



Emergency
Preparedness
Review
EPREV

**IAEA EPREV Mission
to Canada 2019
Mission Findings and
Canada's Response**



Presentation by the EPREV Steering
Committee to the Canadian Nuclear
Safety Commission

Commission Meeting

17 June, 2020

CMD 20-M14





PRESENTATION OUTLINE

- Overview: Emergency Preparedness and Response in Canada
- EPREV Mission Drivers, Objectives and Scope
- 2019 EPREV Results
- CNSC Specific Action Items
- Observations
- Conclusions



CANADA'S TEAM

Federal Partners

- Health Canada
- Canadian Nuclear Safety Commission
- Public Safety Canada
- Global Affairs Canada
- Natural Resources Canada
- Environment and Climate Change Canada
- Public Health Agency of Canada
- Canadian Food Inspection Agency
- Department of National Defence / Canadian Armed Forces
- Royal Canadian Mounted Police

Ontario Partners

- Ministry of the Solicitor General (Emergency Management Ontario)
- Ministry of Health and Long-Term Care
- Ministry of Labour, Training and Skills Development
- Ministry of the Environment, Conservation and Parks
- Ministry of Children, Community and Social Services
- Ministry of Municipal Affairs and Housing
- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Transportation
- Ministry of Energy, Northern Development and Mines
- Ontario Provincial Police
- Region of Durham
- Lakeridge Health

New Brunswick Partners

- Department of Public Safety (New Brunswick Emergency Measures Organization)
- Department of Health
- Department of Environment and Local Government
- Department of Transportation and Infrastructure
- Department of Education and Early Childhood Development
- Department of Social Development
- Department of Natural Resources and Energy Development
- Ambulance New Brunswick
- Emergency Measures Communication Group
- Service New Brunswick
- Point Lepreau Wardens Service
- Horizon Health Network
- Saint John Regional Hospital

Nuclear Power Plant Operators

- New Brunswick Power Corporation
- Ontario Power Generation
- Bruce Power

Other Non-Government Partners

- Canadian Red Cross

OVERVIEW: EMERGENCY PREPAREDNESS AND RESPONSE IN CANADA



EMERGENCY PREPAREDNESS IN CANADA



Shared responsibility: Relies on ongoing cooperation between Federal (F), Provincial (P), and Territorial (T) governments and their partners

Bottom-up, all-hazards approach:

Local authorities and Provincial/Territorial (P/T) governments provide the first response to most emergencies

If an emergency threatens to overwhelm P/T resources, Federal Government may intervene on request of the P/T

National Emergency Response System:

Harmonizes joint FPT response to emergencies

In a nuclear emergency, provinces/territory assume control from the beginning, and are the primary authority for the response.



INTEGRATED APPROACH (1/2)

Key players in a nuclear emergency – an integrated approach

OPERATOR	LOCAL & PROVINCIAL GOVERNMENT	REGULATOR	FEDERAL GOVERNMENT
<ul style="list-style-type: none">• Prevent escalation• Regain control• Mitigate consequences• Provide information to offsite authorities & the regulator	<ul style="list-style-type: none">• Public Alerting• Iodine Thyroid Blocking Agent• Sheltering• Evacuation	<ul style="list-style-type: none">• Regulatory oversight of operator• Disseminate information• Support to Federal and International	<ul style="list-style-type: none">• Support to provinces• National coordination• Coordination with International governments and agencies



INTEGRATED APPROACH (2/2)

INTERNATIONAL

FEDERAL AUTHORITIES

BORDERING PROVINCES

LOCAL AND PROVINCE



OPERATOR

FEDERAL AUTHORITIES

- Federal Emergency Response Plan (FERP) Departments
- Federal Nuclear Emergency Plan (FNEP) Partners
- Includes:
 - CNSC
 - Health Canada
 - Public Safety (Coordinates federal response)
 - Other government departments

INTERNATIONAL

- Other countries
- IAEA
- World Health Organization

EPREV MISSION DRIVERS, OBJECTIVES AND SCOPE



EPREV MISSION DRIVERS



The 2011 IAEA Ministerial Conference on Nuclear Safety, following the Fukushima Daiichi accident & the Action Plan on Nuclear Safety. APNS specifies that Member States should conduct national reviews of their emergency preparedness and response arrangements using the IAEA review service.

