Health Canada Santé Canada

Your health and safety… our priority. *Votre santé et votre sécurité… notre priorité.*

Federal Nuclear Emergency Plan

Part 1: Master Plan
5th Edition

January 2014

Canada

This page intentionally left blank

Federal Nuclear Emergency Plan
Part 1: Master Plan
5th Edition

January 2014

Health Canada is the federal department responsible for helping the people of Canada maintain and improve their health. We assess the safety of drugs and many consumer products, help improve the safety of food, and provide information to Canadians to help them make healthy decisions. We provide health services to First Nations people and to Inuit communities. We work with the provinces to ensure our health care system serves the needs of Canadians.

Également disponible en français sous le titre :
Plan fédéral en cas d'urgence nucléaire

To obtain additional copies, please contact:

Chief, Nuclear Emergency Preparedness and Response Division
Radiation Protection Bureau
Health Canada
Ottawa, ON K1A 0K9
Tel.: 613-954-6676
Fax.: 613- 948-4098
TTY: 1-800-465-7735
E-mail: neprd-dpiun@hc-sc.gc.ca

This publication can be made available in alternative formats upon request.

Publication date: January 2014

Cat.: H129-35/2014E-PDF
ISBN: 978-1-100-23135-8
Pub.: 130536

ENDORSEMENT OF THE FEDERAL NUCLEAR EMERGENCY PLAN

The *Federal Nuclear Emergency Plan, 5th edition* (2013) was endorsed by the Deputy Minister's Emergency Management Committee (DM EMC) on 9 October 2012. Endorsement signifies that federal government institutions with designated roles and responsibilities in the *Federal Nuclear Emergency Plan, 5th edition* agree to:

- Support the principles and implement the measures in the Plan;
- Maintain capabilities to implement their roles and responsibilities;
- Participate in regular training and exercises of the plan or portions thereof; and
- Participate in regular reviews and updates of the plan and supporting documents.

The following federal government institutions have designated responsibilities under the *Federal Nuclear Emergency Plan, 5th edition*. These roles and responsibilities supplement those described in the *Federal Emergency Response Plan* and associated Emergency Support Functions.

Health Canada and the Public Health Agency of Canada
Aboriginal Affairs and Northern Development Canada
Agriculture and Agri-Food Canada
Atomic Energy of Canada Limited
Canada Border Services Agency
Canadian Food Inspection Agency
Canadian Nuclear Safety Commission
Department of National Defence/Canadian Forces
Environment Canada
Fisheries and Oceans Canada
Foreign Affairs and International Trade Canada
Human Resources and Skills Development Canada
Natural Resources Canada
Privy Council Office
Public Safety Canada/Government Operations Centre
Royal Canadian Mounted Police
Transport Canada

PREAMBLE

As stated in the *Emergency Management Act*, all federal ministers are responsible for developing emergency management plans in relation to risks in their areas of accountability. The Minister of Public Safety is responsible for coordinating the Government of Canada's response to an emergency, for promoting and coordinating emergency management plans.

Within the federal Health Portfolio (HP), responsibilities for emergency management activities are shared by the two main organizations: Health Canada (HC) and the Public Health Agency of Canada (PHAC). The HP takes action to assist Provinces to protect and mitigate the risks to the health of Canadians. In addition, the HP develops and maintains civil emergency plans for emergencies that may endanger the health and safety of the public or the environment, including but not limited to:

- the *Public Health and Essential Human Services* Emergency Support Function under the *Federal Emergency Response Plan* (FERP), and
- the coordination of federal technical-scientific preparedness and response to radiological and nuclear emergencies through the *Federal Nuclear Emergency Plan* (FNEP).

The *Federal Nuclear Emergency Plan* (FNEP), prepared by the Minister of Health, is an annex to the FERP. The FNEP provides supplemental and specific multi-departmental and inter-jurisdictional arrangements necessary to address the health risks associated with a radiological or nuclear emergency. The FNEP supports rapid mobilization of federal radiological assessment and other specialized capabilities to manage the potential health risks associated with a radiological or nuclear emergency. The plan defines specific roles and responsibilities of federal response organizations for nuclear emergency functions, and linkages between federal and provincial/territorial emergency management organizations which can be initiated on a 24 hour, 7 day basis.

In the event of a radiological or nuclear emergency requiring a coordinated Government of Canada response, the Minister of Public Safety will be responsible for overall federal coordination on behalf of the Government of Canada unless otherwise specified. The response framework established under the FERP will be supplemented by some, or all of the specific provisions contained in the FNEP in order to integrate and coordinate the scientific and technical capabilities of federal partners and to address the specific radiological consequences of the emergency. The lead Minister for the federal response to a nuclear emergency will be confirmed by the Privy Council Office and/or the Prime Minister's Office.

The Minister of Public Safety also has specific responsibility for the development and maintenance of civil emergency plans, with the support of Government of Canada institutions, for:

- Coordinating federal and provincial/territorial communications activities and developing a harmonized federal and "Whole of Government" communications response to an emergency of national significance, to share relevant communications information and to work collaboratively to achieve integrated and effective emergency communications.[1]
- Coordinating federal chemical, biological, radiological, nuclear and explosive surveillance at major public gatherings and events of national security interest; and
- Coordinating the federal security response to a deliberate act or threat that may result in a radiological or nuclear emergency.

Within the overall federal response to such events, the arrangements described in the *Federal Nuclear*

[1] Reference: FERP ESF#12 - http://www.publicsafety.gc.ca/prg/em/ferp-eng.aspx#a52

Emergency Plan may be used to support radiological surveillance activities or the management of radiological consequences as described in other relevant plans[2].

[2] For example, the *Federal CBRNE Plan* (under development in 2012).

PLAN MAINTENANCE

The *Federal Nuclear Emergency Plan* and its supporting documents are managed and maintained by the Radiation Protection Bureau (RPB), Environmental and Radiation Health Sciences Directorate (ERHSD), Healthy Environments and Consumer Safety Branch (HECSB), Health Canada.

Inquiries or comments on the FNEP or its supporting documents should be directed to:

Chief, Nuclear Emergency Preparedness and Response Division
Radiation Protection Bureau
Health Canada
2720 Riverside Drive, Address Locator 6604G
Ottawa, Ontario
K1A 0K9
CANADA

Telephone: 613 954-6676
Facsimile: 613 948-4098
Email: neprd-dpuin@hc-sc.gc.ca

The FNEP and its supporting documents are evergreen documents. The FNEP will be reviewed annually and updated as required. This review is intended to:

- facilitate consistency with the national emergency management framework and international obligations and standards for radiological and nuclear emergency management;
- maintain appropriate linkages with the *Federal Emergency Response Plan* and other related plans and documents;
- maintain operational processes consistent with departmental roles and responsibilities, and
- incorporate lessons learned from exercises and emergencies.

As part of this review, partners will be asked to provide any requests for modifications. Minor amendments will be approved by Health Canada and the affected government institutions. Major updates will be sent to all partners for review and approval.

Requests for amendments to the FNEP or its supporting documents must be submitted in writing to the above point of contact. Substantive changes to departmental procedures, strategies, mandates or points of contact affecting the FNEP must be provided within 30 days of the changes taking effect.

AMENDMENTS AND CONTROL

Health Canada's RPB maintains a distribution list of all recipients of the *Federal Nuclear Emergency Plan*.

Holders of the *Federal Nuclear Emergency Plan* are responsible for verifying and maintaining current the distribution information for their organization, and for informing the point of contact (listed in the previous "Plan Maintenance" section) of any changes to the distribution lists.

The 5th edition of the *Federal Nuclear Emergency Plan* replaces all previous versions of the *Federal Nuclear Emergency Plan*.

LIST OF AMENDMENTS				
DATE (yy-mm)	**EDITION**	**SECTIONS AFFECTED**	**STATUS**	**INSERTED BY (Name or Initials)**
1984-09	1st edition	Complete Plan	X	n/a
1991-10	2nd edition	Complete Plan	X	n/a
1996-10	3rd edition - Revised draft	Complete Plan	X	n/a
1997-12	3rd edition - Interim Plan	Complete Plan	X	n/a
2002-05	4th edition - Revised Master Plan	Part 1	X	n/a
2007-06	4th Edition - Updated Appendix	Appendix 5, Table A5.1	X	n/a
2013-04	5th Edition	Complete Plan	Endorsed by DM EMC (2012-10)	

NOTE TO READERS

Henceforth, first occurrences in the text of terms that are listed in the Glossary are formatted in **bold**.
Titles of acts, plans and supporting documents are formatted in *italics*.

