



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Environmental Assessment at the CNSC: an Evolving Practice

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Canadian Nuclear Safety Commission

Informal Exchange – CEAA / US EPA / CEQ

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Ottawa, Canada



nuclearsafety.gc.ca

Canadian Nuclear Safety Commission

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

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!***



Independent Commission

- Quasi-judicial administrative tribunal
- Reports to Parliament through 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

Commission Members



Dr. Michael Binder
President and Chief
Executive Officer, CNSC



Dr. Ronald J. Barriault
Practising physician and
member of the Canadian
Medical Association, the
College of Family Physicians
of Canada and the New
Brunswick Medical Society
Charlo, New Brunswick



Dr. J. Moyra J. McDill
Professor, Department of
Mechanical and Aerospace
Engineering, Carleton
University
Ottawa, Ontario



4 Vacancies

***Urgent
Attention
Required!***

Darlington JRP



Mr. Alan R. Graham
(Temporary Member)
Businessman and former
New Brunswick Minister
of Natural Resources and
Energy
Rexton, New Brunswick



Ms. Jocelyne Beudet
(Temporary Member)
Cultural Anthropologist
and environment and
public participation
consultant
Lunenburg, Nova Scotia



Mr. Ken Pereira
(Temporary Member)
Professional Engineer and
former Vice-President,
Operations (CNSC)
Ottawa, Ontario

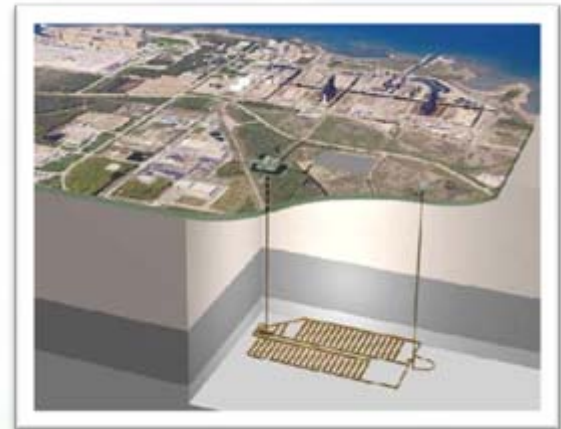
CNSC Staff Located Across Canada

Staff: ~ 850
Licensees: 2050
Licenses: 3300



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

Current and Future Nuclear Power

Darlington

- New build EA on-going: Joint Review Panel Report in Aug. 2011; Awaiting Government Response
- Refurbishment scheduled for 2016; EA on-going

Point Lepreau

- Licence renewal application in fall 2011
- Operating licence expires June 30, 2012
- Refurbishment projected to be completed by fall 2012

Gentilly-2

- Refurbishment planned in 2012

Bruce

- Refurbishments on-going (2 of 8 units), estimated to be completed in 2012
- Steam generator shipment approved by the CNSC but currently on hold by Bruce Power

Pickering

- \$300 million for 10 more years of Pickering B operation, then decommissioning in 2020; future EA may be required



Big Part of our Business

NRU, Medical, Industrial and Research

- Chalk River 5-year Licence Review
 - Hearing scheduled for October 5-6
 - Licence expires October 31, 2011
 - Still significant to world's isotope supply
- 220 Class II / Prescribed Equipment Licences
 - Hospitals and cancer clinics across the country
- 2430 Nuclear Substance Licences
 - Industrial, research, radiography, etc.
- University and Research Laboratories
 - TRIUMF, CLS, McMaster, Slowpokes (RMC, U of Alberta, École Polytechnique, Saskatchewan Research Council, Dalhousie (decommissioned))
- Preparing for Non-Reactor-based Isotope Production



Important to Health and Safety of Canadians

Waste Management

Port Hope

- Committed to clean-up legacy waste
- Hearing tentatively scheduled for December 2011

Port Granby

- Committed to clean-up legacy waste
- Hearing tentatively scheduled for November 2011

Deep Geologic Repository

- CNSC is reviewing EIS submitted in April 2011
- Joint Review Panel yet to be appointed

Spent Fuel

- NWMO process underway; future EA likely will be required
- Monitoring international progress



Managing Waste Safely - Now and in the Future

Canadian Uranium Projects

Active projects (all in Saskatchewan)

- Key Lake Mill (Cameco Corporation)
- McArthur River Mine (Cameco)
- Rabbit Lake Mine/Mill (Cameco)
- McClean Lake Mines/Mill (AREVA Resources Canada Inc.)

