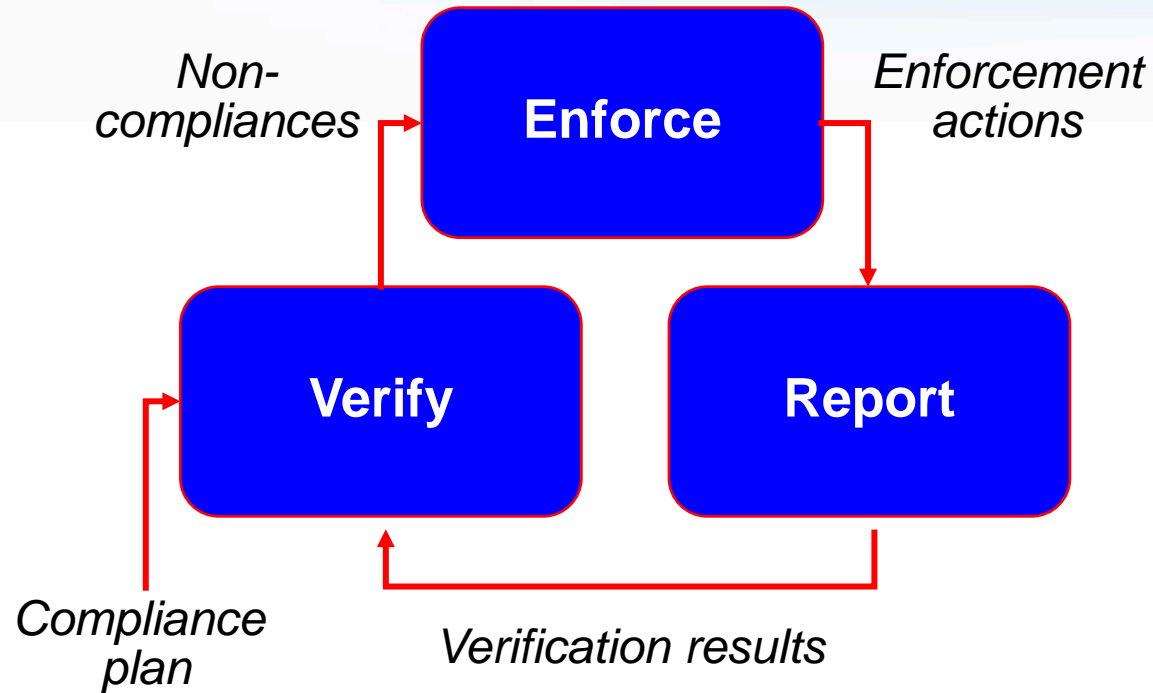
Regulatory Framework

- **Act** – the *Nuclear Safety and Control Act* is the enabling legislation
- **Regulations** – are legally binding requirements
- **Licences, licence conditions handbooks, certificates, orders** – set the mandatory requirements licensees must meet to retain their license
- **Regulatory documents** – provide clarity (in greater detail than regulations) on what the licensees and applicants must achieve to meet the CNSC's regulatory requirements





