

The Role of the Security Department during a Nuclear Safety Accident

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The Role of the Security Department during a Nuclear Safety Accident

Agenda

- Overview of Canadian Nuclear Laboratories
- Nuclear Emergency Preparedness in Canada
- Overview of Emergency and Protective Services at CNL
- CNL Security involvement in Nuclear Safety Accidents
 - Site Stay In Exercise
 - Site Evacuation Exercise
- Summary
- Questions





Canadian Nuclear Laboratories

Overview



Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

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Chalk River Laboratories, ON



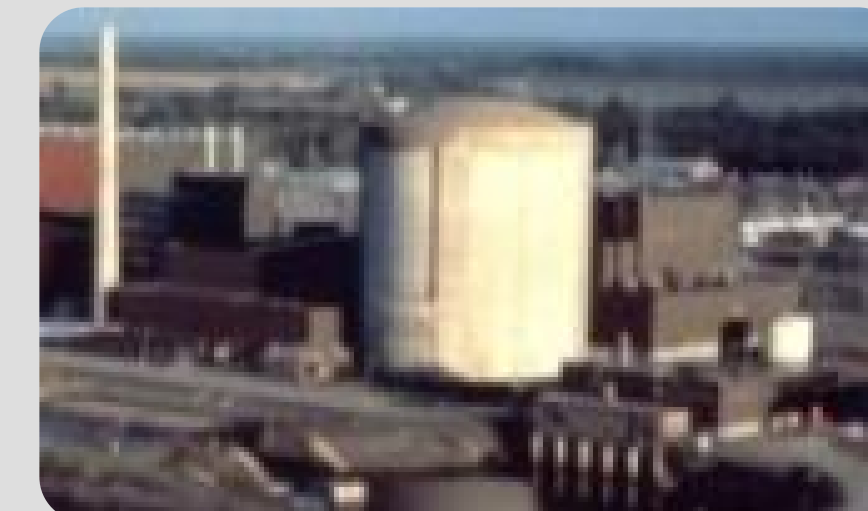
NPD, ON



LaPrade, Que.



Centre for Nuclear Energy Research, NB



Gentilly 1, Que.



Whiteshell Laboratories, MB



Douglas Point, ON



Port Hope / Granby, ON

Manitoba

Ontario

New Brunswick





The Chalk River Laboratories is the single largest science and technology laboratory in Canada.

- ~ 9,000 acres in size , ~200 acres lab complex
- 17 nuclear facilities, 70 major buildings
- ~3,100 employees
- 1,600 engineering, scientific, and technical staff
- >300 skilled tradespeople





CRL History

- Birthplace of Canada's nuclear industry
- First sustained nuclear criticality outside USA
- Supplied Cobalt-60 for first cancer treatment in Canada
- Developed CANDU power reactor technology
- Supported numerous Nobel Prize winning research activities