Under Construction

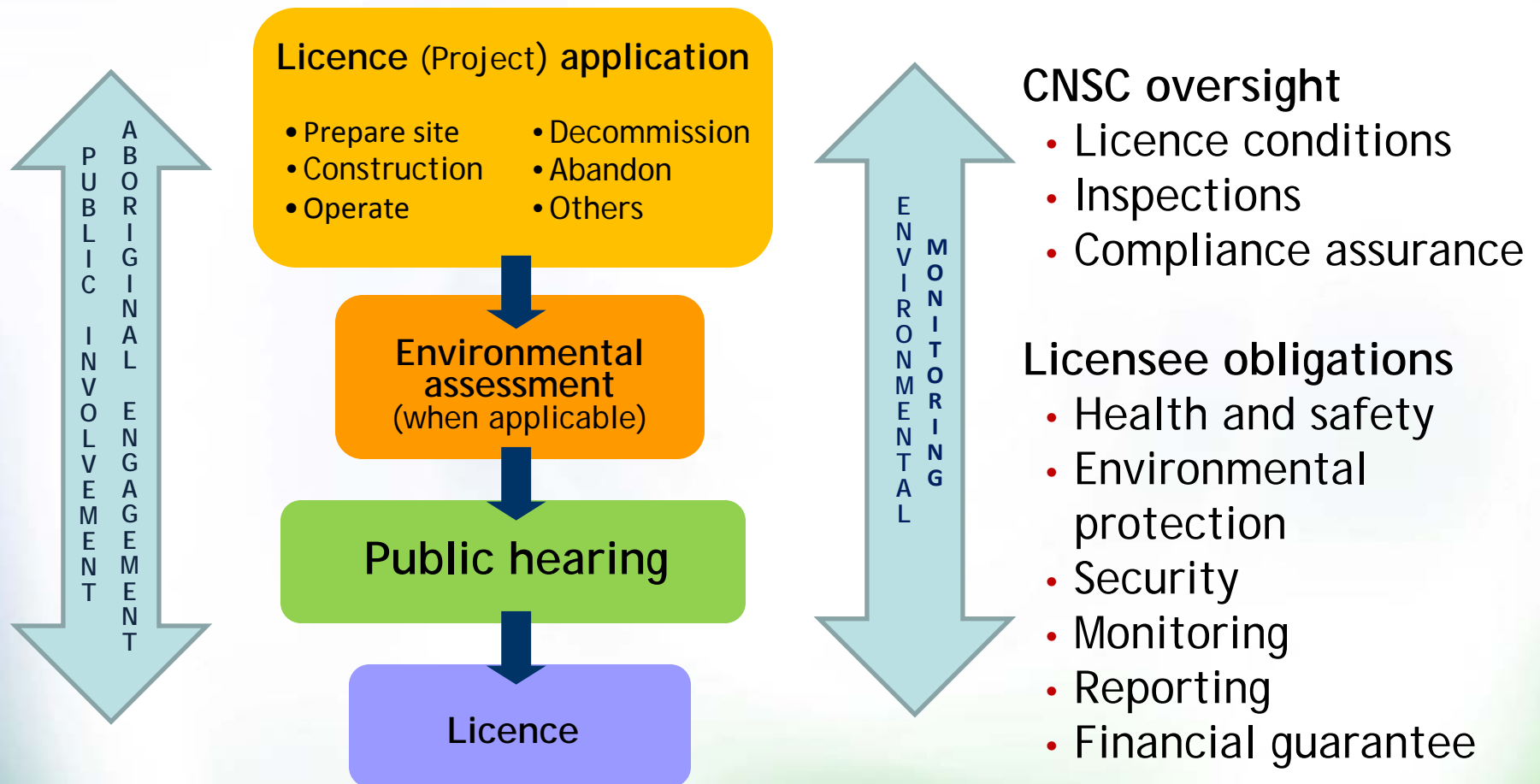
- Cigar Lake Mine (N. Sask.) (Cameco)