FOREWORD

The *Emergency Management Act* defines emergency management as the prevention and mitigation of, preparedness for, response to, and recovery from emergencies. To the extent possible, the federal government's emergency planning, preparedness, response and recovery are based on an "all-hazards" approach. Under the *Emergency Management Act*, the Minister of Public Safety is responsible for coordinating the Government of Canada's response to an emergency. The *Federal Emergency Response Plan* (FERP) is the Government of Canada's "all-hazards" response plan.

The FERP applies to domestic emergencies and to international emergencies with a domestic impact, and has both national and regional level components providing a framework for the integration of effort both horizontally and vertically throughout the Federal Government. As a result of its broad nature, the FERP provides the foundation for event-specific plans.

In general, radiological and nuclear facilities and activities worldwide are designed, operated and regulated according to stringent international standards. Nonetheless, past radiological and nuclear emergencies have occurred with wide-ranging and long-term health, environmental, social and economic impacts (Three Mile Island, 1979; Chernobyl, 1986; Fukushima, 2011). Experience in responding to radiological and nuclear emergency situations has shown that robust, clear and exercised emergency preparedness and response arrangements, agreed objectives, reliable technical assessment, appropriate decision making on **protective actions**, international coordination and proactive public communications and stakeholder engagement are essential for an effective response. Internationally accepted standards have been developed that provide guidance to national authorities on arrangements for radiological and nuclear emergency management.

The inherent technical nature and scientific complexity associated with radiological and nuclear emergencies require specific arrangements to address the scientific and technical issues that will arise during such events. The *Federal Nuclear Emergency Plan* describes these event-specific arrangements, capabilities and functions. The FNEP also complements the all-hazards arrangements and response mechanisms of the FERP to provide a coherent framework for managing the consequences of a radiological or nuclear emergency. The FNEP is supported by separate documents that provide details on related operational arrangements.

The *Federal Nuclear Emergency Plan* is written on the assumption that the reader has a prior understanding and familiarity with the *Federal Emergency Response Plan* (FERP, 2011) and the *National Emergency Response System* (NERS, 2011).

TABLE OF CONTENTS

ABBREVIATIONS

AANDC	Aboriginal Affairs and Northern Development Canada
AECL	Atomic Energy of Canada Limited
ALARA	As Low As Reasonably Achievable
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosives
CFIA	Canadian Food Inspection Agency
CNSC	Canadian Nuclear Safety Commission
ConvEx	Convention Exercise (IAEA)
DFAIT	Foreign Affairs and International Trade Canada
DND/CF	Department of National Defence/Canadian Forces
EC	Environment Canada
EOC	Emergency Operations Centre
ERHSD	Environmental and Radiation Health Sciences Directorate (Health Canada)
ESF	Emergency Support Function
FCC	Federal Coordination Centre
FCO	Federal Coordinating Officer
FERMS	Federal Emergency Response Management System
FERP	Federal Emergency Response Plan
FNEP	Federal Nuclear Emergency Plan
FRAT	Federal Radiological Assessment Team
GOC	Government Operations Centre
HC	Health Canada
HECSB	Healthy Environments and Consumer Safety Branch (Health Canada)
HP	Health Portfolio (HC+ PHAC)
IAEA	International Atomic Energy Agency
INES	International Nuclear Event Scale
INEX	International Nuclear Exercise Series (OECD/NEA)
LLRWMO	Low Level Radioactive Waste Management Office
LO	Liaison Officer
NEF	Nuclear Emergency Function
NERS	National Emergency Response System
NOC	RCMP National Operational Centre
NPV	Nuclear Powered Vessel
NRCan	Natural Resources Canada
NWP	National Warning Point
OECD/NEA	Organisation for Economic Co-operation and Development / Nuclear Energy Agency
PHAC	Public Health Agency of Canada
PPE	Personal Protective Equipment
PS	Public Safety Canada
RCMP	Royal Canadian Mounted Police
RDD	Radiological Dispersal Device
RED	Radiation Exposure Device
RN	Radiological-Nuclear
SME	Subject Matter Expert
SOREM	Senior Officials Responsible for Emergency Management
TAG	Technical Assessment Group
TC	Transport Canada
WHO	World Health Organization

This page intentionally left blank

1 FNEP OVERVIEW

1.1 PURPOSE

A nuclear or radiological emergency as defined in this plan is any event which has led or could lead to the release of radioactive material, or exposure to sources of radiation, and which requires, or may require, prompt action to mitigate a threat to public health and safety, property, and/or the environment. Henceforth, such an event will be referred to as a **nuclear emergency**.[3] For sake of clarity, this includes events that may be referred to in other plans as radiological or nuclear emergencies.

The primary goals of nuclear emergency management are to protect public health and safety from immediate or delayed health effects due to exposure to uncontrolled sources of radiation, and to mitigate the radiological impacts of the emergency on property and the environment. Actions required to meet these goals should be carried out with due consideration for all actions required to mitigate the non-radiological impacts of the event. Due to the multi-jurisdictional and multi-organisational nature of the response as well as the wide range of potential effects and concerns, nuclear emergency management spans all orders of government and touches many federal departmental mandates.

The *Federal Nuclear Emergency Plan* (FNEP) and its Annexes describe the Government of Canada's preparedness and response framework for coordinating scientific and technical resources to support the federal **off-site** response to significant nuclear emergencies, either in delivery of its responsibilities or in support of provincial/territorial actions.

This Plan complements and integrates with the overarching governance established by the *Federal Emergency Response Plan* (FERP; PS, 2011), which includes the *Federal Emergency Response Management System* (FERMS), and *National Emergency Response System* (NERS; PS, 2011). Specific plans and arrangements in support of the FERP, including the **Emergency Support Functions** (ESF) and departmental plans, will apply in a nuclear emergency (for example, all provisions for managing Public Health and Essential Human Services (FERP-ESF #5) are under the *Health Portfolio Emergency Response Plan*).

The FNEP focuses on specific multi-organization governance and scientific/technical arrangements that supplement the existing all-hazards provisions of these documents in the event of a nuclear emergency. The FNEP identifies **Nuclear Emergency Functions** (NEF), which are activities required for managing the radiological consequences of nuclear emergencies. Primary and supporting organizations contribute to the NEFs in accordance with their mandates and capabilities (see Annex A).

The FNEP is supported by other documents including, but not limited to:

- Annexes that describe the interface between the federal and provincial/territorial **emergency management organizations** and the planning arrangements for providing coordinated federal support to provinces/territories affected by nuclear emergencies;
- Procedures and guidance for executing FNEP operations and implementing NEFs (for example, the Technical Assessment Group Operations Manual);
- All-hazards departmental plans and operating procedures in support of FERP Emergency Support Functions (FERP-ESF); and

[3] A nuclear emergency includes emergencies involving "nuclear substances" as defined in the *Nuclear Safety and Control Act*. Other plans may refer to these as radiological or nuclear accidents or emergencies.

- Specific departmental nuclear emergency plans and other similar documents.

A list of related documents is included in Annex B, and a list of FNEP supporting documents[4] is provided in Annex D.

1.2 AUTHORITIES

The FNEP is prepared by the Minister of Health. The Minister's authority is derived under section 6 of the federal *Emergency Management Act* (2007). The FNEP is a multi-departmental plan that is endorsed by the Deputy Minister's Emergency Management Committee, which includes federal institutions that have specific responsibilities under this plan.

Federal government institutions have primary and supporting roles and responsibilities for general Emergency Support Functions (ESF) as described in the FERP. In the event of a nuclear emergency, the applicable **consequence management** provisions of the FERP and the ESFs will be coordinated by Public Safety Canada/Government Operations Centre.

Support for Public Health and Essential Human Services (ESF #5) will be coordinated by the Health Portfolio in accordance with the *Health Portfolio Emergency Response Plan*. Specific arrangements focussed on protection of public health during nuclear emergencies are documented in more detail under the *Nuclear Emergency Annex* to the *Health Portfolio Emergency Response Plan (under development in 2013)*.

Regulatory oversight of **nuclear licensed facilities** in Canada is the responsibility of the Canadian Nuclear Safety Commission (CNSC). During an emergency at a nuclear licensed facility in Canada, the CNSC, as **on-site** authority, will assess the **safety significance** of the emergency with its licensees and provide scientific and technical advice to partners as described in the *CNSC Emergency Response Plan*.

For incidents involving **nuclear powered vessels** from foreign armed forces in Canadian ports, the Department of National Defence/Canadian Forces (DND/CF) will act as the Canadian on-site authority.

Health Canada administers the FNEP and has the authority to initiate the arrangements described herein in support of Federal, Provincial or Territorial partners and international organizations. The decision to escalate the response level of the FNEP rests with Health Canada but will generally be done in consultation with Public Safety Canada/Government Operations Centre, the CNSC as the federal regulator of the nuclear industry, and/or the DND/CF for events involving nuclear-powered vessels. Health Canada may also consult other federal government institutions as appropriate.