Unique Facilities

Fuel/Actinides



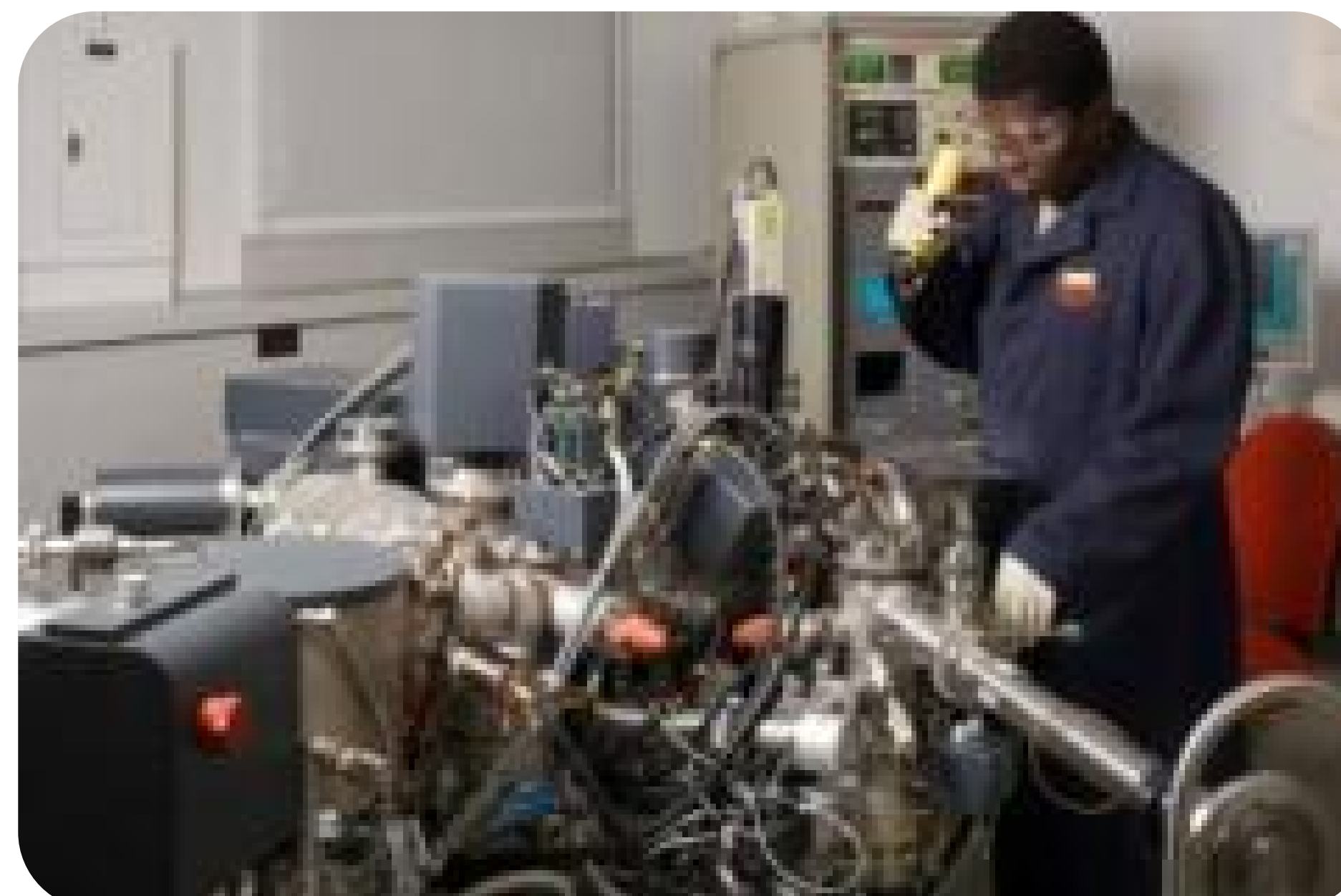
**NRU
Reactor**

Thermalhydraulics



