



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

65 Years of Nuclear Safety



Michael Binder

President, Canadian Nuclear Safety Commission

CANDU Maintenance Conference
Metro Toronto Convention Centre
Toronto, Ontario
December 5, 2011

65TH ANNIVERSARY
65^E ANNIVERSAIRE

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



Independent Commission

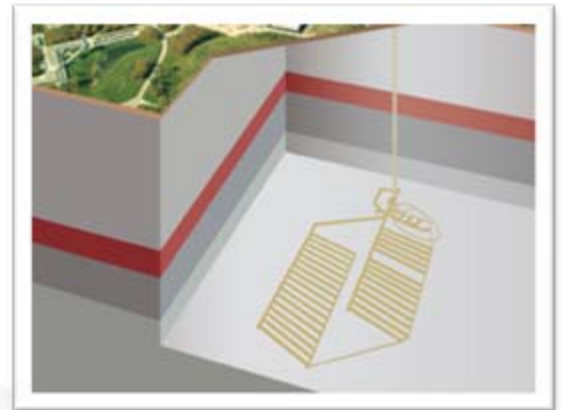
- Quasi-judicial administrative tribunal
- Commission members are independent
- Commission hearings are public and Webcast
- Decision can only be reviewed by Federal Court



Transparent, Science-based Decision-making

CNSC Regulates All Nuclear-Related Facilities and Activities

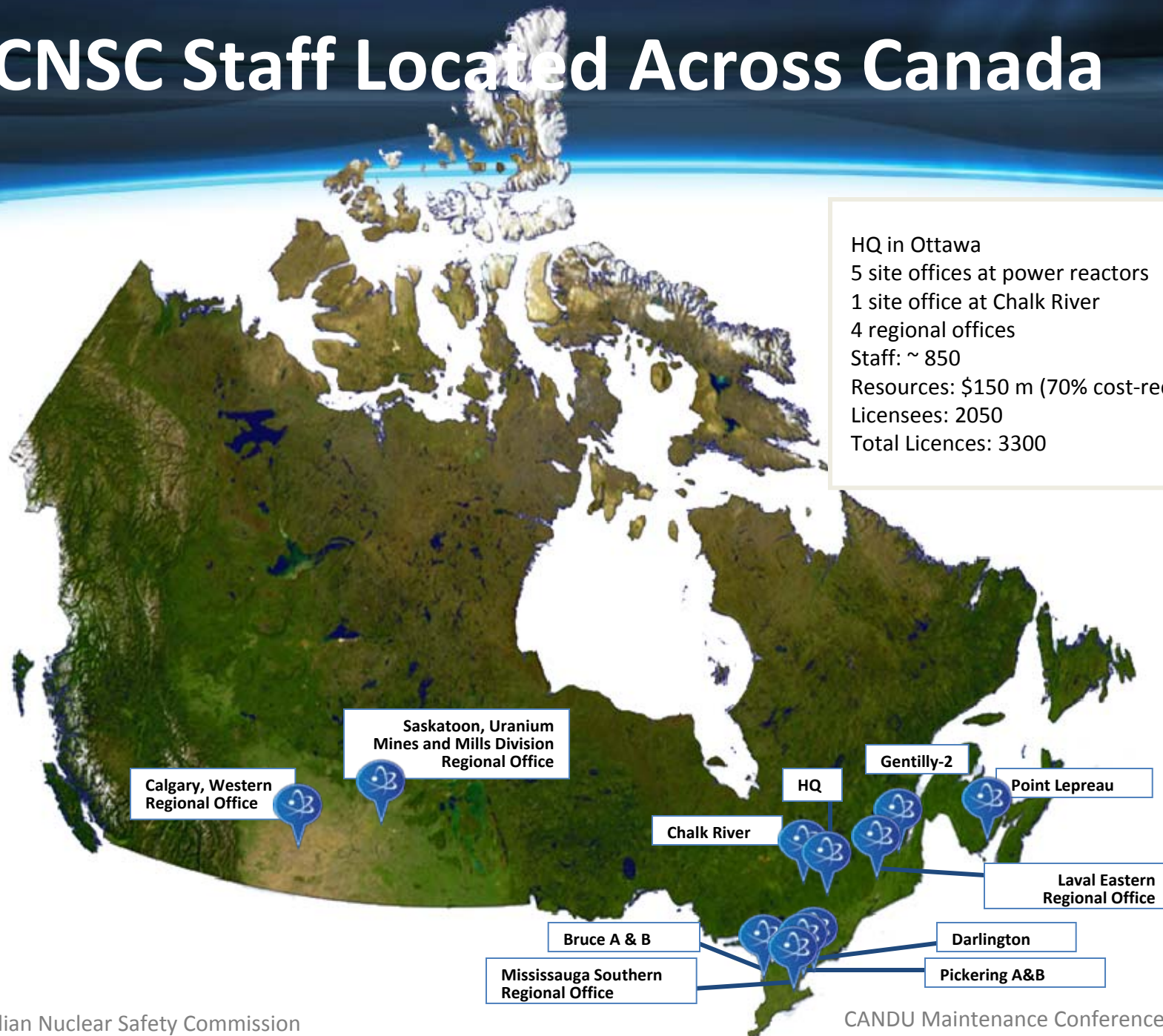
- Uranium mines and mills
- Uranium fuel fabricators and processing
- Nuclear power plants
- Waste management facilities
- Nuclear substance processing
- Industrial and medical applications
- Nuclear research and educational
- Export/import control