In the event of a nuclear emergency occurring abroad, elements of the FNEP may be implemented in support of the emergency response coordinated by Foreign Affairs and International Trade Canada (DFAIT) for the protection of Canadians and Canadian interests abroad, the management of Canada's diplomatic and consular relations and the conduct of bilateral and multilateral relations.

In accordance with the *Security of Offences Act* (2005), the RCMP will act as the lead investigative agency for any possible terrorist attack involving nuclear substances until determined otherwise.

[4] This includes documents to be updated or developed at time of press.

1.3 SCOPE

The focus of the FNEP is to coordinate the management of actual or potential off-site radiological consequences resulting from a nuclear emergency. The FNEP defines five nuclear emergency event categories according to the potential scope of impacts on Canada or Canadians:

- **Category A:** An emergency at a nuclear power plant in Canada;
- **Category B**: An emergency at a nuclear power plant in the United States or Mexico;
- **Category C:** An emergency involving a nuclear-powered vessel in Canada;
- **Category D:** Other serious nuclear emergencies or potential threats in North America that require a multi-departmental or multi-jurisdictional response;
- **Category E:** A nuclear emergency occurring outside of North America.

These categories are elaborated in more detail in Section 2.

While the FNEP is focussed on scientific and technical arrangements required to address actual or potential radiological risks associated with the above categories, the arrangements described herein may be used in support of the *Federal CBRNE Plan* (under development in 2012), within the overall governance described by the FERP, to support communications, prevention and mitigation measures, to provide technical support to pre-planned events and no-notice security activities and to address **radiological consequence management** of deliberate radiological attacks.

1.4 LIMITATIONS

The FNEP does not describe arrangements for:

- Scientific support to security functions, including radiological or nuclear surveillance activities at major public gatherings and events of national security interest, as covered in the *Federal CBRNE Plan* (under development in 2012). However as mentioned above, in the event of a radiological incident the arrangements described in the FNEP may be implemented to support the management of radiological consequences.
- Emergencies which pose only a limited radiological threat over a localized area and which are not anticipated to exceed the capabilities of regulatory, local, or provincial/territorial authorities to respond. These include but are not limited to:
    - Events at licensed nuclear facilities with no radiological off-site impacts, or involving only non-radiological hazards to the personnel at the facilities, the public or the environment; and
    - Transportation accidents involving regulated quantities of radioactive material on Canadian lands or in Canadian territorial waters.

While the FNEP describes the transition to recovery (Section 5), management and coordination of the **recovery phase** of a nuclear emergency fall outside of the scope of the FERP and FNEP. Once the situation has been brought under control and the emergency response phase terminated, a specific Minister of the Crown may be assigned responsibility for coordinating federal recovery operations.

1.5 GOALS OF NUCLEAR EMERGENCY RESPONSE AND NUCLEAR EMERGENCY FUNCTIONS

In accordance with international safety standards (IAEA, 2002), the practical response goals to a nuclear emergency at all levels of jurisdiction are to:

- Regain control of the situation;
- Prevent or mitigate consequences at the scene;
- Prevent the occurrence of **deterministic radiological health effects** in workers and the public;
- Render first aid and manage the treatment of radiation injuries;
- Prevent, to the extent practicable, the occurrence of **stochastic radiological health effects** in the population;
- Prevent, to the extent practicable, the occurrence of non-radiological effects on individuals and among the population;
- Ensure the public has the information needed to protect itself;
- Protect, to the extent practicable, property and the environment; and
- Prepare, to the extent practicable, for the resumption of normal social and economic activity.

A sound technical understanding of the elements contributing to the radiological hazard, its potential impacts and its mitigation is essential to achieving these goals. To this end, the FNEP provides, within the governance established by the FERP, a framework to draw upon and coordinate the scientific and technical expertise and capabilities from multiple federal government departments/agencies in response to the emergency. Specific Nuclear Emergency Functions to be undertaken are described in Section 4. Annex A identifies the respective roles and responsibilities of FNEP partner departments or agencies in carrying out these functions.

All organizations involved in the FNEP are expected to develop, maintain or update plans, procedures and capabilities consistent with their responsibilities under the NEFs. Additionally, FNEP operating procedures describe how the NEFs will be applied to different nuclear emergency scenarios.

1.6 PROVINCIAL/TERRITORIAL ANNEXES

The FERP and FNEP recognize the primary responsibility of provinces and territories for protecting public health and safety, property and the environment within their borders. Every province/territory has its own unique emergency management structure and requirements for federal support in the event of a nuclear emergency. Provinces/Territories may also have incorporated roles of some federal government institutions directly in their provincial/territorial nuclear emergency or all-hazard response plans. To facilitate timely support, Provincial Annexes were developed for previous editions of the FNEP, at the request of some provinces. These Annexes described the specific arrangements between the FNEP and Provincial nuclear plans, including linkages between the federal and provincial/territorial emergency structures. Existing and new Annexes may be updated, revised or developed at the request of a Province or Territory and included in the FNEP (Annex E). Support to provinces and territories without specific annexes to the FNEP will follow the established arrangements of the FERP and the NERS.

2 PLANNING BASIS FOR NUCLEAR EMERGENCIES

The planning basis describes the nature of the hazards associated with nuclear emergencies, the types of events for which the FNEP applies, the principles that are relevant in planning and preparing to respond to such events, and the role of federal organizations in responding to these events and in achieving the response goals.

2.1 NATURE OF THE HAZARD AND RESPONSE

The main hazards associated with an emergency as covered by this plan are the actual or potential radiological impacts on health, safety, property and the environment resulting from an uncontrolled release of radioactive material into the environment and subsequent public exposure above regulatory or guideline levels, as well as any related societal and economic impacts. Such exposures may be short-term or long-term and may be received through various pathways (see Figure 2.1).

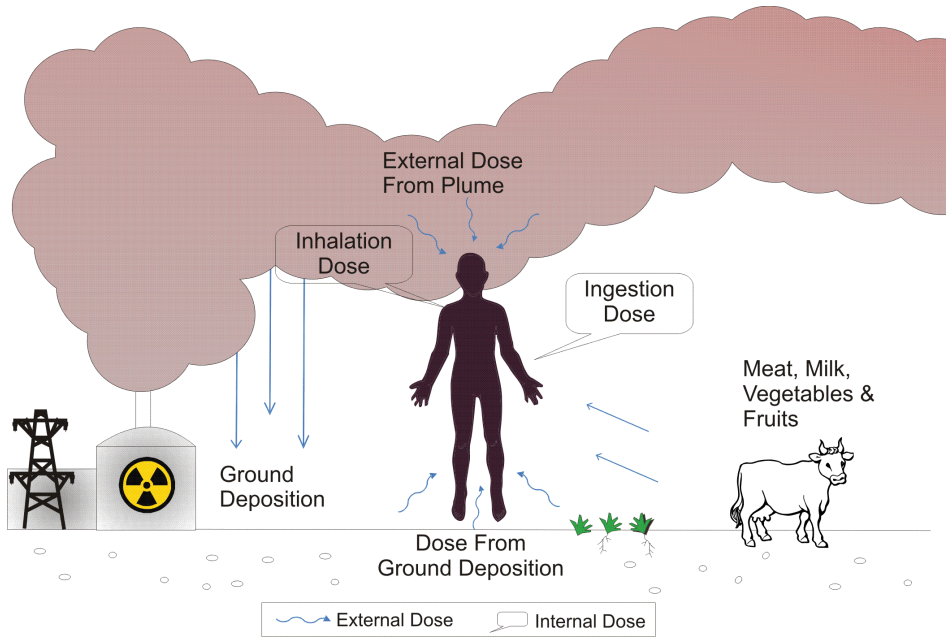


Figure 2.1: Exposure Pathways

The practical goals of the response to a nuclear emergency are to:

- prevent the occurrence of deterministic radiological health effects by keeping doses below relevant dose thresholds; and
- take reasonable steps to reduce the occurrence of stochastic radiological health effects in the population.

These goals are achieved by undertaking timely interventions, or protective actions, to reduce or control the magnitude, duration and pathways of exposure and to mitigate the impacts on health, safety, property and environment. As emergency interventions may carry their own risks and costs, they should be optimised to maximize the benefit of the interventions and keep any resulting doses and residual radiological risk "As Low As Reasonably Achievable" (ALARA), taking into consideration economic and social factors (ICRP, 2009).

2.2 PLANNING FRAMEWORK FOR NUCLEAR EMERGENCY MANAGEMENT

2.2.1 Prevention and Mitigation

In regards to nuclear emergency management in Canada, the operators of nuclear generating stations, research reactors, licensed nuclear facilities and licensed activities are responsible for safe operations and for on-site or on-scene emergency management. This is performed within the regulatory framework overseen by the CNSC for civilian nuclear activities or by DND/CF for activities within its authority.

