



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Canadian Nuclear Safety Commission Orphaned Source Program



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Regulation
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nuclearsafety.gc.ca

Background



- **What is an Orphan Source?**
 - *a radioactive source that is not under proper regulatory control*
- **Dealing with Orphan Sources**
 - *on an ad-hoc basis to date*
 - *sources continue to be discovered*

Background (continued)



- IRRS (June 2009) suggested that CNSC have an orphan source recovery program
- DNSR conducted a full review of its regulatory oversight regarding orphan sources
- IAEA Code of Conduct contains provisions regarding the control of orphan sources

Examples of Items Discovered



Damaged Portable Gauge



Radium Switches

Examples (Continued)



- Process Gauge

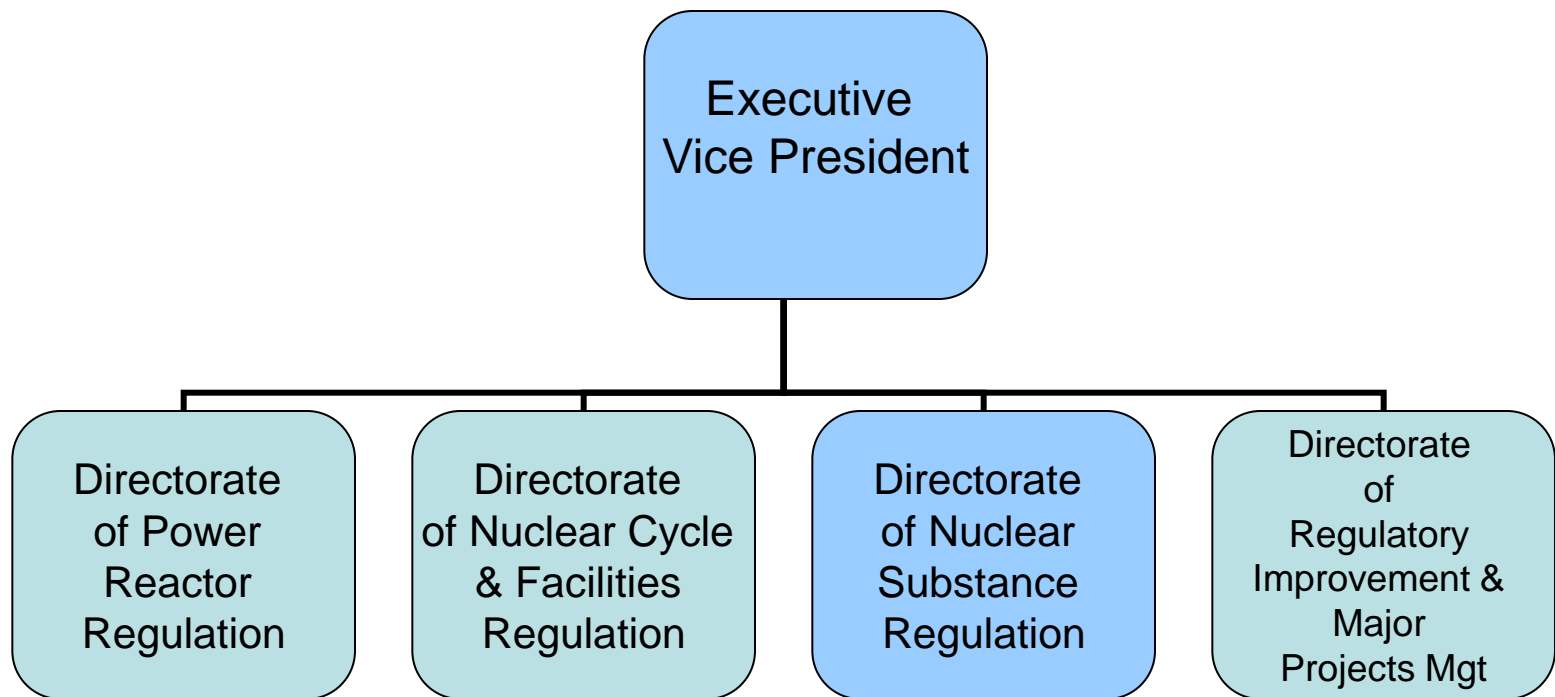


Nuclear Regulation in Canada

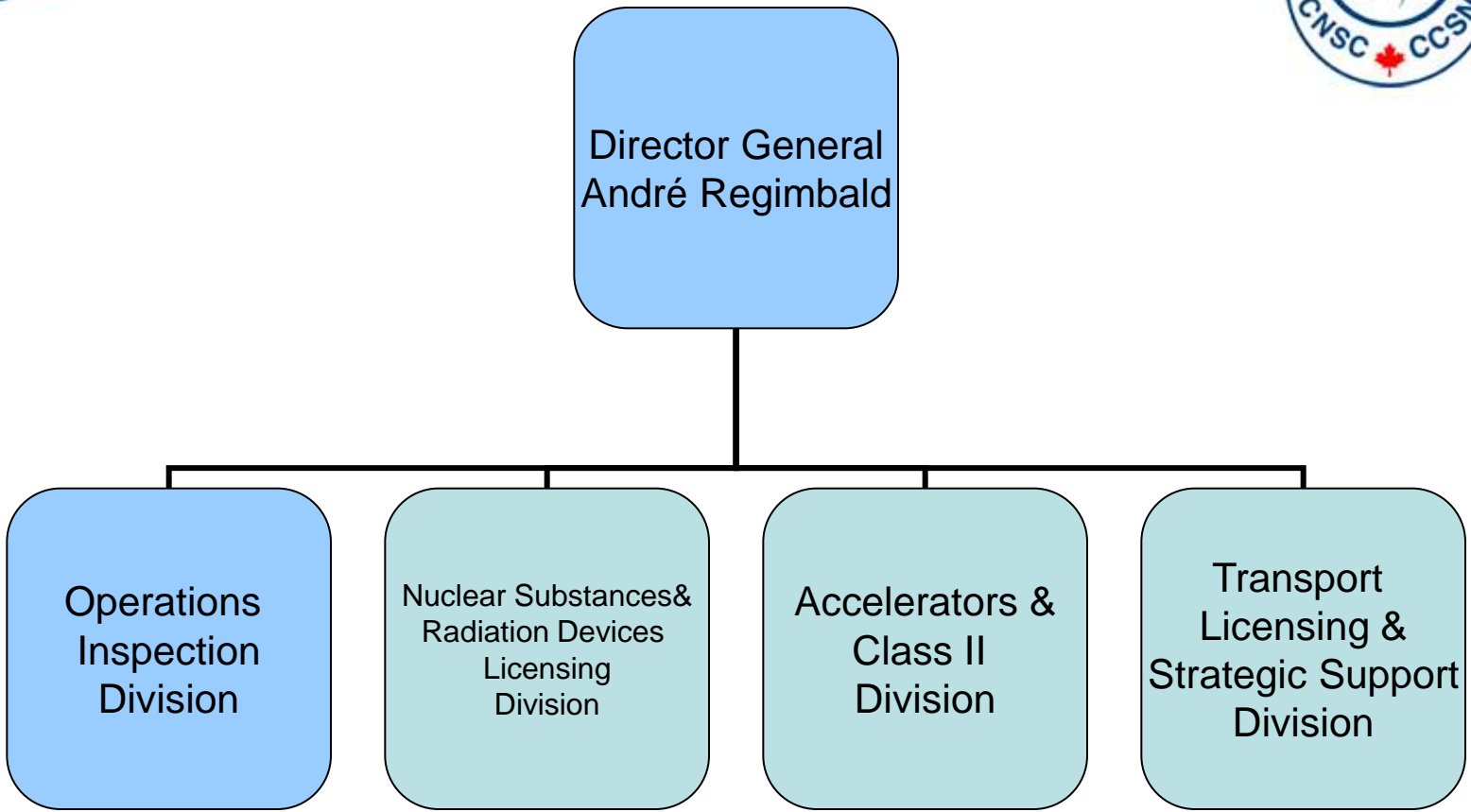


- *Nuclear Safety and Control Act (2000)*
- **Canadian Nuclear Safety Commission**
 - “to protect the health, safety and security of Canadians as well as the environment, and respects Canada's international commitments on the peaceful use of nuclear energy”
 - **Seven Commissioners appointed by the Governor-in-Council**
 - **Staff**