...From Cradle To Grave

CNSC Staff Located Across Canada

HQ in Ottawa
5 site offices at power reactors
1 site office at Chalk River
4 regional offices
Staff: ~ 850
Resources: \$150 m (70% cost-recovered)
Licensees: 2050
Total Licences: 3300



Fukushima-Daiichi Nuclear Power Plant

March 11, 2011

Earthquake and tsunami struck

- Efforts continue to control 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

A Wake-up Call For The Nuclear Sector

CNSC Response

CNSC Internal Task Force

- Task Force Recommendations – public comment - Oct 28 to Dec 1, 2011
- CNSC Commission meeting – Feb 15, 2012

IRRS Review Follow-Up Mission

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

CNSC External Advisory Committee Review – March 2012

Ongoing CNSC Web updates



Transparent Process

Lessons Learned to Date

Always room for improvements:

Extreme natural hazards - low probability, high impact events

Severe accidents - beyond plant design

Station Blackout - back-up essential

Loss of Heat Sink - Alternative means to cool reactor

Explosive gases - Prevention of hydrogen build-up inside containment

Spent Fuel Pools - Maintaining water inventory during severe accidents

Emergency Planning - Coordination of all parties

Regulatory Framework - Review regulatory requirements

Overall: Canadian Nuclear Facilities Are Safe

Fukushima Casting Chill

- Spotlight on the nuclear industry
- Public confidence waning
- Germany – Advanced phase-out
- Not alone: Switzerland, Italy . . .
Even China temporarily delaying
new approvals



Speed bump or stampede?

We Still Have a Heavy Agenda in Canada

Darlington New build / Joint Review Panel

- Public hearing held in days after Fukushima
- JRP Report issued on August 26
- Government response underway
- Judicial Review

Darlington Licence Extension

- Licence expires Feb 2013
- Re-licensing Hearings in Fall 2012
- EA for refurbishment in 2016

We Still Have a Heavy Agenda

Point Lepreau

- Public Hearing – Saint John – Dec 1-2
- Operating licence expires June 30, 2012
- Refurbishment projected to be completed by fall 2012

Gentilly-2

- Hearings on refurbishment and renewal completed in April 2011
- Decision granted by Commission in June 2011

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



Core Activities Must Go On

Waste Management

Port Hope

- Committed to clean-up legacy waste
- Hearing tentatively scheduled for January 2012

Port Granby

- Committed to clean-up legacy waste
- Hearing on September 27, 2011

Deep Geologic Repository

- CNSC reviewing Environmental Impact Statement (EIS) submitted by OPG April 2011
- Joint Review Panel needs to be appointed immediately

Spent Fuel

- Post-Fukushima – Heightened importance of spent fuel management
- Nuclear Waste Management Organization target - 2035



Managing Waste Safely – Now And In The Future

Canadian Uranium Projects

Active projects (all in Saskatchewan)