Biological Research

Surface Science

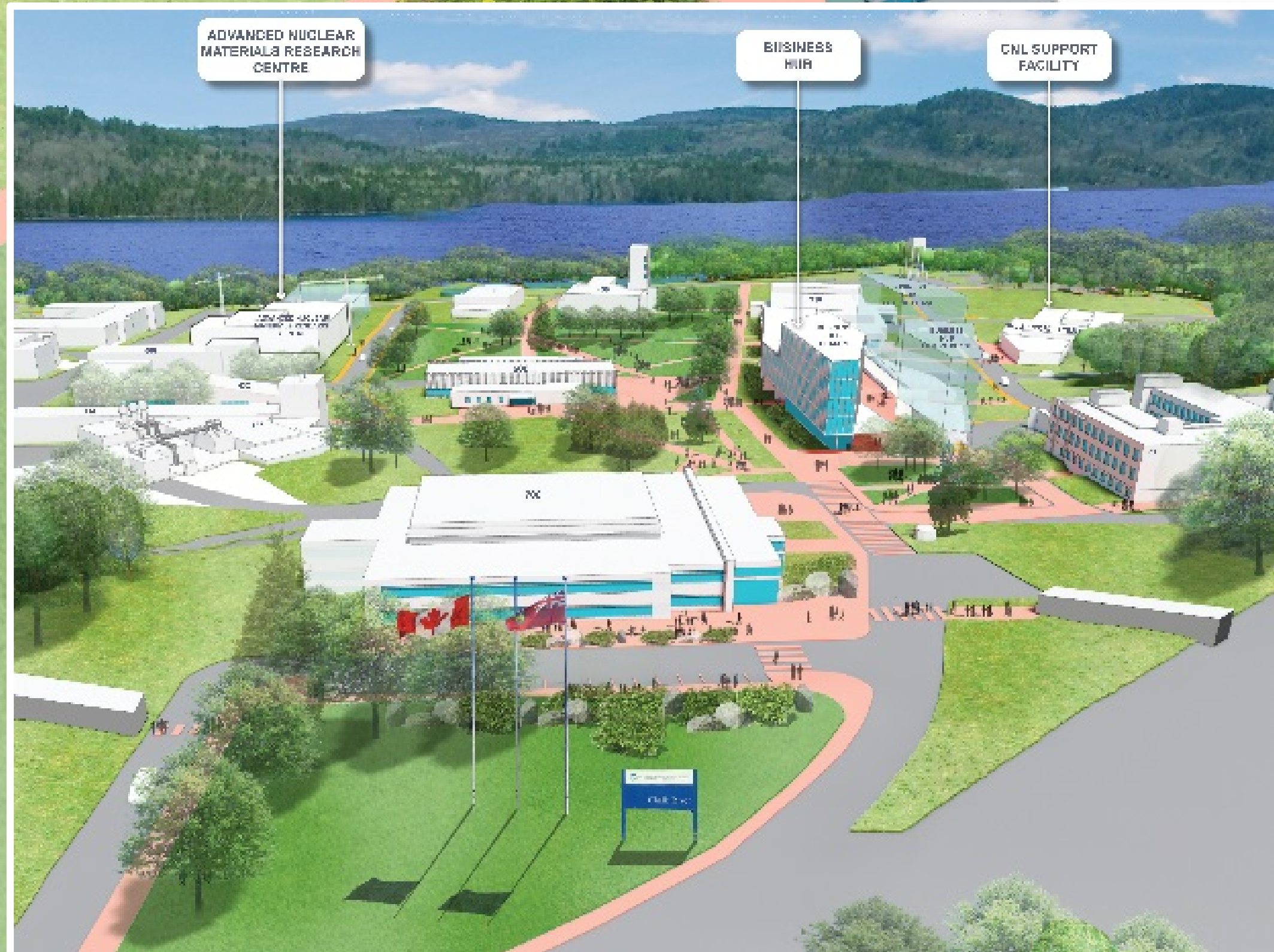
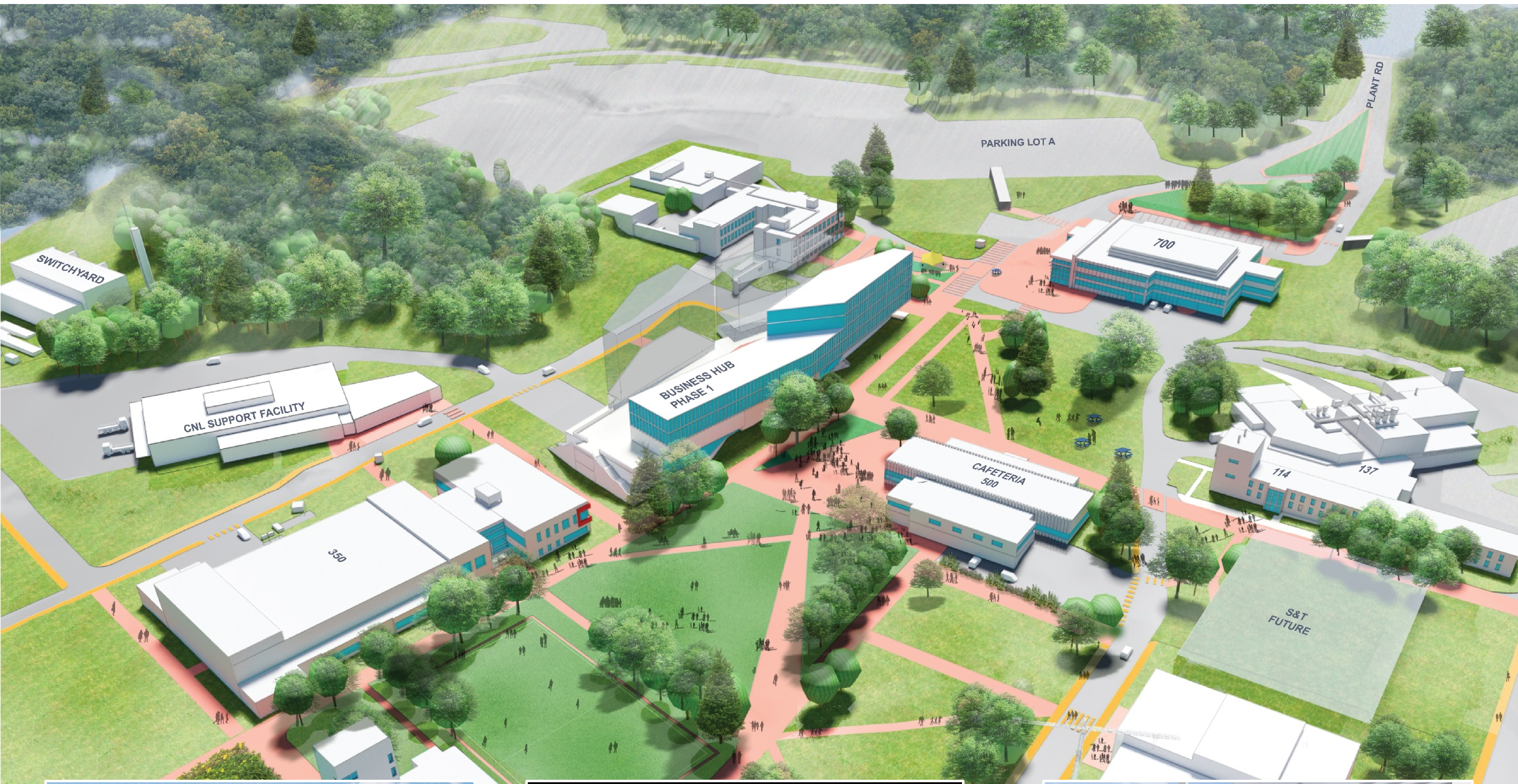


