Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

Safe Handling of Radioactive Sources

Presented by

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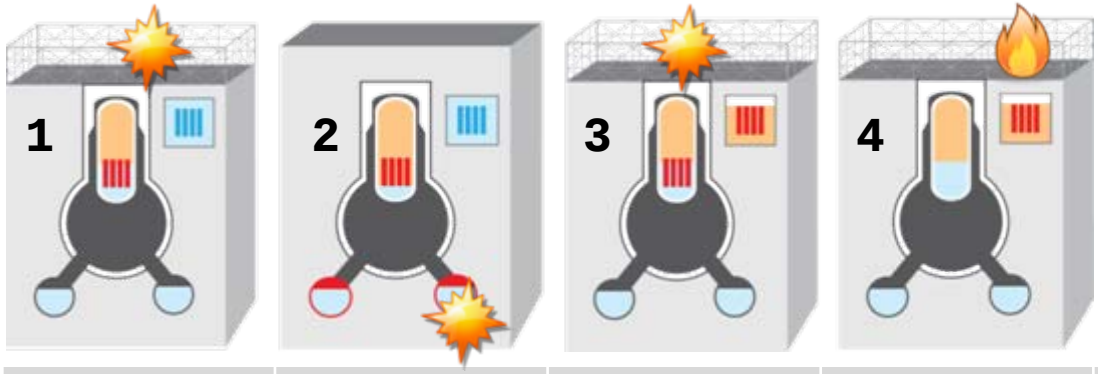
Canadian Steel Producers Association (CSPA)

Cambridge Ontario, March 24, 2011

Canada

Japan: Fukushima



	Unit 1	Unit 2	Unit 3	Unit 4	Units 5 & 6
Fuel Integrity					
Pressure Vessel					
Containment					
Water Level in Vessel					
Spent Fuel Pools					

Low significance | High significance | Severe significance

Canadian Nuclear Safety Commission

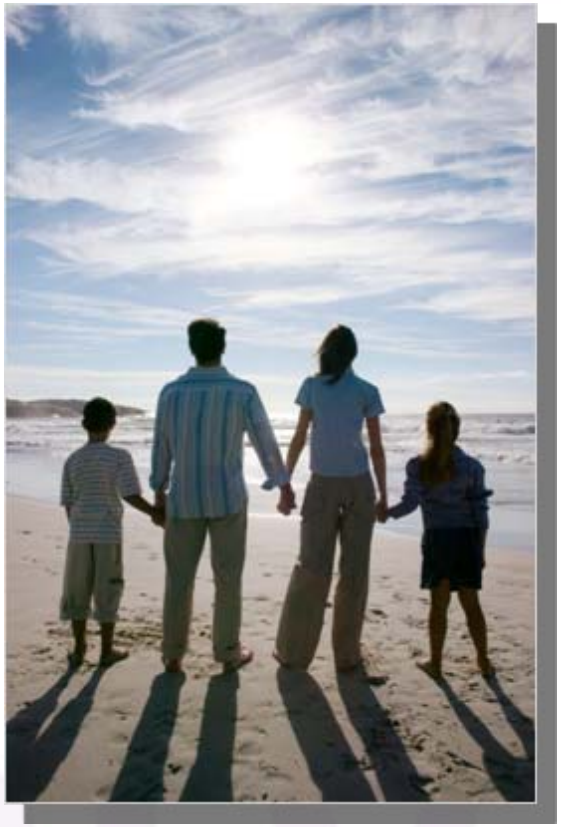
<u>Established May 2000,</u>
under the *Nuclear Safety and Control Act*

Replaced the AECB,
<u>established in 1946,</u>
Atomic Energy Control Act

Canada's Independent Nuclear Regulator - 65 Years Of Experience

Our Mission Is Clear

Protect the **health**, **safety** and **security** of persons and the **environment**; and to implement Canada's **international commitments** on the peaceful use of nuclear energy



Canada's Nuclear Watchdog

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

Independent Commission

- Quasi-judicial administrative tribunal
- Commission members are independent
- Commission hearings are public and Webcast
- Supported by a Secretariat and independent legal services