Proposed Projects

- Midwest Mine (N. Sask.) (AREVA) – Comprehensive Study
- Kiggavik Project (Nunavut) (AREVA) – Nunavut Land Claims Agreement EA
- Matoush (Quebec) (Strateco Resources Inc.) – Comprehensive Study/ Land Claims Agreement EA
- Millennium Project (N. Sask.) (Cameco) - Comprehensive Study



CNSC Licensing Process



Environmental Protection and the NSCA

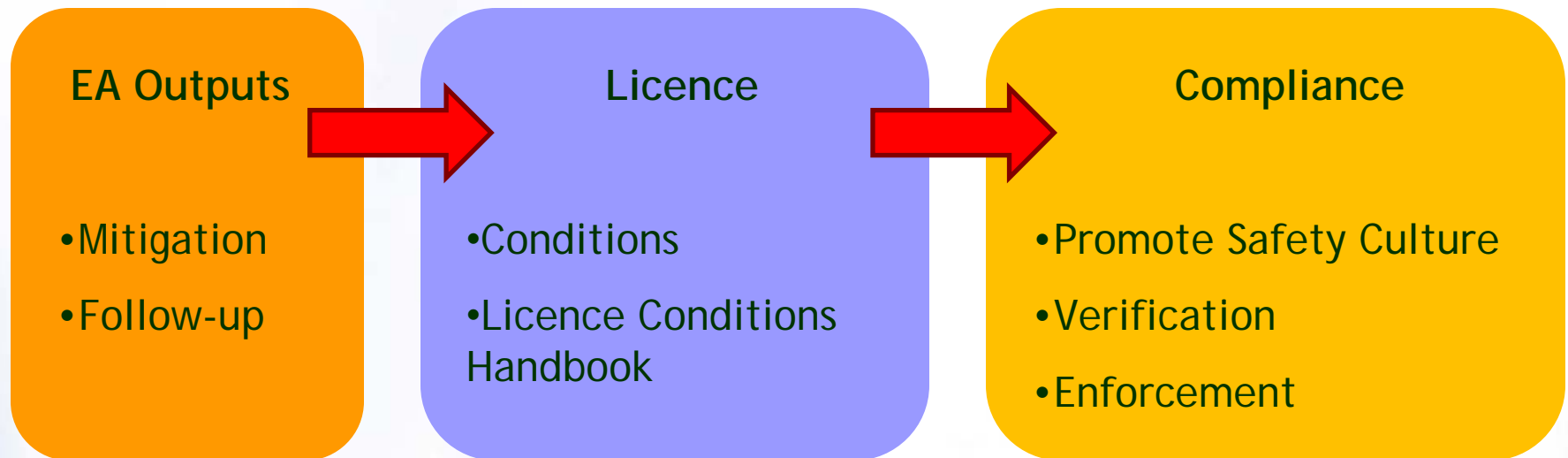
- Under the NSCA and its regulatory authority provided to the CNSC, two of CNSC's responsibilities are:
 - Direct protection of the environment
 - Regulatory responsibility for hazardous substances in addition to nuclear substances
- The NSCA and regulations contain numerous references to protection of the environment. Key requirements are the obligations to:
 - Prevent unreasonable risk to the environment
 - Make adequate provision for the protection of the environment
 - Take all reasonable precautions to control releases of radioactive or hazardous substances within the site of the licensed activity and into the environment as a result of the licensed activity

Environmental Protection is Legislated

NSCA and CEAA

- The *Canadian Environmental Assessment Act* (CEAA) and its regulations establish the legislative basis for the federal practice of environmental assessment in most regions of Canada.
- The CEAA and the NSCA have requirements for environmental protection; however, they have different obligations:
 - CEAA – Conclusions on significant adverse environmental effects
 - NSCA – Prevention of unreasonable risk to the environment

EA Mitigation and Follow-up



Ensuring Implementation

EA at the CNSC

- INFO 0774 – Environmental Assessment Screening Process at the CNSC
 - Establishes consistent and predictable process for EA screenings (e.g., timelines, type of screening)
 - Allows for the integration of licensing with the EA
- Ongoing EAs: 2 review panels, 5 comprehensive studies, 12 screenings

Fewer (reviews), Faster (decisions), Better (outcomes)