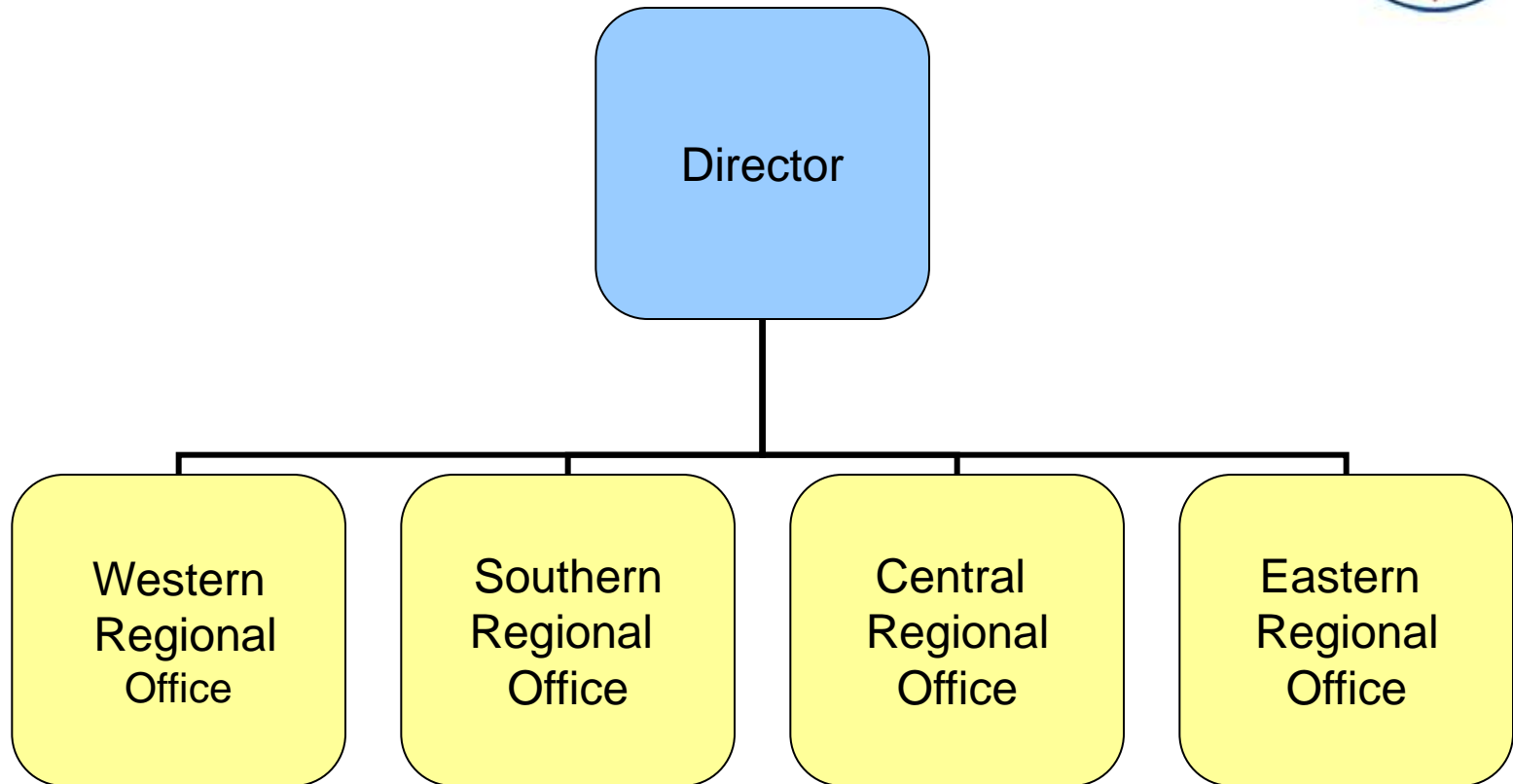
Regulatory Operations Branch



Directorate of Nuclear Substance Regulation



Operations Inspection Division



Commission Offices Across Canada



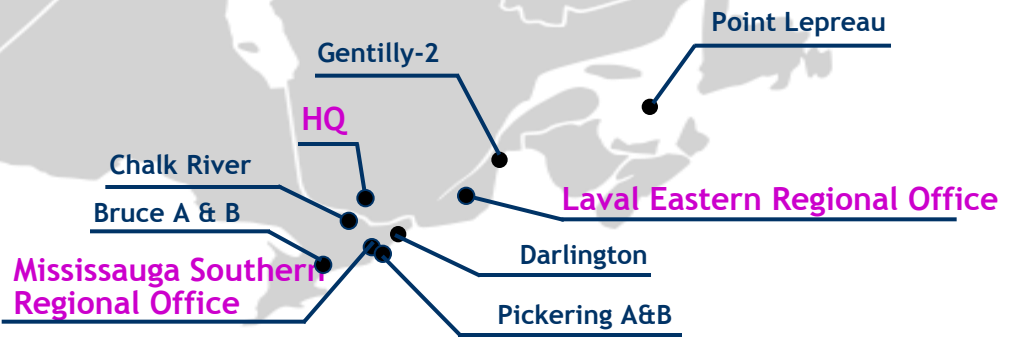
Staff: ~ 850
Resources: \$140 m
(70% cost-recovered)

Licensees: 2,050
Licenses: 3,300

Calgary Western Regional Office

Saskatoon
Uranium Mills and Mines
Division Regional Office

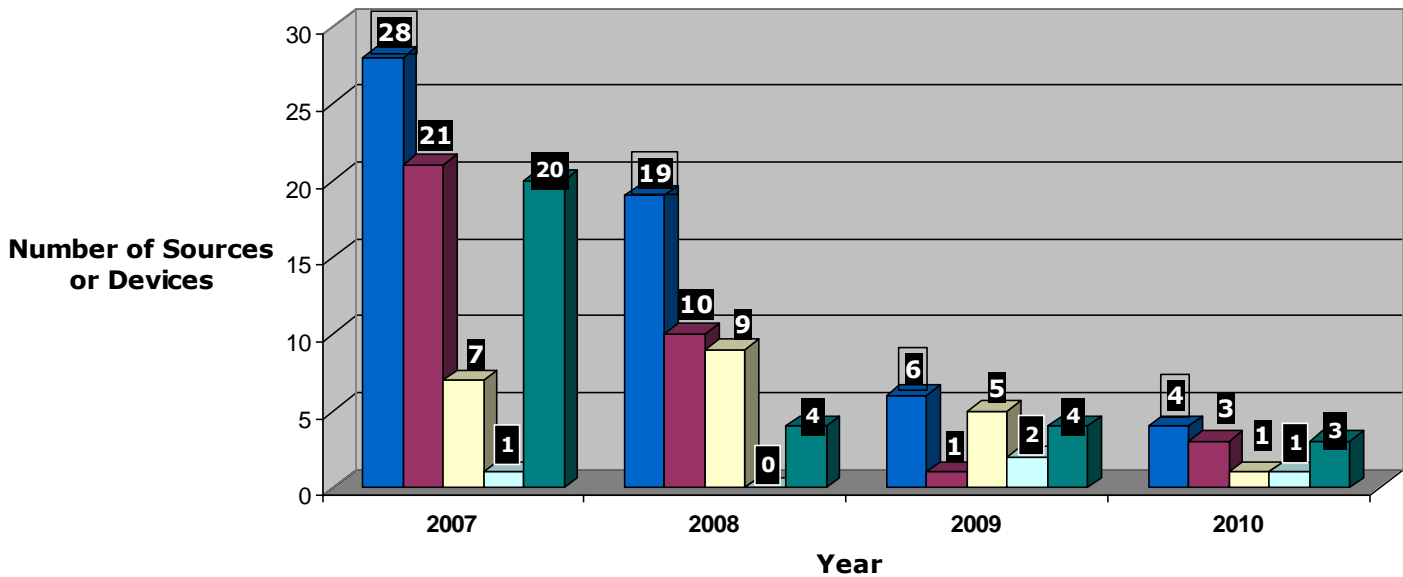
HQ in Ottawa
5 site offices at power reactors
1 site office at Chalk River
4 regional offices



Review of Findings



Lost, stolen and found sealed sources and devices in Canada



- Number of lost or stolen sealed sources or devices
- Number of recovered lost or stolen sealed sources or devices
- Number of not recovered lost or stolen sealed sources or devices
- Number of recovered orphan sealed sources or devices
- Number of scrap metal alarms reported

Proposed Enhanced Program



- **DNSR is proposing an enhanced regulatory oversight program to deal with orphan sources:**
 - ✓ **Promotion & Communication**
 - ✓ **Prevention**
 - ✓ **Response & Recovery**
- **Program follows guidelines established under the Code of Conduct**
- **Program is Risk- Informed**