CNSC Conducts Ongoing Compliance Activities

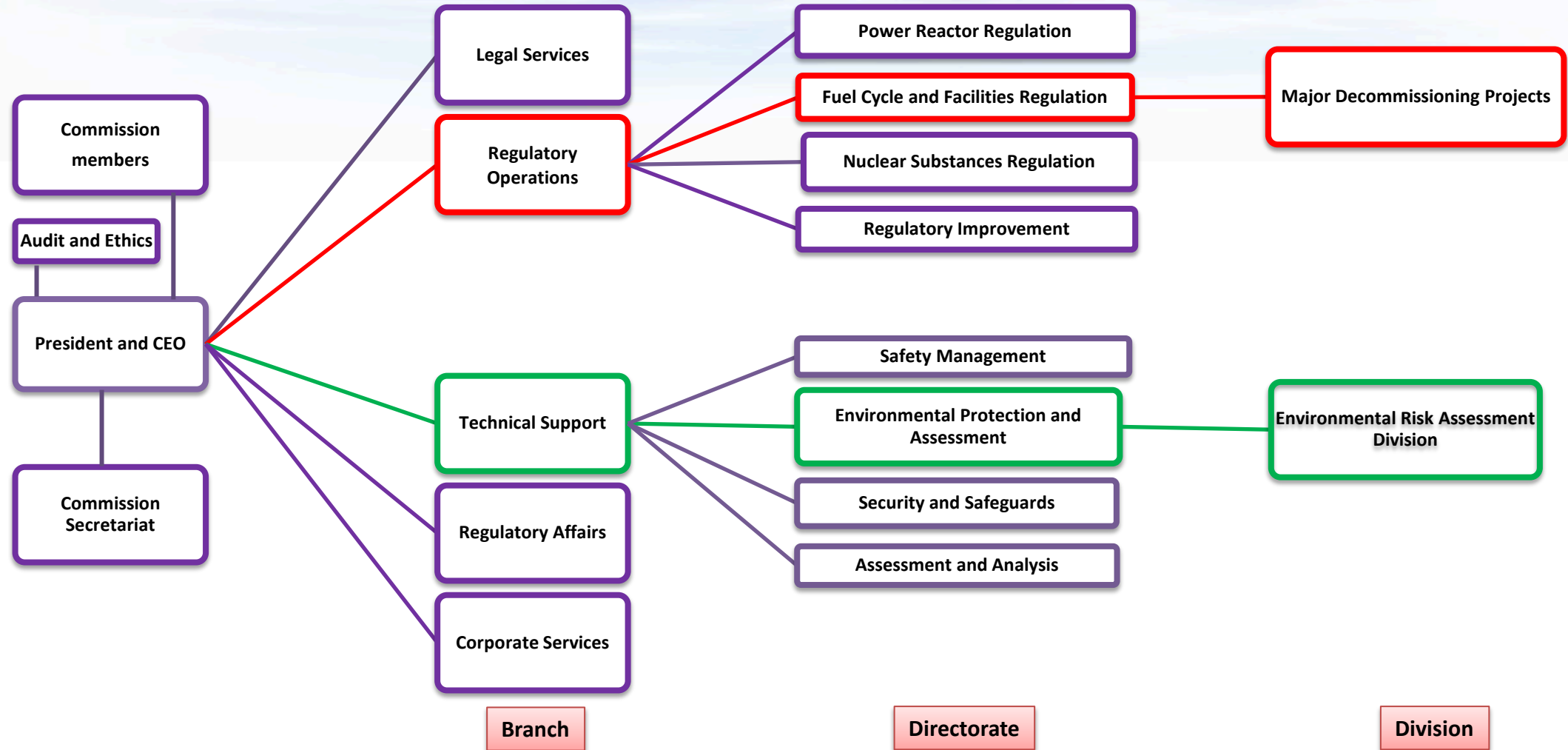


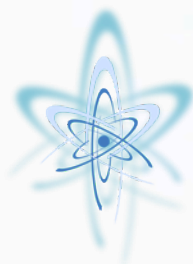
Strong regulatory oversight





Organization (abbreviated)





CNL's Proposed Decommissioning Projects

In 2016, CNSC received regulatory submissions from Canadian Nuclear Laboratories (CNL) for two major decommissioning projects:

1. decommissioning of the Nuclear Power Demonstration (NPD) reactor site (Ontario)
2. decommissioning of the Whiteshell Reactor #1 (WR-1) research reactor at the Whiteshell Laboratories (Manitoba)





Nuclear Power Demonstration (NPD) Closure Project

- The NPD facility was the first Canadian nuclear power reactor and a prototype for the CANDU reactor design
- The facility served as a training centre for nuclear operators and engineers from Canada and around the world
- NPD was a single 20-megawatt electrical (Mwe) pressurized heavy water reactor
- It operated from 1962 until 1987 and has been in a safe shutdown state for the last 30 years (fuel removed and offsite)
- CNL is proposing an *in situ* decommissioning approach, which involves preparing systems and structures for grouting in place



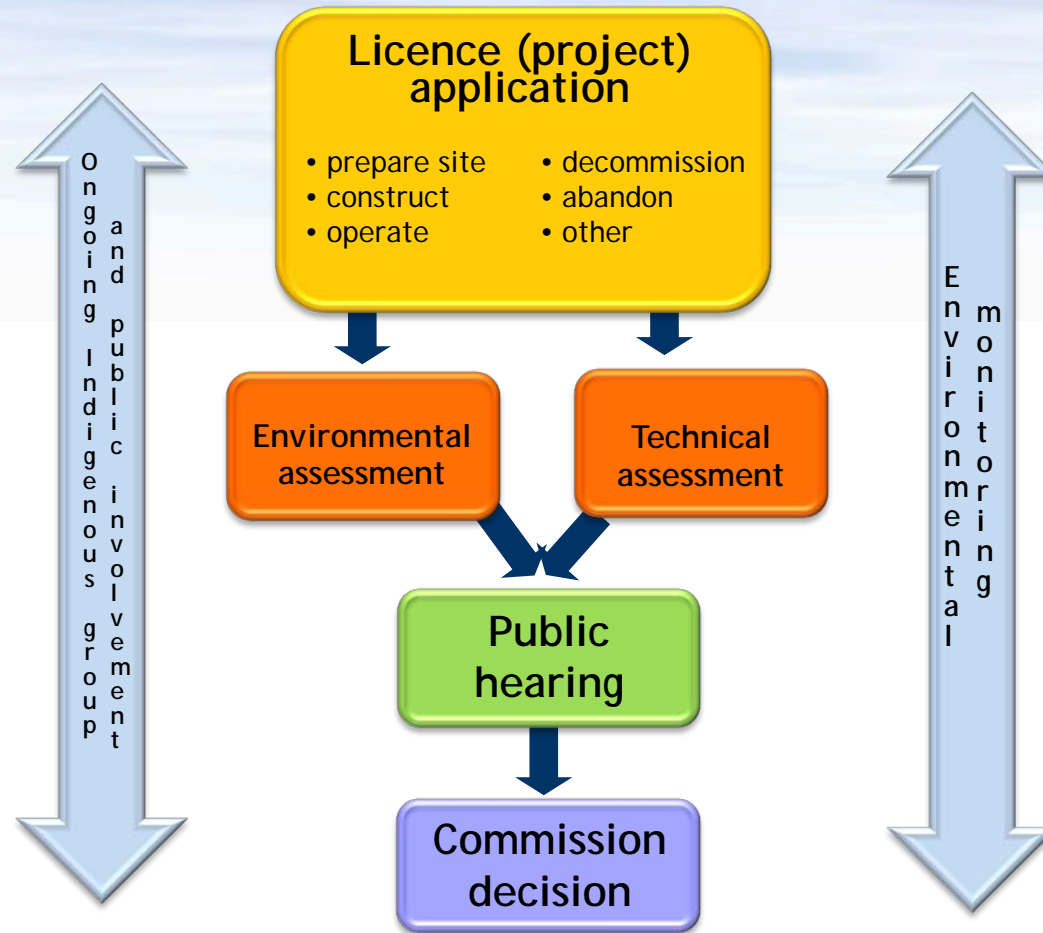
Whiteshell Reactor #1 (WR-1) Decommissioning