Provincial and territorial governments have the primary responsibility for protecting public health and safety, property and the environment within their borders. They are responsible for decisions on protective actions for nuclear emergencies such as **access control**, **sheltering**, **evacuation**, **thyroid blocking**, and protection of food and water supplies.

Various federal government institutions singularly, or in cooperation with others, are responsible for:

- developing, controlling and regulating uses of nuclear energy and nuclear substances (CNSC or DND/CF, as applicable);
- managing nuclear liability (NRCan);
- preparing, testing and exercising emergency management plans and arrangements relevant to their areas of jurisdiction (all);
- coordinating with and providing support to provinces and territories for all types of emergencies (PS);
- supporting public communications within their areas of responsibility;
- preparing and responding to nuclear emergencies in support of provinces and territories (HC and FNEP partners); and
- liaising with the international community (DFAIT, HP, CNSC, GOC).

The extent and focus of federal involvement will depend on the nature, magnitude and location of the emergency, the level of support requested by affected provinces and territories, and the nature of the interventions required. All responses at the federal level will be based on the planning principles and requirements discussed below.

The federal government may also be called upon to respond to a nuclear emergency in another country, either to protect Canadians and Canadian interests abroad, to manage diplomatic and consular relations, conduct bilateral and multilateral relations, mitigate direct impacts on Canada, or provide assistance to foreign governments.

2.2.2 Planning Principles and Requirements

The FNEP follows the principles described in *An Emergency Management Framework for Canada* (PS, 2011). For nuclear emergencies occurring abroad, which are not explicitly addressed in the framework, Health Canada has the primary role in coordinating the radiological protection actions applicable within Canada and, in concert with PS, supporting DFAIT in their overall coordination of the emergency response. In such emergencies, DFAIT is responsible for the management of diplomatic and consular relations, the conduct of official communication with foreign governments and international organizations, and the coordination of international assistance.

Emergency management activities and measures that are identified in the FNEP and elaborated in supporting plans and procedures (Annex D) are based on internationally agreed safety standards and

guidance. The objective of these preparations is to execute the following essential elements of a nuclear emergency response in a manner that is effective, timely and coordinated:

- Identification of an emergency or potential emergency situation, initial assessment, and **notification**;
- Implementation of coordinated response structures and preparations for mobilisation of appropriate resources upon receipt of notification;
- Provision of accurate and complete information on all aspects of the event to the appropriate government institutions, elected officials, other countries, international organizations, the media and the public;
- Implementation of optimized protective actions to protect health, safety, property and the environment from the radiological hazard;
- Mobilisation of necessary resources, including logistics, scientific and communication resources over the duration of the emergency to mitigate the radiological consequences;
- Provisions for human and environmental radiological monitoring, and dose assessments;
- Arrangements for the protection of **emergency workers**;
- Coordination of national emergency arrangements and capabilities with international emergency arrangements;
- Provision of assistance abroad;
- Preparation for the transition from an emergency situation to recovery;
- Involvement of relevant parties during all phases of emergency management; and
- Provision of accurate and appropriate public information.

2.3 CATEGORIES OF NUCLEAR EMERGENCIES AND LINKAGES

These sections group emergency scenarios into categories according to the potential scope of impacts on Canada and the scale of federal response that may be expected for a severe event. This section also identifies the links between the relevant response plans and arrangements for each category. The FERP and its supporting plans and arrangements apply to all categories of nuclear emergencies in order to coordinate the overall federal response.

For deliberate or malicious acts involving nuclear substances, the arrangements described in the FNEP may be used to support the provincial/territorial response or Public Safety Canada/Government Operations Centre's activities in accordance with the FERP and *Federal CBRNE Plan* (under development in 2012). For possible terrorist related events, the RCMP National Operational Centre (NOC), located in Ottawa, Ontario is the first point of contact.

2.3.1 Category A: An emergency at a nuclear facility in Canada

Category A includes all major nuclear emergencies occurring at nuclear power plants[5] in Canada that could or have led to off-site radiological consequences and could require the implementation of emergency plans by affected utilities, municipalities/regions and provinces. Category A emergencies have the potential to require the most comprehensive federal government response under the FERP and FNEP due to their potential scope, and the corresponding federal role for regulation, nuclear liability, and interprovincial and international liaison. The CNSC, as the Canadian nuclear regulator and on-site authority for situational awareness and risk assessment, will have a specific and immediate role to play in the response to such events.

[5] A major nuclear emergency at Chalk River Laboratories is also included in this category.

All nuclear facilities in Canada are subject to mature regulatory frameworks and emergency management programmes. Every nuclear power plant in Canada, as well as Chalk River Laboratories, has on-site emergency plans (under the responsibility of the owner/operator) and specific provincial off-site nuclear emergency plans in place. As well, communities in the vicinity of a nuclear power plant maintain off-site nuclear emergency response plans and protocols.

Provincial authorities are responsible for leading the off-site response to a Category A emergency that occurs within their jurisdictions or near their borders. Provincial nuclear emergency plans provide details on the roles, responsibilities and operations of response authorities, types of technical assessment functions required for consequence management, and the implementation of protective actions in the defined **emergency planning zones** around the facility. Provinces and municipalities undertake enhanced preparedness in these zones for alerting and for implementation of precautionary or **urgent protective actions** (e.g., access and traffic control, sheltering, thyroid blocking, evacuation, livestock and **food (ingestion) controls**, medical response).

Provincial/Territorial nuclear emergency plans also prescribe additional measures, including environmental monitoring, **assurance monitoring**, controls on the movement of potentially contaminated food, goods and conveyances, public communications and international notifications, that may be required in a Category A emergency. These plans may include arrangements to facilitate access to specialized federal technical resources directly from their home organization or through FNEP. These arrangements are also reflected in the relevant FNEP Provincial/Territorial Annex or equivalent documents.

Federal support and joint coordination with provincial and territorial governments will be carried out in accordance with the principles and measures contained in the applicable emergency plans, including the FNEP and Annexes. The relationship between these plans in a Category A emergency is shown in Figure 2.2. DFAIT, with support of FNEP partners, will provide bilateral assistance, through the Permanent Mission of Canada to the International Organizations in Vienna (VPERM), international notification and assistance coordination in accordance with applicable international nuclear conventions (e.g. *Convention on Early Notification of a Nuclear Accident* and the *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*).

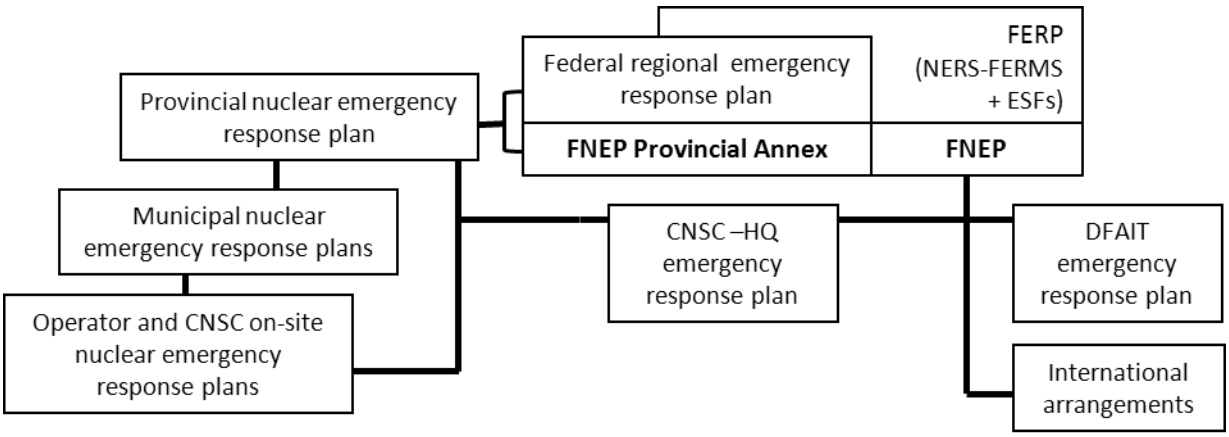


Figure 2.2: Planning relationships for Category A emergencies at a nuclear power plant in Canada.

Provinces which could be most impacted by a nuclear emergency at a licensed nuclear power plant in Canada are Ontario, Quebec, New Brunswick, and Nova Scotia, which host such facilities or are within a few hundreds of kilometres of Canadian Nuclear Power Plants (see Figure 2.3).