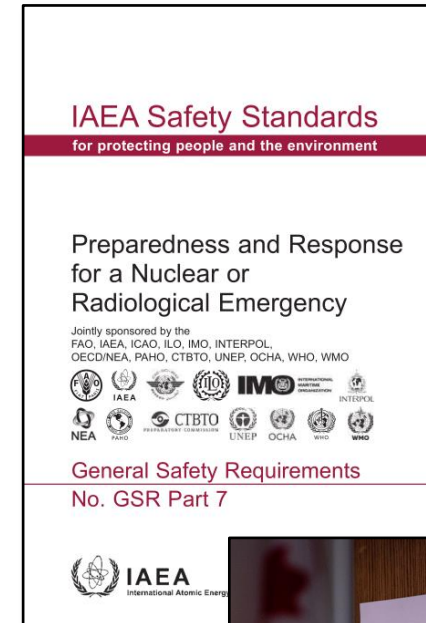


At the 6th Review Meeting of the Convention on Nuclear Safety, Canada received a challenge to hosting an EPREV Mission



EPREV MISSION OBJECTIVE

- Demonstrate that Canada meets the IAEA's standards to respond to a nuclear emergency
- Identify best practices, areas of improvement
- Ensure a high level of preparedness to protect public health and safety at all levels
- Solidify Canada's contribution towards global harmonisation of emergency preparedness and response approaches and arrangements





NATIONAL EPREV GOVERNANCE

Steering
Committee

Federal, Provincial, Municipal Governments,
Nuclear Power Plant Operators

*Provides oversight
and direction*

Planning
Committees

Province of
Ontario
Partners

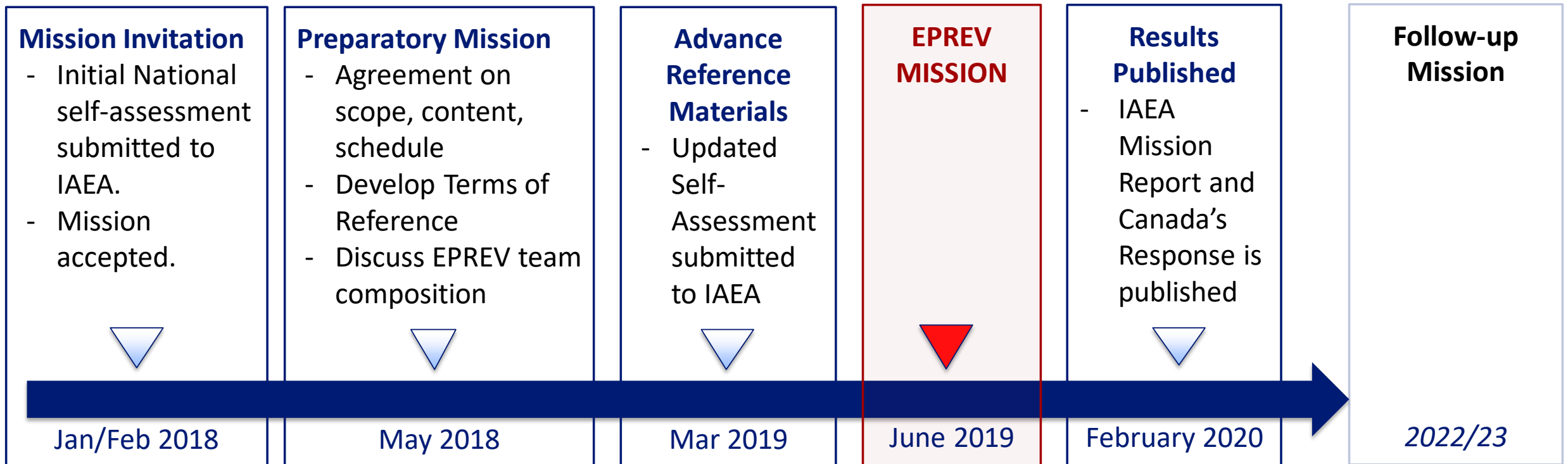
Province of
New
Brunswick
Partners

Federal
Government

*Implements
planning activities
In their jurisdiction*



EPREV MISSION TIMELINE





EPREV MISSION SCOPE

Scope of mission:

- National emergency preparedness and response arrangements related to Nuclear Generating Stations
- Focused on Point Lepreau NGS and Darlington NGS
- Self-assessment and Advance Reference Material (ARM) also included Pickering and Bruce Power Nuclear Generating Stations.