Hot Cells



ZED-2 Reactor





The Canadian Nuclear Safety Commission

Our Regulator

Nuclear Emergency Preparedness and Response

- Emergency preparedness requirements and guidance
- Protection of the environment, the health and safety of persons, and the maintenance of national security and measures required to implement international obligations
- Based on International Atomic Energy Agency (IAEA) guidance

Nuclear Security

- Nuclear Security Regulations
- international physical protection best practices and standards recommended by the IAEA
- compliance verification activities include: facilities and equipment, security practices, response arrangements, and drills and exercises



Nuclear Crisis Management in Canada

Emergency Planning

Federal Nuclear Emergency Plan

Provincial Nuclear Emergency Response Plan

Canadian Nuclear Laboratories Emergency Response Planning

- Provincial responsibilities
- Regional Responsibilities
- Municipal Responsibilities

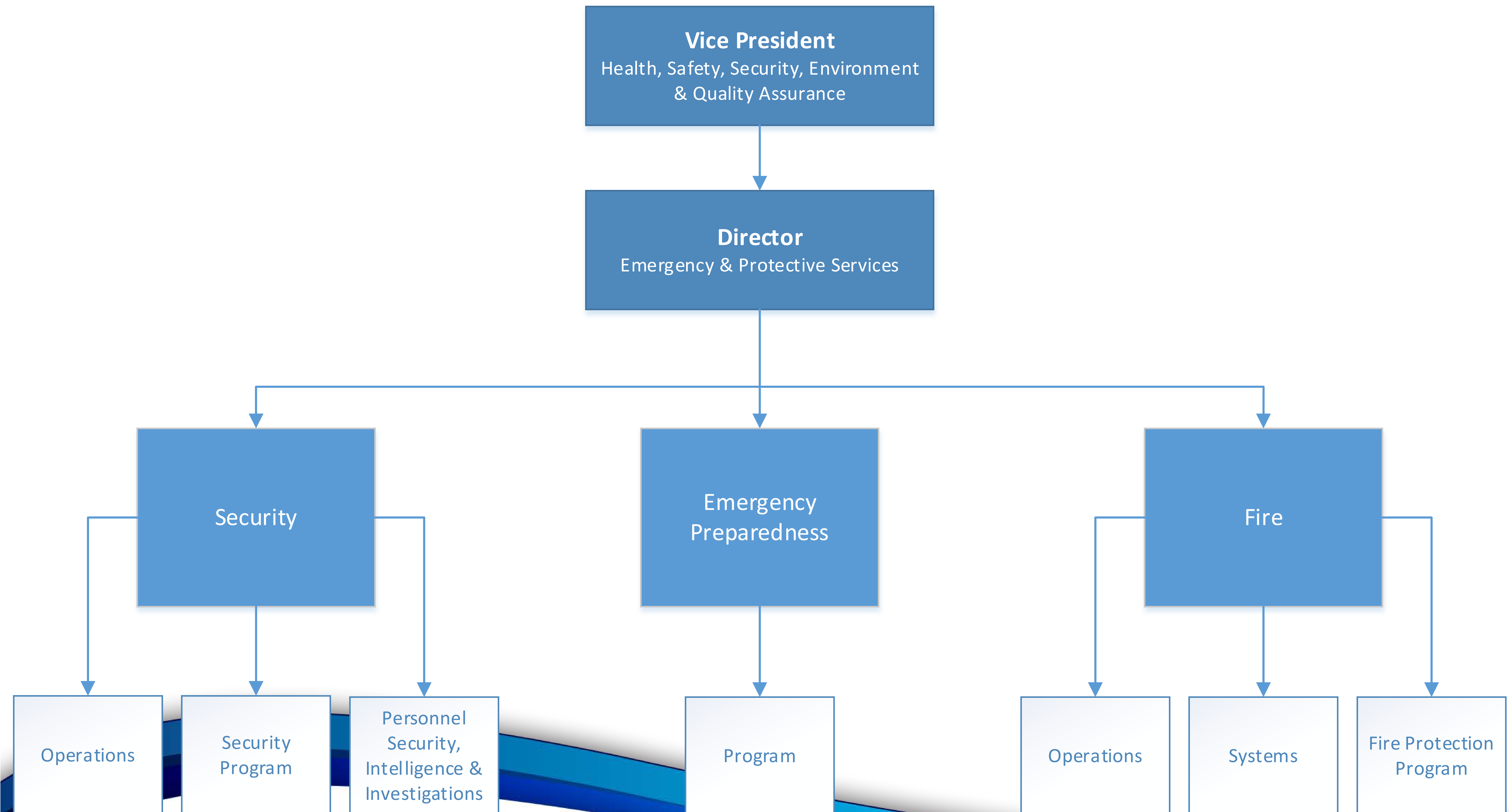
CNL Emergency Response Capabilities

- Emergency and Protective Services
- Radiation Protection, Health Physics, Environmental Protection
- Specialist Advisors



Canadian Nuclear Laboratories

Emergency and Protective Services



Emergency and Protective Services

Purpose

- The Security Program is responsible for the protection of nuclear material and nuclear facilities from elements of theft and sabotage to enable Canada's ongoing nuclear science and technology mission.
- The Fire Protection Program provides fire and emergency services, fire prevention, fire engineering services and fire protection systems for CNL.
- The Emergency Preparedness (EmP) Program focus is the prevention and mitigation of, preparedness for, response to, and recovery from abnormal or emergent events.



Emergency Preparedness

Three Tiers of Response

1. Incident Area

- Fire
- Security
- Radiation

2. Emergency Operations Centre

- Support to the Incident Commander
- Site wide coordination and future planning
- Multiple incident areas

3. Crisis Management

- Support to EOC
- External liaison and communications
- Business Recovery



CNL Integrated Response Exercise

Site Stay In Exercise

Intent – confirm the integration of the responding groups to a building emergency (focus was on Incident Area not EOC)

Scenario – Fire in the Nuclear Fuel Fabrication Facility

Participants – facility authority, building OIC, facility staff, fire, security, radiation assessment team, industrial hygiene, health centre, central monitoring room, security monitoring room, Emergency Operations Centre, some trades people

Security Involvement

- Alarm in CMR, dispatch fire, page out emergency response groups