Regulatory Reform Initiatives

- MOU with the Minister of the Environment on Substitution for Review Panels
- Ongoing review of the *Canadian Environmental Assessment Act*
- Major Projects Management Office
 - Coordinated federal regulatory reviews for major mines and energy projects, including nuclear
 - Project Agreements for EAs
 - Whole of government approach to Aboriginal consultation
- Northern Projects Management Office
 - Under development
 - Coordinated federal review of Northern resource development projects
 - Could include future applications for uranium mines

Public Involvement

- Many opportunities to participate in the EA process
- CNSC's Participant Funding Program created in 2010
 - Enhance Aboriginal, public and stakeholder participation in the CNSC's EA and licensing process
 - Darlington refurbishment EA is the first EA to be eligible



CNSC and Aboriginal Consultation

- CNSC engages with Aboriginal groups whose rights may be adversely affected by its conduct
- CNSC supports a coordinated whole-of-government approach to improve the efficiency and effectiveness of the process
- CNSC takes into consideration consultation activities conducted by proponents prior to making regulatory decisions



Research at the CNSC

- Funding of Research and Support Program to obtain knowledge and information needed to support its regulatory mission:
 - Assessment of Cumulative Effects Under the *Canadian Environmental Assessment Act*
 - Review of Thermal Mitigation Technologies for Nuclear Generating Stations

Continuous Improvement

Fukushima-Daiichi Nuclear Power Plant

March 11, 2011

Earthquake and tsunami struck Japan

- Efforts continue to control the situation
- Raised a number of issues

CNSC took action

- Emergency Operations Centre activated
- Coordinated with federal agencies
- Issued order to all major nuclear facilities
 - review lessons learned
 - re-examine safety cases
 - take action and report

Licensees responded to the order



A Wake-up Call for the Nuclear Sector

CNSC Response

CNSC Internal Task Force
External Advisory Committee
IRRS Review Follow-Up Mission

- Includes assessment of Canada's response to Fukushima – Nov 2011

International Engagement
Ongoing CNSC Web updates



Transparent Process

Malfunctions and Accidents - New Build

Darlington New Nuclear Power Plant:

- Considered nuclear accidents, conventional accidents and malevolent acts
- Bounding approach used by Ontario Power Generation
- Based on CNSC Regulatory Document 337 – *Design of New Nuclear Power Plants*
- Beyond design basis accident that could have off-site radiological consequences
 - Safety-goal based release
 - Confirmed sufficient time available for emergency off-site response to be effective

Events of Japan did not Alter Staff's Conclusions

Malfunctions and Accidents - Existing Facilities

- Frequency $> 1 \times 10^{-6}$ per year with off-site radiological consequences
- Pickering B Refurbishment and Continued Operation EA
 - Accident scenarios derived from existing safety cases including probabilistic safety assessments
 - Demonstrated that evacuation was a feasible mitigation measure for credible worst-case accident scenario
- Darlington Refurbishment and Continued Operation EA
 - Similar approach to the Pickering B Refurbishment and Continued Operation EA
 - Accident scenarios to be determined but will be based on Probabilistic Safety Assessment being done as part of ongoing Integrated Safety Review
 - Lessons learned from Japan will be incorporated where appropriate

Moving Forward....

- Existing approach to the consideration of nuclear accidents in EAs is unlikely to change
 - For example, consideration of external events such as earthquakes, flooding, etc.
- Inputs (e.g., Probabilistic Safety Assessment) to the approach may change