- WR-1 is a former nuclear research reactor that played an important role in building Canada's scientific and industrial capacity
- It was a 60-megawatt thermal (MWt) organic-cooled reactor
- WR-1 was shut down in 1985 and safely maintained since then in a state of storage with surveillance (fuel in dry storage on site)
- CNL is proposing an *in situ* decommissioning approach for WR-1, which involves preparing systems and structures for grouting in place





CNSC Licensing Process



Safety must be demonstrated



Sound Regulatory Framework

- Modern legislation and regulations provide robust yet flexible regulatory oversight for nuclear safety
- Regulatory documents provide greater clarity on requirements
- CNSC licensing and compliance processes are clear, pragmatic and comprehensive
- No changes are needed to the Canadian regulatory framework for these major decommissioning projects



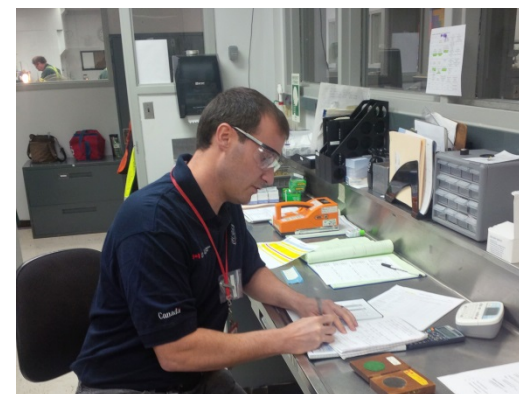
Objective-based regulatory framework



CNSC Regulatory Review (1/4)

- CNSC has initiated its regulatory review for these projects:
 - modern and flexible regulatory framework
 - technical expertise in place to ensure strong capacity for regulatory review
 - open and transparent stakeholder information and engagement program

Safety case is the driver





CNSC Regulatory Review (2/4)

- CNSC's regulatory review includes an emphasis on these aspects of the proposed projects:
 - detailed decommissioning plans
 - waste characterization
 - long-term safety
 - characteristics and evolution of barrier systems
 - dose to workers and the public
 - environmental protection, monitoring, mitigation

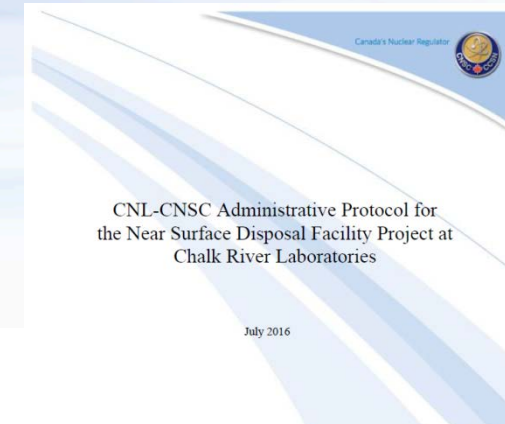


Will only approve if safety has been demonstrated



CNSC Regulatory Review (3/4)

- CNSC program and project management
 - program charter
 - technical assessment reference matrices
- Administrative protocols between CNSC and CNL
 - set out framework, milestones and deadlines for environmental assessment and licensing
 - provide for transparent and predictable timelines
- Coordination with other federal/provincial agencies





CNSC Regulatory Review (4/4)

- Consultation with the public, Aboriginal peoples and non-government organizations (NGOs)
 - CNSC posts information on its website and conducts public outreach activities
 - CNSC has a duty to consult with Aboriginal peoples
 - CNSC sets out requirements and guidance for licensee public information programs and Aboriginal engagement
- Regulatory process that provides for public, Aboriginal and NGO participation in environmental and licensing decisions
- CNSC's Participant Funding Program





Current Status / Next Steps

- CNL has provided regulatory submissions for these decommissioning projects in the form of licensing applications including environmental impact statements
- CNSC staff have begun their regulatory review of these projects; recommendations to the Commission hinge on adequate demonstration of safety
- Commission decisions are required to authorize these projects; public hearings are anticipated in late 2018





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Thank you!



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