ADVANCE REFERENCE MATERIAL

- On March 2019, Canada submitted the ARM to the IAEA. The ARM contained over 90 emergency preparedness and response arrangements from Federal, Provincial, Municipal, and Operator sources, including:
 - Statutes and Regulations
 - Regulatory Documents
 - Emergency Response Plans

The ARM complements the national self-assessment



COMPOSITION OF THE EPREV REVIEW TEAM



12 Person review team

Team Lead: Michael Scott, USNRC, USA

Deputy Lead: Scott Muston, ARPANSA, Australia

Experts: Finland, France, Germany, Romania, South Africa, South Korea, Sweden, IAEA, and 1 observer from Japan

EMERGENCY
PREPAREDNESS
REVIEW



EXAMEN DE LA
PRÉPARATION AUX
SITUATIONS D'URGENCE



2019 EPREV MISSION TO CANADA

11-Day Mission from June 3 to June 13, 2019

Interviews and site visits in three regions

- CNSC hosted the Ottawa interviews
- EMO hosted the Province of Ontario Interviews and site visits
- NB EMO hosted the Province of New Brunswick interviews and site visits



2019 EPREV RESULTS



REVIEW TEAM DECLARATION



- **Canada has a well developed and mature nuclear emergency preparedness and response system**
- **Canada is ready to respond to a nuclear emergency**

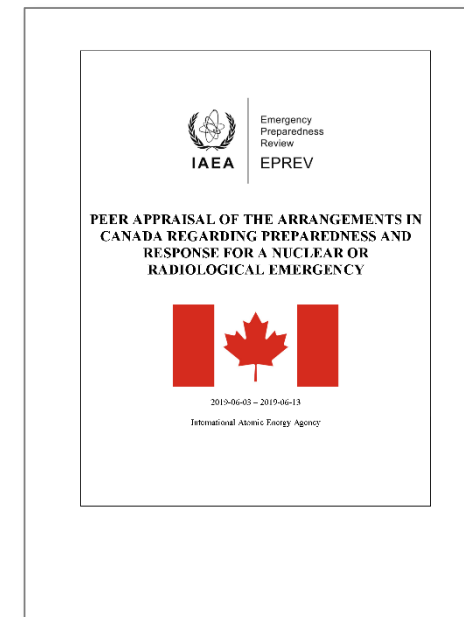


IAEA 2019 EPREV REPORT TO CANADA

EPREV report publicly available in both official languages

Canada is one of the few EPREV host countries to make their full report available

Links to the IAEA's report are available on the CNSC's website



Canada's Action Plan: <http://www.nuclearsafety.gc.ca/eng/resources/international-cooperation/index.cfm>

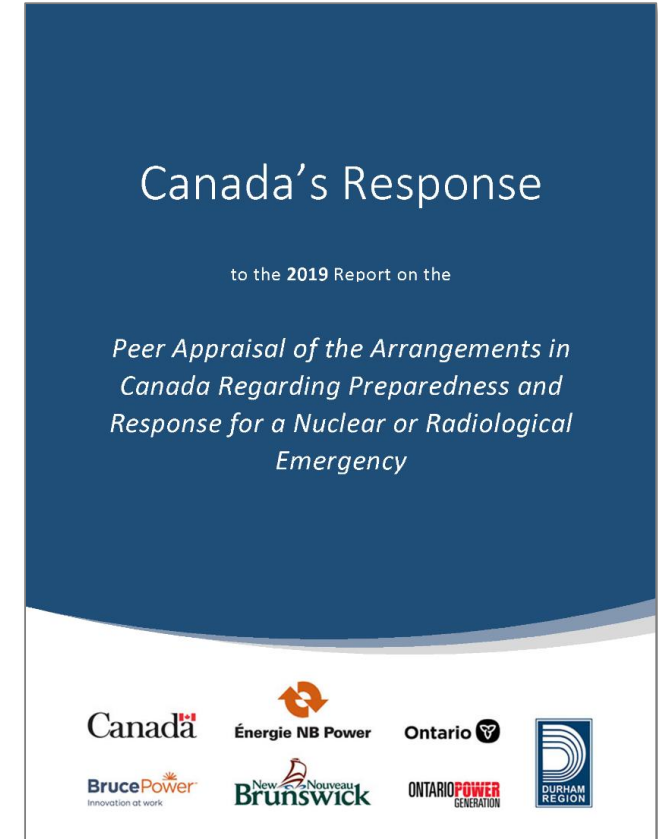


CANADA'S RESPONSE

Canada's Action Plan has been developed to address the findings of the EPREV final report in a timely manner, and prepare for the IAEA's follow-up EPREV mission.