Approach to EAs is Robust and Sufficient

Still a Lot of Misconceptions

Nuclear reactors and uranium mining are safe

- Most heavily regulated in Canada

Nuclear industry is not a security risk

- Sites heavily guarded
- Nuclear substances tightly controlled

Environment is protected

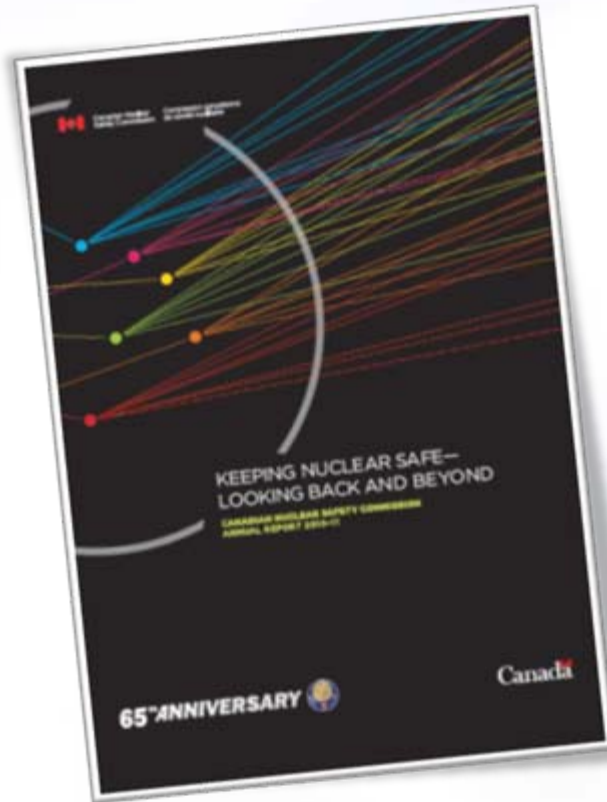
- Stringent licence conditions and proactive disclosure

Nuclear waste is managed and contained

- Long-term solution underway

Communications are Important!

For More Information on the CNSC



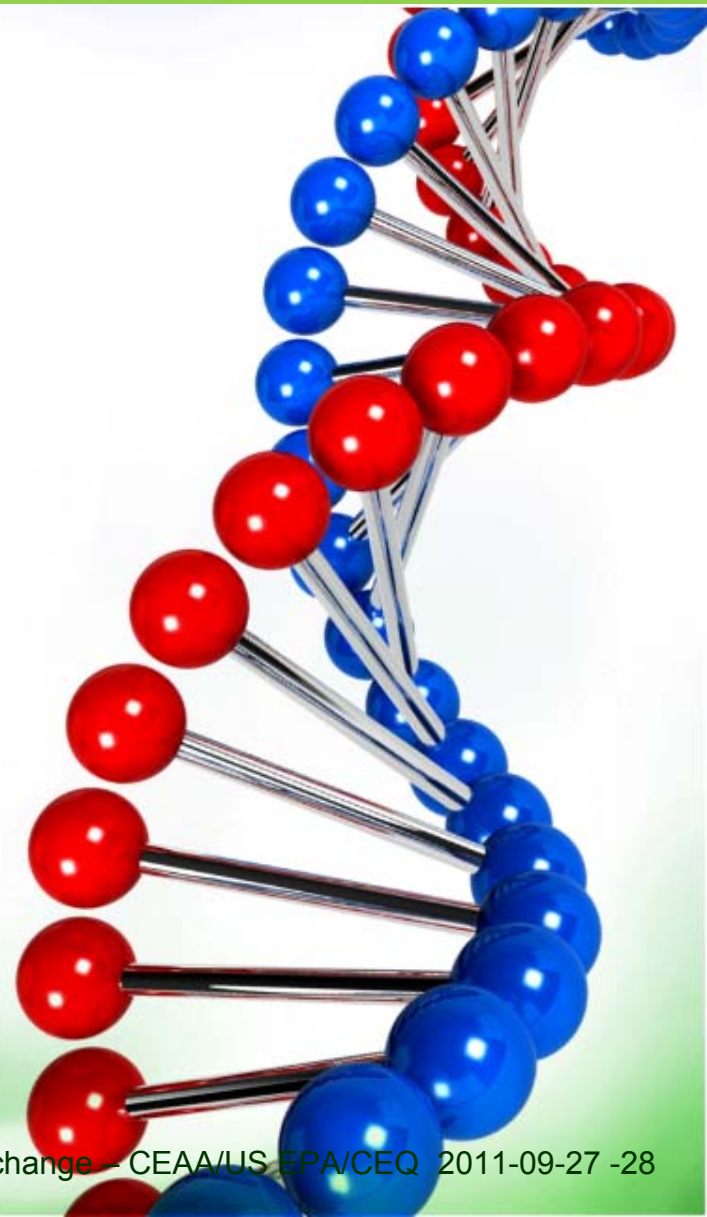
Annual Report 2010 -11



Visit our Web site at nuclearsafety.gc.ca

*We Will Never
Compromise Safety...*

...It's In Our DNA!





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