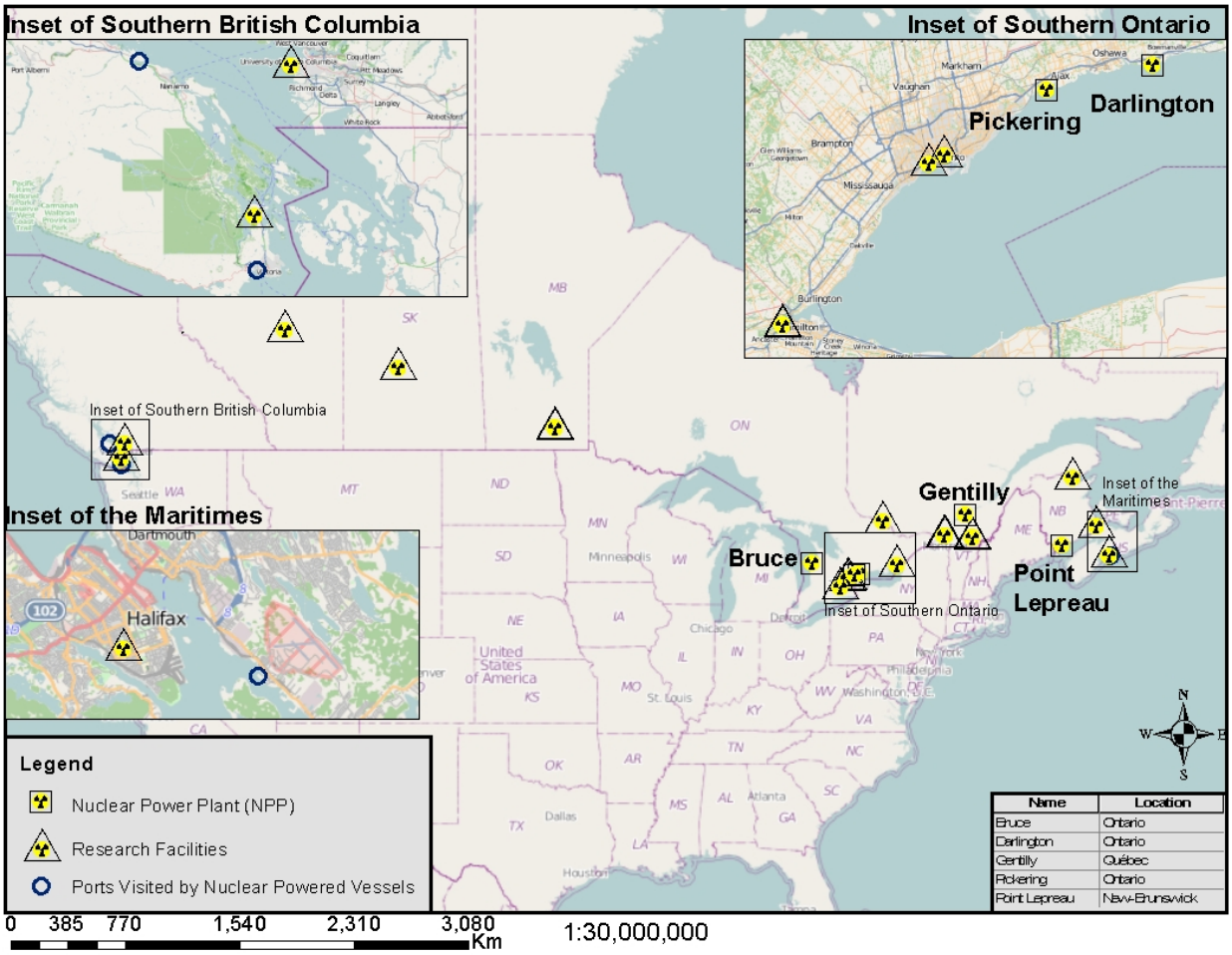


Figure 2.3: Canadian nuclear facilities and ports visited by nuclear powered vessels.

2.3.2 Category B: An emergency at a nuclear power plant in the United States or Mexico[6]

Category B events are major nuclear emergencies at nuclear power plants outside Canada but within North America. These events could have direct and indirect impacts on Canada or Canadians in the United States or Mexico, or could result in requests for assistance under bi- or multilateral international agreements. Depending on their proximity to Canada, such events could also require the implementation of emergency plans by affected municipalities/regions and provinces/territories.

The relationship between these plans and arrangements in a Category B emergency is shown in Figure 2.4.

[6] A major nuclear emergency at a research reactor is also included in this category.

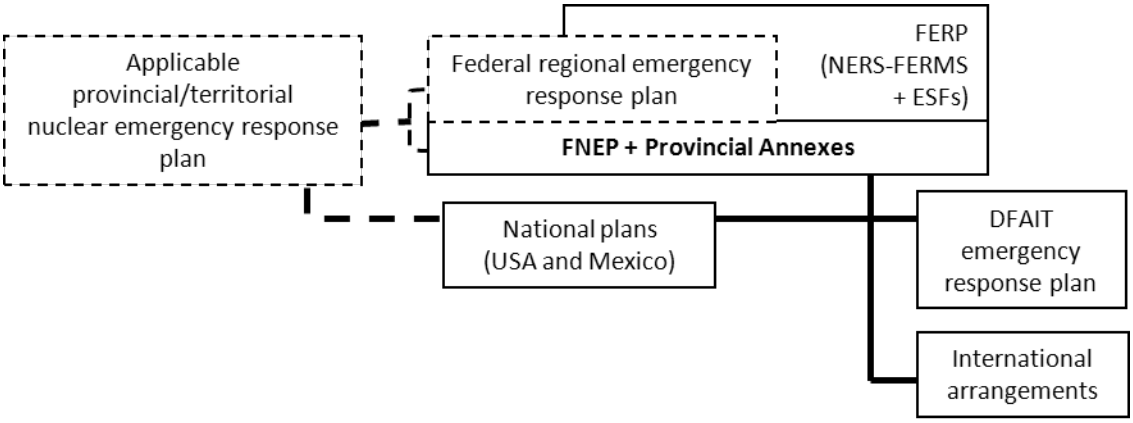


Figure 2.4: Planning relationships for Category B emergencies at a nuclear power plant in the United States or Mexico. Dashed lines indicate linkages, or plans, that may be implemented as needed.

For Category B emergencies, relevant portions of FERP and FNEP will be used to support the domestic and international response, including the provision of support to provinces and to DFAIT. Depending on the direct impacts on Canada, the extent of federal response will likely be less than that required for Category A events. Actions could include responding to provincial/territorial requests for assistance with trans-boundary consequence management and protective actions, protecting Canadians living or travelling in the affected areas, and controlling food and material imports into Canada. As an emergency abroad, DFAIT's responsibilities will include those listed in Section 2.2.2.