Implementing Canada's Action Plan requires collaboration from all levels of government

Link to Canada's Action Plan is available on the CNSC's website.



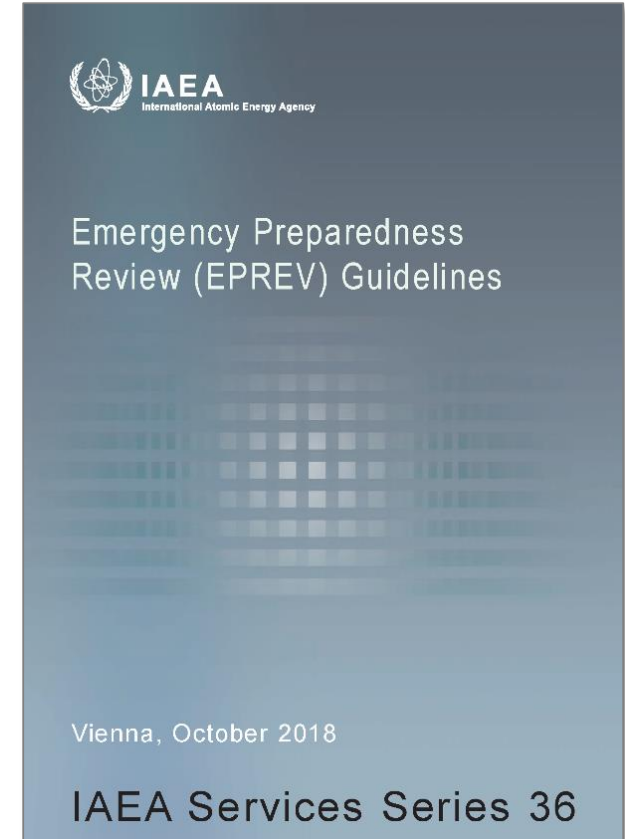
Canada's Action Plan: <http://www.nuclearsafety.gc.ca/eng/resources/international-cooperation/index.cfm>



OVERVIEW OF THE EPREV FINDINGS

The 2019 EPREV mission provided valuable insights to Canada's nuclear emergency preparedness and response framework

Canada was presented with a number of good practices, as well as recommendations and suggestions to continue to strengthen its capability to prepare for and respond to a nuclear emergency.



The EPREV Mission to Canada resulted in 5 Good Practices, 6 Suggestions and 6 Recommendations



FINDINGS - DEFINITIONS

Good Practice

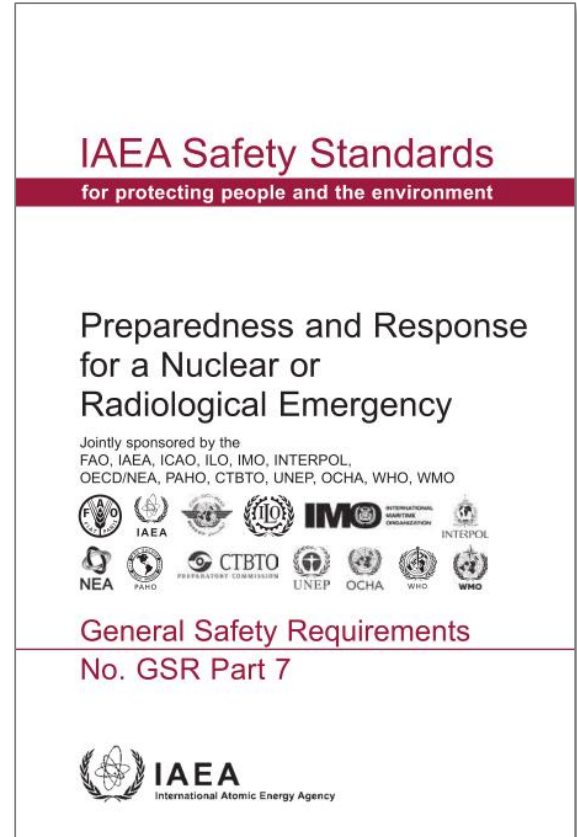
A good practice goes beyond the fulfilment of current IAEA requirements