Promotion & Communication

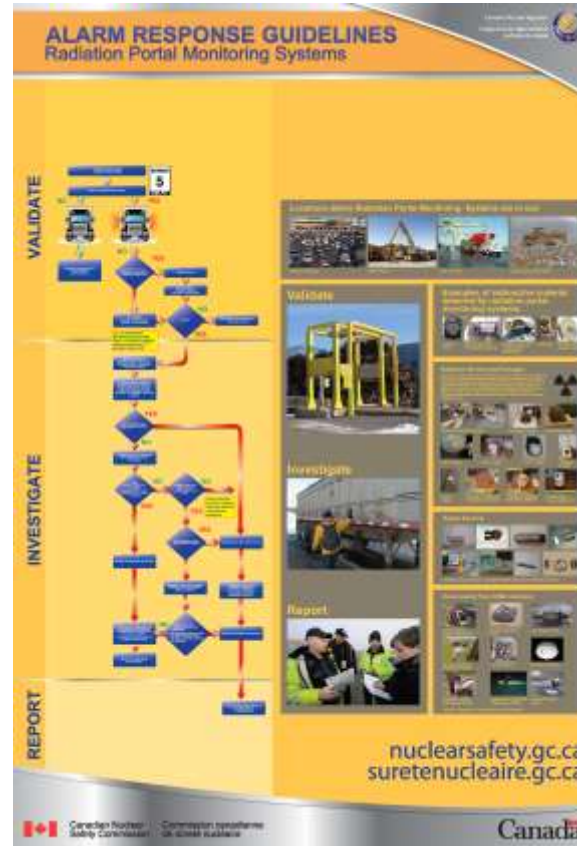


- **Increased Communication Awareness**
 - Improved information poster and pamphlet
 - Procedure to facilitate the transport of municipal waste containing radioisotopes
 - New regulatory provisions proposed in Packaging and Transport regulations

Promotion & Communication



- Poster under preparation



Prevention



- Licensing the possession, use, import/export of sealed sources
- Sealed source tracking
 - National Sealed Source Registry established for all types of sealed sources (Cat 1 to 5)
 - Tracking of high-risk sealed sources through the Sealed Source Tracking System
 - Enhanced import/export controls for Cat 1 & 2 sealed sources

Prevention



- **Licensee inventory control**
 - In Annual Compliance Reports
 - Physical verification of inventory during inspections
- **Exchange of information with USNRC and CBSA**
- **New Financial Guarantees regime for DNSR licensees (to be introduced in 2011)**

Response & Recovery



- Reporting to CNSC
 - Licensees
 - Waste/metal recyclers
 - Public
- Discovery by CNSC during inspections or other situations
- Identified source → licensee is responsible
- Unidentified source → finder is responsible
- CNSC will assist
- CNSC will assume control as last resort

We will not compromise safety!

Response & Recovery



- **Clearer Direction Needed**
 - Response criteria
 - Role & responsibilities of CNSC staff
 - Financial implications
- **Naturally-Occurring Nuclear Substances (NONS)**
 - Mostly in scrap metal facilities
 - Province may restrict disposal
 - Guidance developed by NRCan

Program Implementation



- **DNSR leading the application of the program**
- **Implementation begins in 2010, to include:**
 - **Distribution information pamphlet & poster**
 - **Continuation of preventive control measures (eg. licensing, source tracking)**
 - **Development of additional guidance on the identification, recovery and disposal of an orphan source**
 - **Financial resources if CNSC takes control**

Impacts on CNSC



- **Impacts on CNSC are minimal (so far)**
 - Existing programs in place for Promotion, Communication and Prevention
 - Existing CNSC resources (available to deal with orphan sources)
 - All orphan sources (with few exceptions) have been traced back to owner
 - Source disposal costs to CNSC have been minimal so far (\$2K to \$4K in each case)
 - Financial guarantees will help reduce financial burden to CNSC

Next Steps



- **Endorsement by CNSC SR Management**
- **Begin implementation phase- September 2010**
 - Continue existing program component
 - Develop response criteria - March 2011
 - Regulations amendment - 2011
 - Complete program documentation - March 2011
- **CNSC Orphan Source Policy - March 2011**
 - Obtain Management Agreement
- **Implementation of Financial Guarantees - 2011/12**



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Thank You

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Canada 

Historic Artefacts



Radium Clocks



Radium Dials