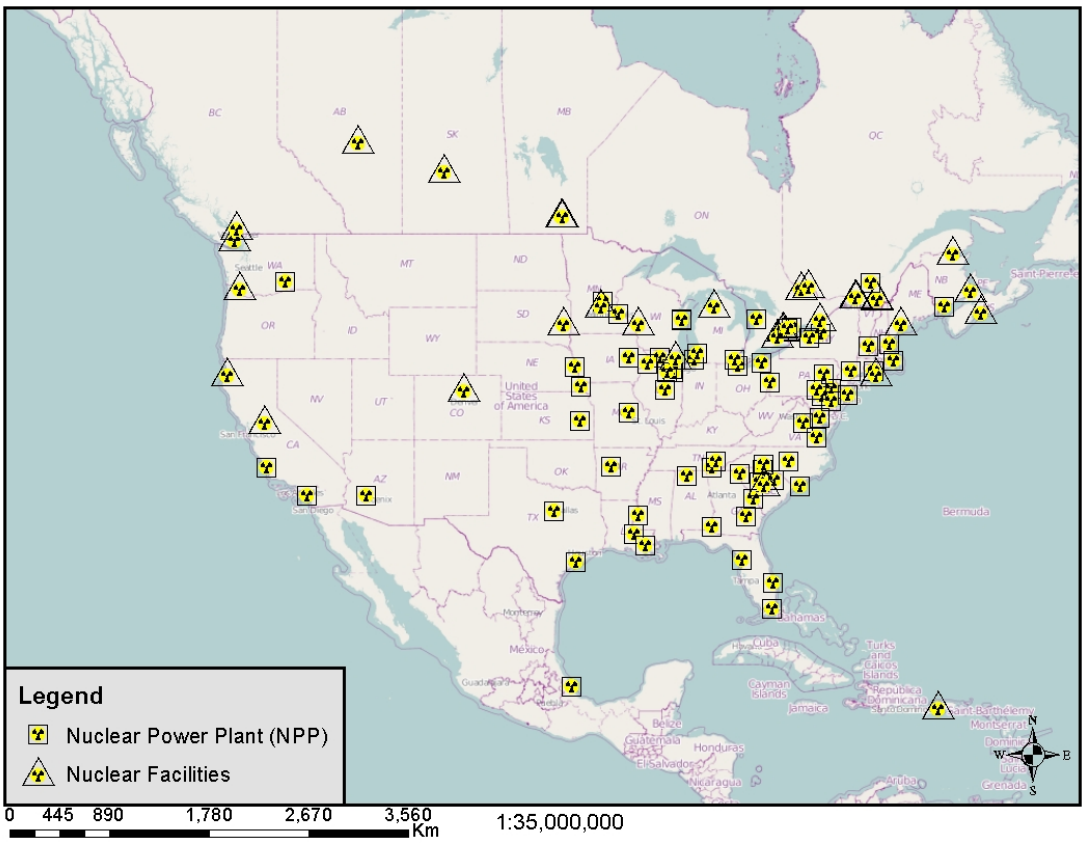


Figure 2.5: Nuclear power plants and facilities in North America

2.3.3 Category C: An emergency involving a nuclear-powered vessel in Canada

Category C includes emergencies involving nuclear powered vessels or vessels carrying fissionable material in port or in transit in Canadian waters. In Canada, there are three authorised DND/CF ports that host visits of foreign military nuclear powered vessel (Halifax, N.S.; Esquimalt and Nanoose, B.C.) (Figures 2.6a, b and c). DND/CF is responsible for overseeing that visits of foreign military nuclear-powered vessels (NPVs) to Canadian ports are safe, and is the Canadian on-site authority in the event of an emergency involving an NPV.

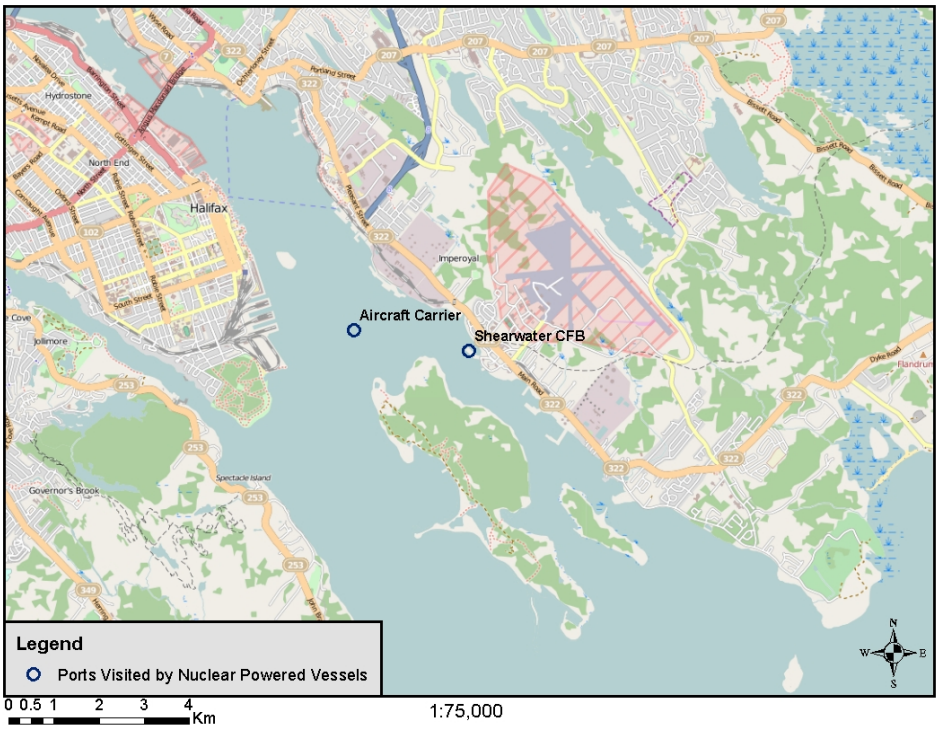


Fig. 2.6a: Canadian Forces Base Shearwater and anchorage location for nuclear powered vessels.

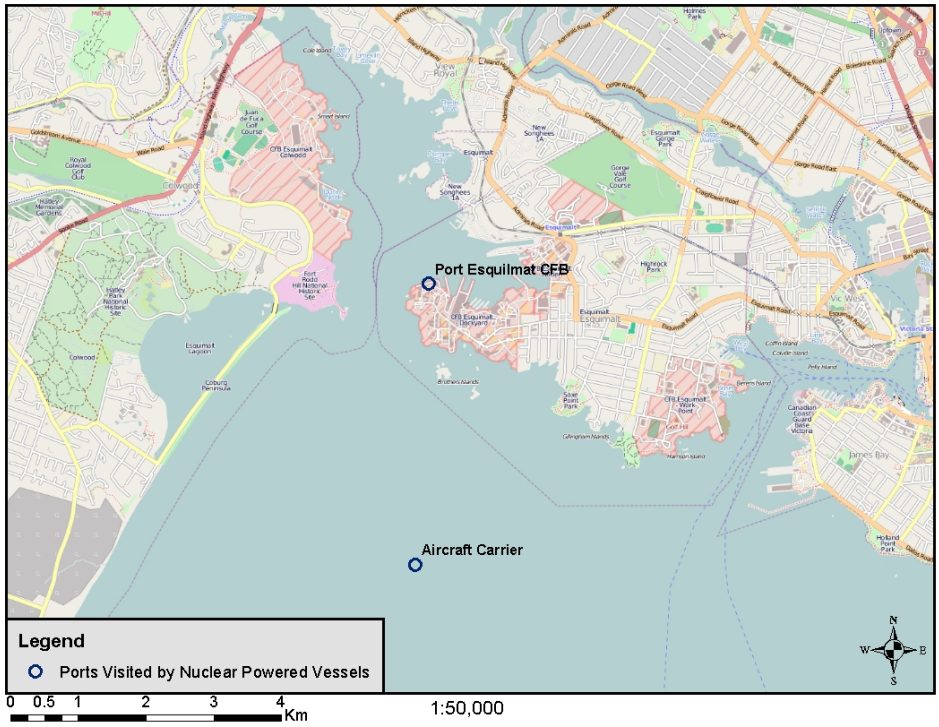


Fig. 2.6b: Port Esquilmat and anchorage location for nuclear powered vessels.

Fig. 2.6c: Nanoose Harbour.

Naval reactors have considerably lower power ratings and contain less radioactive material than nuclear power plants, and operate at low or zero power while alongside a Canadian naval port. While a serious accident involving a nuclear powered vessel could result in a release of radioactive material to the environment, the potential impacts are less, and more localized, than for a Category A event.

Category C events could require the implementation of emergency plans by affected municipalities, provinces and/or territories, including the application of urgent protective actions[7]. The FNEP may be implemented on the specific request of DND/CF, via the **Government Operations Centre** and/or the affected provincial or territorial authorities. The federal government will be responsible for communication with the international community according to established arrangements.

The relationship between the plans and arrangements in a Category C emergency is shown in Figure 2.7.

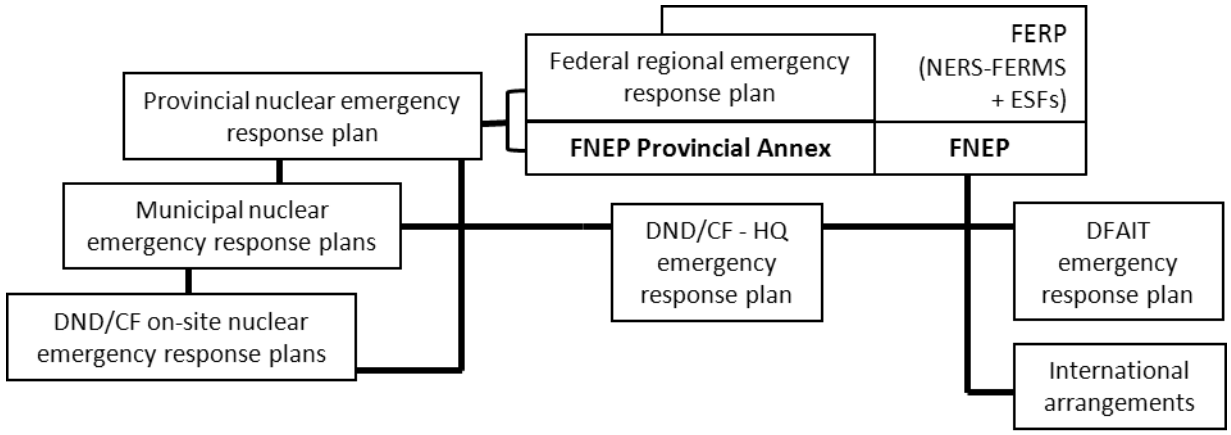


Figure 2.7: Planning relationships for Category C emergencies involving a nuclear-powered vessel in Canadian waters.