Suggestion

The requirement is partially met but the arrangements are not entirely consistent with the IAEA Safety Standards; or the requirement is met but it is deemed that tangible improvements could be made to the manner in which the arrangements implement the requirements

Recommendation

Recommendations address aspects of the emergency preparedness arrangements that are not consistent with IAEA Safety Standards





EPREV-CANADA 2019 GOOD PRACTICES

Good Practice 1

“The government has implemented a streamlined process for timely submission and processing of claims after a nuclear or radiological emergency, including a fully accessible web platform”

Good Practice 2

“The implementation of the arrangements for pre-distribution of potassium iodide maximizes public awareness and the effectiveness of this protective action”

Good Practice 3

“The warden service in New Brunswick is an innovative approach to help ensure that relevant information is provided to the public during the preparedness stage”

Good Practice 4

“The use of social media simulators in exercises has enhanced the ability of response organizations in Canada to effectively respond to misinformation on social media”

Good Practice 5

“Canada completed a detailed self-assessment prior to the EPREV mission and published their national self-assessment for all users of the Emergency Preparedness and Response Information Management System (EPRIMS). This allows other States to benefit from the experience of Canada in preparing for and hosting an international peer review”



EPREV-CANADA 2019 SUGGESTIONS

Suggestion 1

“New Brunswick should consider conducting a comprehensive hazard assessment to ensure that emergency arrangements are fully in line with the hazards identified and potential consequences, including events at other facilities and activities, concurrent with an event at Point Lepreau”

Suggestion 4

“The government should consider continuing the current initiative to review the federal governance system for emergency preparedness and response and should consider any implications for national (Federal-Provincial-Territorial) governance”

Suggestion 2

“The government should consider revising arrangements for nuclear or radiological emergencies initiated by nuclear security events, including conducting exercises to test the arrangements”

Suggestion 5

“The government should consider conducting an analysis of minimum resource requirements and training qualification for response organizations at all levels”

Suggestion 3

“Ontario should consider designating medical personnel trained in the clinical management of radiation injuries”

Suggestion 6

“The government should consider continuing the implementation of the strategy to ensure regular participation of senior officials with strategic decision making authority in drills and exercises”

Canada committed to address all suggestions



EPREV-CANADA 2019 RECOMMENDATIONS

Recommendation 1

“The government should ensure that the results of the nuclear security threat assessment are incorporated into a hazard assessment”

Recommendation 2

“The government should ensure that the protection strategy includes provisions for justification and optimization of the individual protective actions and the overall strategy”

Recommendation 3

“The government should revise and further develop arrangements for the protection of emergency workers and helpers and clarify how helpers in an emergency would be utilized”

Recommendation 4

“The government should ensure that there is a monitoring strategy or strategies in place for emergency response and that sufficient resources are available in a suitable time to implement the strategy throughout the emergency response”

Recommendation 5

“The Government should document and fully develop roles and responsibilities and arrangements for the safe management of offsite radioactive waste arising from an emergency”

Recommendation 6

“The government should develop arrangements to terminate a nuclear or radiological emergency including criteria and procedures for making a formal decision”

Canada committed to address all recommendations



EPREV STEERING COMMITTEE

Findings directed to the Province

- Province of Ontario: Led by Emergency Management Ontario
- Province of New Brunswick: Led by New Brunswick Emergency Measures Organization

Findings directed to the Government

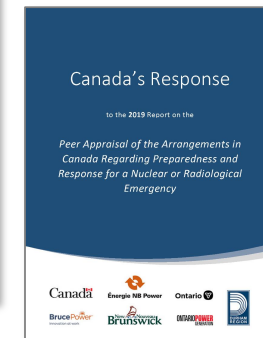
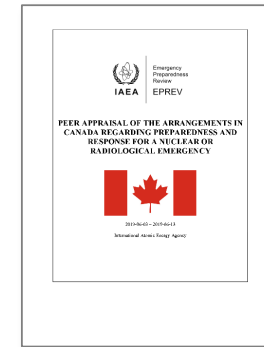
- Involves both Federal and Provincial organizations and agencies
- Supported by the Region of Durham and the Nuclear Generating Stations

83 Specific actions have been identified and assigned to one or more organizations

8 Organizations are leading or co-leading specific actions

Action leads and co-leads are responsible for reporting to the EPREV Secretariat on a quarterly basis

EPREV Steering Committee will meet twice-annually to review and guide implementation