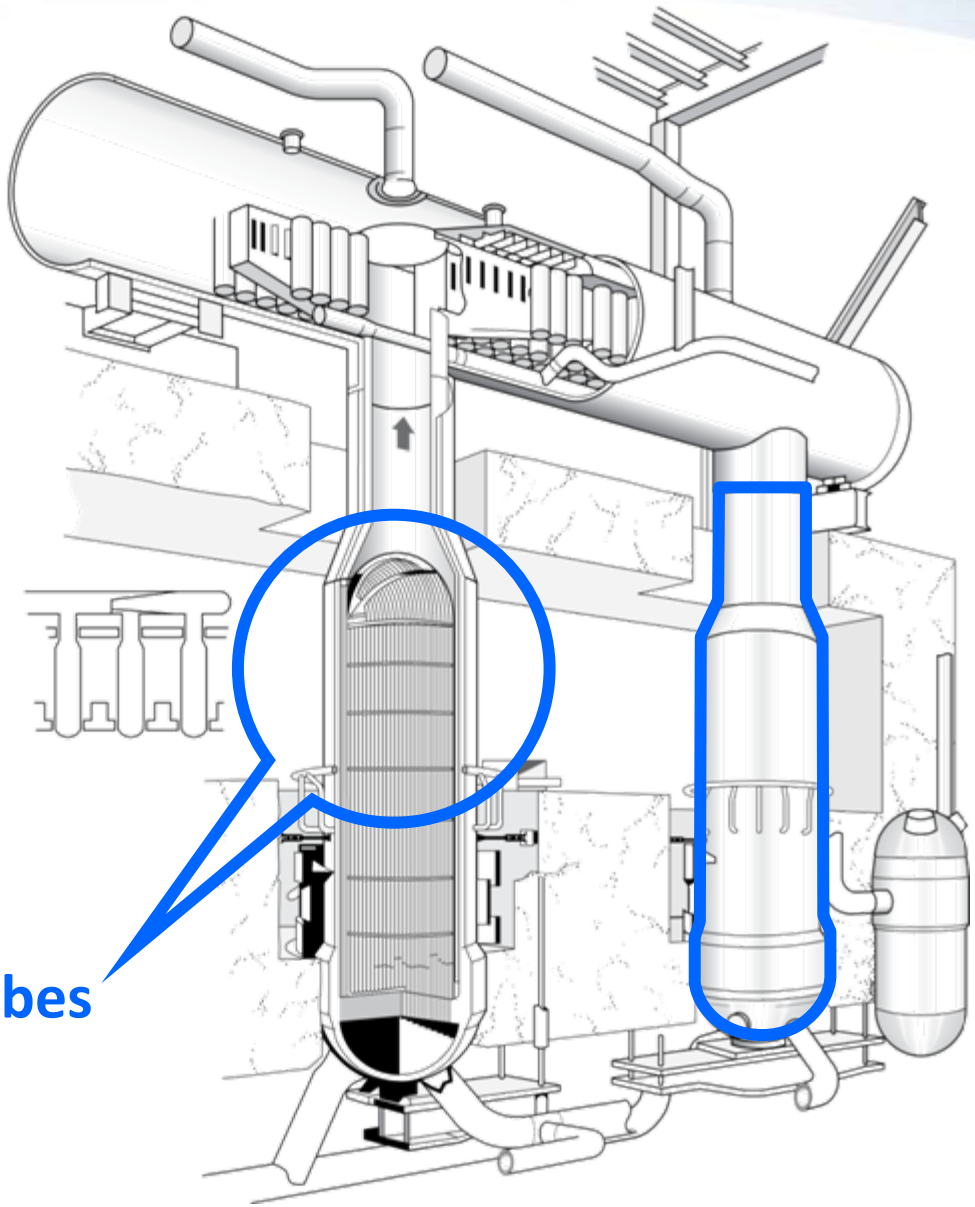
Transparent Decision-Making

CNSC Staff Located Across Canada

Steam Generators…

100 tons of steel but less than 4g of radioactive substances

Steam Generator



Conclusion

- The Commission in rendering its decision stated it is satisfied that the transport:
  - can be completed safely and that risk to persons and the environment are negligible
  - the shipment meets all Canadian and international regulations and requirements
  - Bruce Power is qualified to carry out the project.
- Shipping the generators will recycle 90% of the clean metal. This is good for the environment and in accordance with CNSC policy.
- Shipping the generators will reduce the environmental footprint. This is good nuclear management.

Conclusion: The shipment of 16 steam generators from Bruce Power to Sweden is safe.