2.3.4 Category D: Other serious nuclear emergencies or potential threats in North America that require a multi-departmental or multi-jurisdictional response

Category D includes other serious nuclear emergencies or potential threats in North America that require a multi-departmental or multi-jurisdictional response to deal with radioactive contamination or exposure of people, property and the environment.

Examples of Category D events include, but are not limited to:

- Events involving nuclear facilities or activities in North American not included in Category A-C;
- Inadvertent dispersal of radioactive contamination (e.g. re-entry of nuclear-powered satellite);
- Wide-spread radioactive contamination of food supplies, property or the environment, such as might be caused by the re-entry of a nuclear powered satellite or a Radiological Dispersal Device (RDD);
- Human exposure to unshielded radiological sources, including exposures caused by the malicious placement of a Radiation Exposure Device (RED); and

[7] For planning purposes, DND/CF has established emergency planning zones for urgent protective actions based on the potential scale of radioactive releases.

- Other equivalent scenarios.

Typically, the technical support required to deal with the public consequences of a situation involving a significant radiological hazard will be the same regardless of the source of the hazard, although the level of support will depend on the nature, magnitude and location of the emergency. As these events require measures to help protect health, safety, property and the environment, the FNEP may be used in conjunction with other federal coordinating plans (such as the FERP and *Federal CBRNE Plan*) to support response authorities.

The relationship between relevant plans is shown in Figure 2.8.

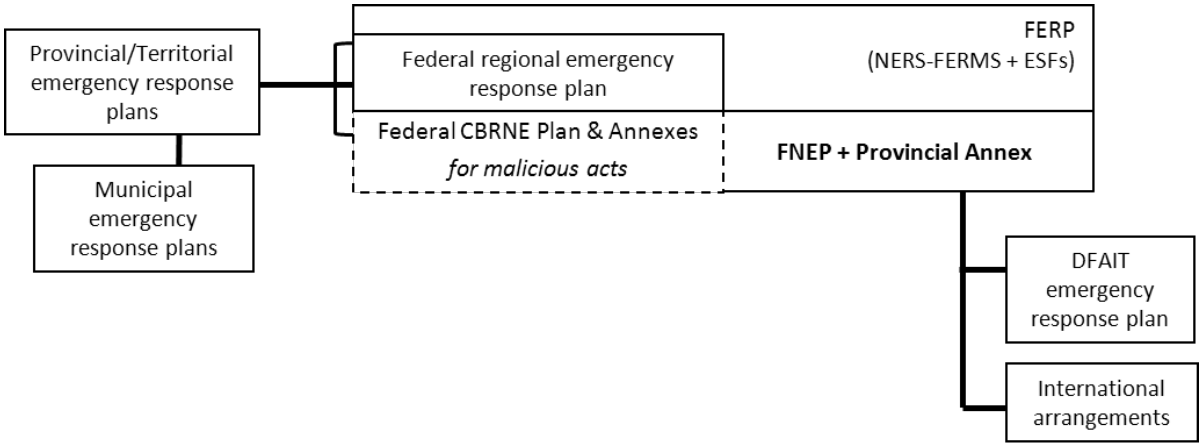


Figure 2.8: Planning relationships for Category D – other serious nuclear emergencies or threats to North America. Dashed lines indicate linkages, or plans, that may be implemented as needed.

2.3.5 Category E: A nuclear emergency occurring outside of North America

Category E includes all nuclear emergencies outside of North America. In the event of such an emergency, due to the distance from Canada and the dispersion of any radioactive atmospheric releases over long distances, small quantities of radioactive material, if any, would be expected to reach Canada and would likely not pose a risk to health, safety, property or the environment. As a result, a Category E emergency is unlikely to require urgent protective actions or restrictions of food grown in Canada. However, an emergency distant from Canada may still require a coordinated and sustained federal response to deal with both international and domestic issues even if the direct radiological impacts on Canadian soil are limited or if there is no request from a Province or Territory for assistance. In this instance, DFAIT will coordinate Canada's response to the emergency outside of North America. As an emergency abroad, DFAIT's responsibilities include those listed in Section 2.2.2. Specifically DFAIT provides information and consular support to affected missions abroad, and manages Canadian offers and foreign requests for international assistance, communicating with Canadians living or travelling abroad, and the conduct of all bilateral and multilateral relations.

The main focus of the response will be on assessing the radiological impact on Canadians living or travelling in the affected country(ies), and on Canadian interests, providing advice and implementing protective actions for diplomatic staff, and implementing appropriate protective actions such as assurance monitoring for conveyances and travellers arriving in Canada, control of food and material imports into Canada from the affected areas, and informing the public.

Figure 2.9 shows the relationship between the relevant plans for a Category E emergency.

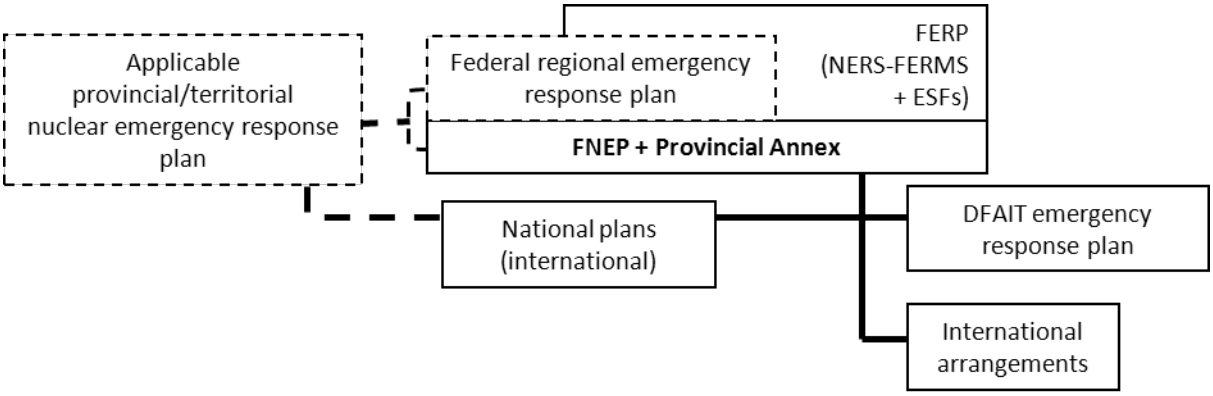


Figure 2.9: Planning relationships for a Category E emergency outside North America. Dashed lines indicate linkages, or plans, that may be implemented as needed.

3 GOVERNANCE STRUCTURE FOR NUCLEAR EMERGENCY MANAGEMENT

In the event of a nuclear emergency requiring a coordinated Government of Canada response, the Minister of Public Safety coordinates the overall federal response on behalf of the Government of Canada unless otherwise specified. The response framework established under the FERP will be supplemented by some, or all of the specific provisions contained in the FNEP in order to coordinate the federal scientific and technical capabilities of partners and to address the specific radiological consequences of the emergency. The emergency management system is based on the *Federal Emergency Response Management System* (FERMS) and the *National Emergency Response System* (NERS) which describe the governance structure, public communications, officials and linkages among the federal, provincial and territorial levels. This section describes how the FERMS and NERS arrangements will be augmented by FNEP **Designated Officials**, **Technical Assessment Group** and **task teams** to support the requirements of a nuclear emergency response and contribute to integrated planning and decision making.