Implementing Canada's Action Plan requires collaboration from all levels of government and the NGS



SPECIFIC ACTIONS INVOLVING THE CNSC

Suggestion 2 (4)

Clarify GSR Part 7 expectations for the coordination of on-site and off site response concurrent with a nuclear incident;
 Conduct exercises to test revised safety-security interface arrangements;
 Propose revisions to REGDOC 2.10.1 Version 2 to include arrangements for safety-security interface; and
 Propose updates CSA N1600 to include arrangements for safety-security interface

Recommendation 1 (2)

Clarify the GSR Part 7 expectations for the safety-security interface, as they relate to the hazard assessment; and
 Consider the on-site security threat assessments and communicate potential off-site impacts to off-site Authorities

Suggestion 4 (1)

Convert EPREV Steering Committee into a permanent Senior Officials oversight committee for nuclear emergency preparedness and response

Recommendation 5 (3)

Host IAEA workshop on Termination of an emergency;
 Formalize an Federal, Provincial/Territorial waste management working group; and
 Document roles and responsibilities of organizations

Suggestion 5 (3)

Conduct analysis of EOC and other operational program capacities and requirements;
 Establish risk mitigation strategies to address resource gaps; and
 Follow-up with recommendations of the analysis

Recommendation 6 (3)

Host IAEA workshop on Termination of an emergency;
 Publish federal guidance document on recovery from a radiological/Nuclear emergency; and
 Host Workshop on Recovery

Suggestion 6 (2)

Conduct full-scale priority exercise(s) involving senior management; and
 Update CSA N1600 to ensure senior management participation in exercises

18 Specific Actions assigned to the CNSC



CANADA'S COMMITMENT

Canada is committed to addressing all recommendations and suggestions
The EPREV Steering Committee remains in place to oversee the closure of all actions

Canada looks forward to hosting IAEA follow-up mission to demonstrate the improvements made as a result of actions taken to address the EPREV findings



CANADA'S ACTION PLAN IMPLEMENTATION TO DATE

Publication of the National Action Plan in February 2020

- Promoting future nuclear full-scale exercise consider nuclear security component (Suggestion #2)
- CSA N1600 updated to include requirements for medical personnel trained in the clinical management of radiation injuries (Suggestion #3)
- A Human Factors review of the CNSC's response to the full-scale nuclear exercise, Huron Resilience, was conducted in 2019 (Suggestion #5)
- Hosted an IAEA Regional Workshop on the Termination of a Nuclear Emergency (Recommendation #5)
- Decision made to transform the CNSC's draft REGDOC 2.10.1 Volume 2 into a Health Canada Guidance Document (recommendation #6)

Canada's Action Plan: <http://www.nuclearsafety.gc.ca/eng/resources/international-cooperation/index.cfm>

OBSERVATIONS OF THE HOST COUNTRY



INITIAL PHASE OBSERVATIONS

- In Canada's system, many organisations are involved
 - requires extensive engagement, consultation, and negotiation
- Keys to success included:
 - Project charter
 - National EPREV governance
 - GSR Part 7 workshop
 - Candid self-assessment
- Operator's engagement was paramount
- EPREV Communications Group was essential for managing strategic and risks communications
- EPRIMS was a useful tool for consolidating self-assessment information from stakeholders





PREPARATORY & CONDUCT PHASE OBSERVATIONS

- Comprehensive Self-Assessment and ARM increased the mission's efficiency
- The EPREV Team was well prepared and asked appropriate questions
- Canada's team was committed to open, unscripted interviews and discussions with the EPREV Team
- Full support from leaders of participating organizations the review, led to a consensus on findings
- Canada suggests EPREV review teams:
 - Should understand the host country's governance structure prior to missions
 - Identify areas of focus prior to the mission to allow organizations to compile all of the additional documentation and information requested ahead of time



SUMMARY



SUMMARY

- Canada became the first G7 country to conduct an EPREV mission and fulfilled the challenge under the convention of nuclear safety
- The mission was a success because of the collaboration and contributions of the federal, provincial, and municipal partners and the operators
- The mission resulted in 5 Good Practices, 6 Recommendations and 6 Suggestions
- Canada commits to addressing all recommendations and suggestions
- Canada has shared both the IAEA's report and Canada's response with the public, in both official languages

EPREV planning team was awarded the Canadian Nuclear Society 2020 John S. Hewitt Team Achievement Award

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