- Link-up with Incident Commander
- Access control to building due to fire requirement to open/vent
- Security of nuclear material
- Linkup/escort of offsite emergency responders (entry into protected area)
- Traffic control (people and vehicles)



Site Stay In (Evacuation)

Lessons Learned

- Security Team can perform role of incident commander (complex fire/security event)
- Security Team can provide first aid to support in a mass casualty
- Linkup procedures with offsite first responders (ambulance, fire, police)
- Where do you stage vehicles if radiological release?
- Challenge of maintaining security posture while assisting in the emergency
 - Manpower limitations
- Vigilance and outward/inward threats – distraction?
- Incident Command Interoperability
 - Provincial incident management system
 - Face-to-face communication at Incident Command location
 - Radios



CNL Integrated Response Exercise

Site Evacuation Exercise (2015)

Intent – confirm the integration of the responding groups to a site wide evacuation

Scenario – fire in the tritium facility (started as a stay-in and then weather caused full evac)

Participants – CNL first responders, dosimetry, environmental technologists, transportation, local municipalities, provincial agencies, PEOC, federal agencies, hospitals, WANO and IAEA

Security Involvement

- Maintain security of nuclear material
- Control evacuation, traffic
- Coordinate passenger allocation
- Set up monitoring/decontamination lanes on evacuation route
- Support to incident commander
- Support EOC



Site Stay In (Evacuation)

Lessons Learned

- Human behaviour is unpredictable. Never know how people will react in any situation
 - Many people look to people in uniform for guidance/direction (until being told to do something you don't want to do)
 - People panic even during exercises and drills
 - Security must be prepared to keep order
- First responder direction takes precedent over procedures (emails vs security)
- Interoperability
 - Provincial IMS works
 - Terminology and concepts
 - Communications
 - Protective equipment and clothing (dosimeters and respirators)
 - TTX and familiarity



Summary

Take Aways - Food for Thought

- Security of the nuclear material takes priority but excess capacity provides flexibility to the incident commander
- Interoperability with onsite and offsite emergency responders is critical
- Contingency planning with follow-on exercises and drills are the key to a well prepared site (not just first responders)
- Sharing of lessons learned is essential (hot wash, cold wash, review)





Thanks.
Questions?

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