Nuclear Substances

- A licence is required to possess, transfer, import, export, use, process, manage, store or dispose of a sealed source (nuclear substance)
- CNSC has a comprehensive risk-informed regulatory control system for sealed sources
- CNSC licences issued to more than 2 500 licensees of nuclear substances
- CNSC conducts compliance verification to ensure licensed activity is safe

Regulatory oversight

- Cradle-to-grave licensing and compliance verification to ensure safety and security of sealed sources
- Licensee inventory control
  - Annual Compliance Reports
  - Physical verification of inventory by CNSC inspectors
- Exchange of information with other competent authorities within Canada and international
- Expansion of Financial Guarantees regime for all CNSC licensees (to be introduced in late 2011)

Disused Sources

Definition:

Source that is no longer effective for its designed use

- Disused sources may be returned to the manufacturers, transferred to other licensees or disposed of in licensed facilities
- CNSC encourages re-use and recycling of disused sources
- In all cases, CNSC will require licensees to have sufficient financial guarantees in place to ensure safe management and disposal of disused sources

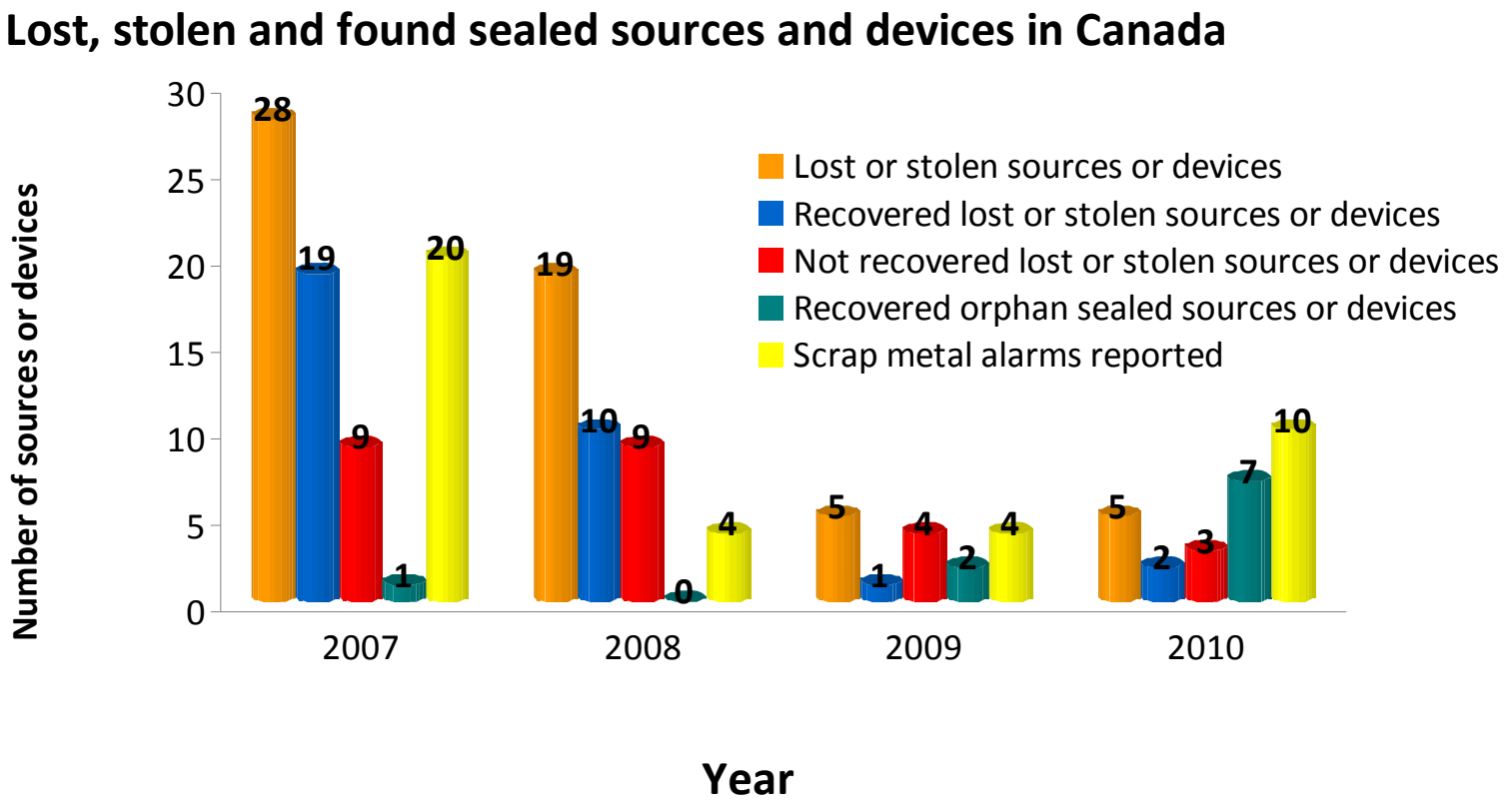
Orphan Sources

Definition:

A radioactive source that is not under control

- CNSC conducted a full review of its regulatory oversight

Review of Findings



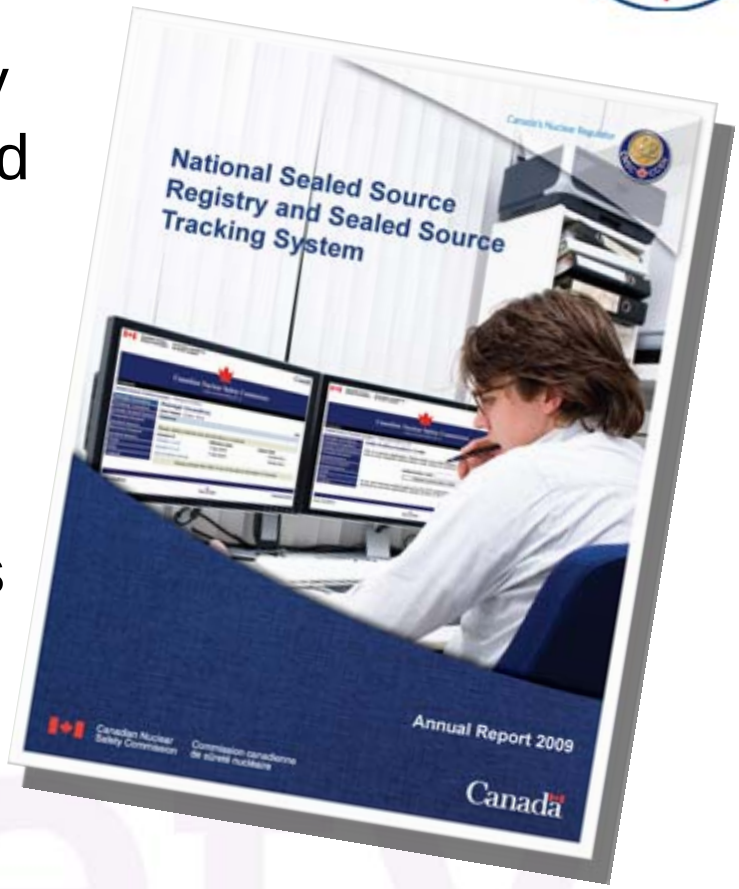
Proposed Enhanced Program

- The CNSC reviewed the overall strategy for dealing with the discovery of orphan sources
- Principles of enhanced regulatory oversight program to deal with orphan sources:
  - Regulatory oversight
  - Clarification & Communication
  - Response & Recovery
- Risk-Informed

Enhancement of Regulatory oversight

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



Clarification and Communication

- Increased awareness
- Improved information poster and pamphlet
- New regulatory provisions proposed in Packaging and Transport regulations

Clarification and communication

- Increased communication with industry
- Procedure to facilitate the transport of municipal waste containing radioisotopes

Response and Recovery

- Reporting to CNSC
  - Licensees
  - Waste/metal recyclers
  - Public
  - Canadian Border Services Agency
- Identified source ➡ licensee is responsible
- Unidentified source
  - CNSC will investigate
  - CNSC will provide assistance
  - CNSC will assume control as last resort

Response and Recovery (continued)

- 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

Role of industry in mitigation measures for Orphan Sources

Detection – portal alarms

- Waste Management facilities
- Scrap Metal Recycling
- Landfill sites
- Border Crossings

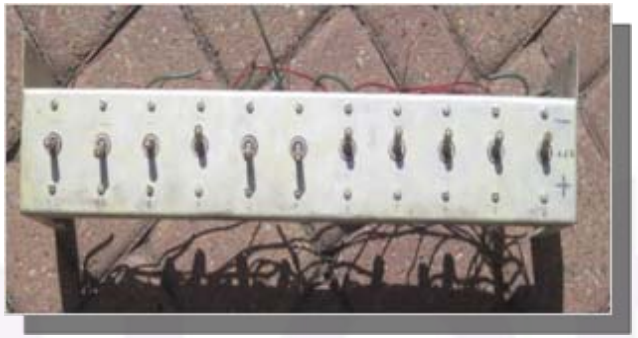
Response to alarms

- Shipment denied access to facility
- Return load to point of origin
- Shipment moved to another location (often on-site) where it can be safely isolated and material identified

Examples of Items Discovered

Damaged Portable Gauge

Process Gauge



Radium Switches

Cs-137 source in transport container

In conclusion

- Continuous improvements in regulatory oversight (eg. licensing, source tracking)
- Continued development of guidance (both external and internal) on the identification, recovery and disposal of an orphan source
- Implementation of the financial guarantee program

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We will never compromise safety

Canada