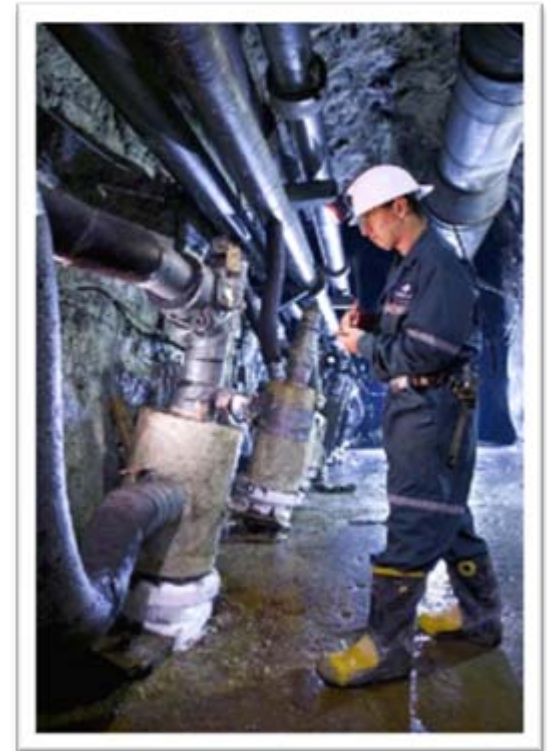
- Key Lake Mill (Cameco)
- McArthur River Mine (Cameco)
- Rabbit Lake Mine/Mill (Cameco)
- McClean Lake Mines/Mills (AREVA)

Under Construction

- Cigar Lake Mine (Cameco)

Proposed Projects

- Midwest Mine (Northern Saskatchewan) (AREVA)
- Kiggavik (Nunavut) (AREVA)
- Matoush (Quebec) (Strateco)
- Millennium (Northern Saskatchewan) (Cameco)
- Michelin (Labrador) (Aurora)



Meeting World Demand, but Will All Projects Proceed?

Reporting on Performance

Safety and Control Areas

- Management system
- Human performance management
- Operating performance
- Safety analysis
- Physical design
- Fitness for service
- Radiation protection
- Conventional health and safety
- Environmental protection
- Emergency management and fire protection
- Waste management
- Security
- Safeguards
- Packaging and transport

All necessary for licensing

Fitness for Service

- Equipment Performance
- Maintenance
- Reliability
- Structural integrity
- Ageing management
- Chemistry control
- Condition monitoring
- Life cycle management



Continued Safe Operations

CNSC Priority - Clarity

- RD-334 – *Aging Management for Nuclear Power Plants*
- S-210 – *Maintenance Programs for Nuclear Power Plants*

***Fukushima – international focus
on accident prevention***



Maintaining Safe Facilities - CRITICAL

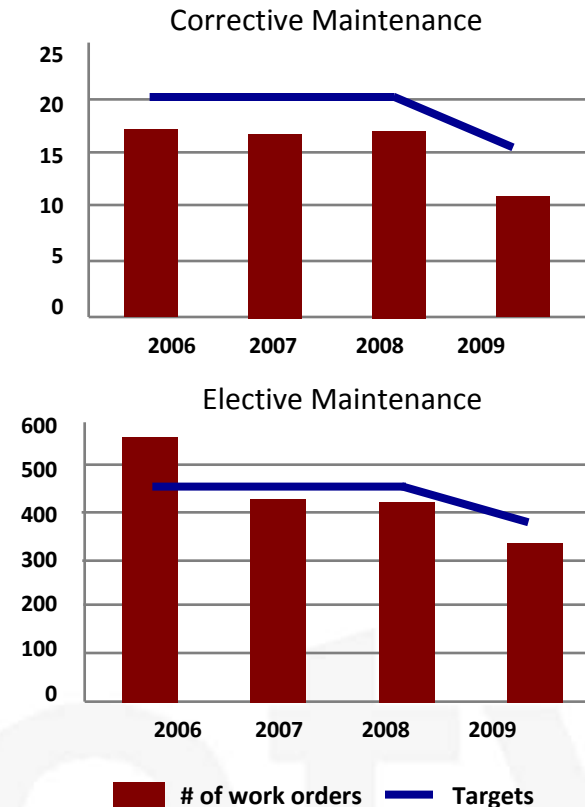
Commission wants to know

- Backlogs
- Preventive maintenance deferrals
- Work schedule adherence
- Completion ratios
- Maintenance workforce

Backlogs unacceptable

Source: OPG Presentation, Day 1 Pickering A Licence Renewal Feb 2010

On-Line Maintenance Backlogs



**We Will Never
Compromise Safety...**



nuclearsafety.gc.ca