3.1 FNEP DESIGNATED OFFICIALS AND RESPONSE TEAMS

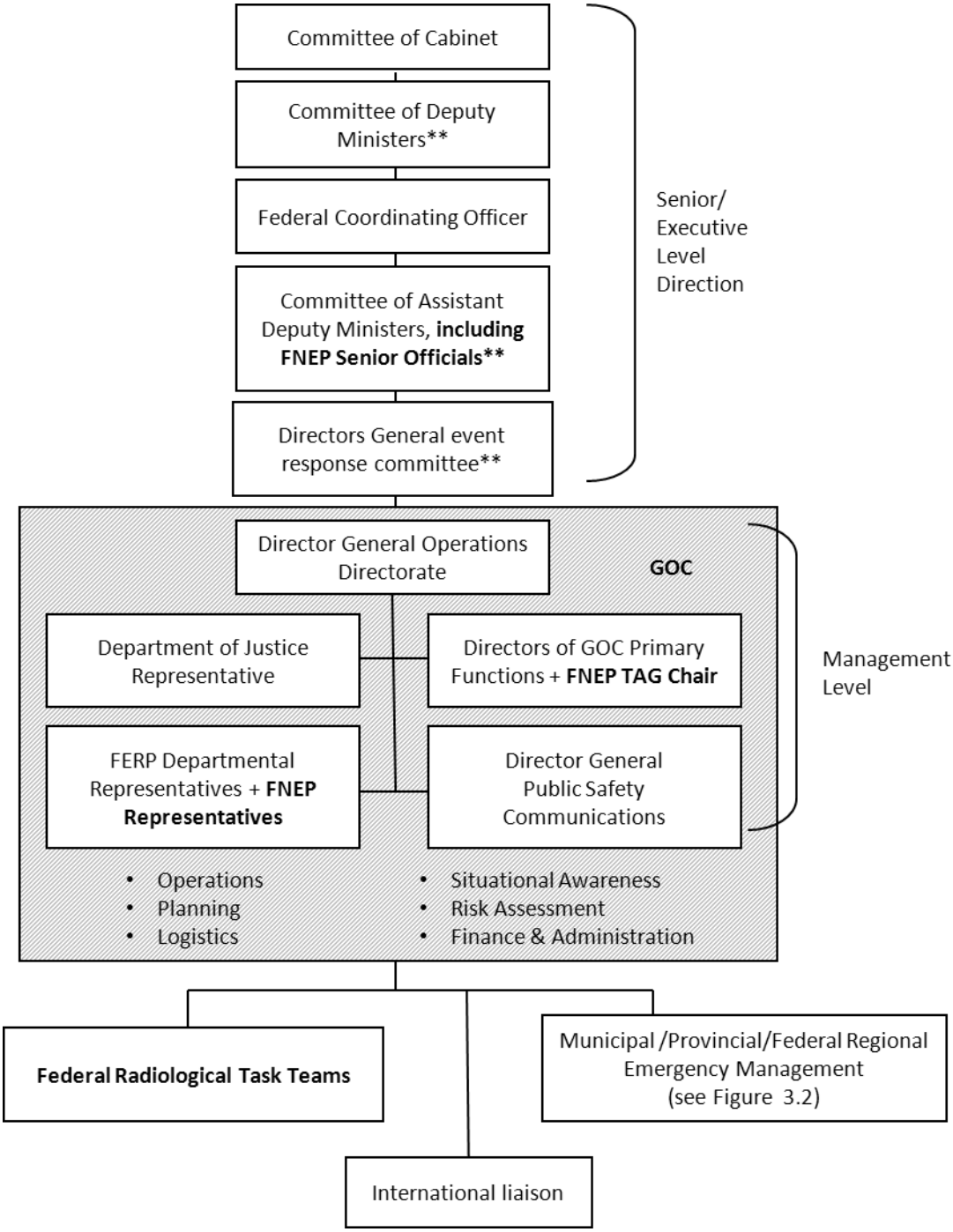
In the case of a nuclear emergency under the scope of the FNEP, the arrangements of FERMS, established under the FERP, will be augmented by FNEP designated officials, including HC senior managers (as **primary department),** and specialized subject matter experts (SMEs), or task teams thereof, identified in the FNEP and supporting documents (see Annex D).

The **FNEP Technical Assessment Group** (FNEP TAG) is a multi-departmental group composed of technical experts from designated FNEP Government institutions, and is chaired by a senior technical expert. The FNEP TAG gathers data, conducts assessments and recommends and/or implements appropriate actions for the management of off-site radiological consequences. The FNEP TAG supports all of the FERP functions and decision-making by contributing to situational awareness and risk assessment, operations, planning and logistics as required during a nuclear emergency. The FNEP TAG is described in Section 3.3.

Figure 3.1 illustrates the additions of FNEP designated officials and task teams to the FERMS, described in more detail in subsequent paragraphs. The additions include[8]:

- A HC Senior/Executive-level official who will participate in the committee of Assistant Deputy Ministers;
- A HC DG-level representative who will join the committee of Directors General and the FNEP TAG Chair who will join the Directors of the Government Operations Centre (GOC) Primary Functions as part of the GOC Management Team (as defined in the FERP);
- The FNEP TAG, which will be stood up as a primary function within the FERMS; and
- SMEs, where appropriate, who will be organised in task teams to focus on specific elements of the technical response (e.g. hazard prediction).

[8] Executive level positions may be augmented by senior technical officials from the appropriate on-site authority.



** Representatives may include management or delegates from HC, CNSC, and/or DND, depending on the category of event

Figure 3.1: FNEP-FERMS: the Federal Emergency Response Management Structure configured for a response involving FNEP (FNEP elements indicated in bold type).

3.2 FNEP-NATIONAL EMERGENCY RESPONSE SYSTEM (NERS)

The NERS is a component of Canada's emergency management system and incorporates the principles for emergency management as set out in *An Emergency Management Framework for Canada*, approved by the federal, provincial and territorial governments. At the regional level, the FNEP will work within and augment the governance structure described by the NERS.

Figure 3.2 illustrates the FNEP Designated Officials and task teams that may augment the NERS to form the FNEP-NERS. Provincial Annexes to the FNEP define the specific arrangements for each province.

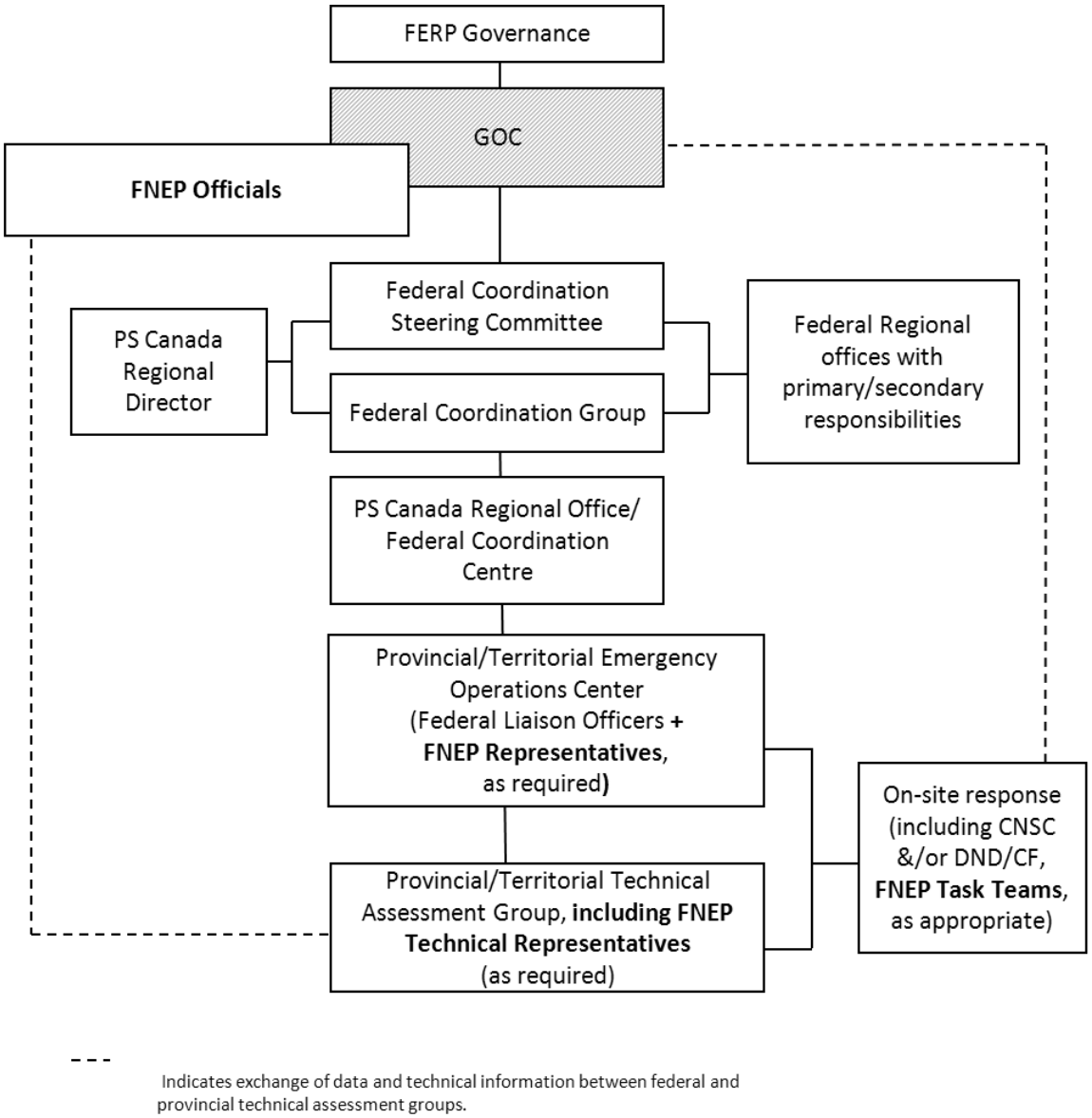


Figure 3.2: FNEP-NERS: FERP Regional/National Emergency Response Management System configured for a response involving FNEP (FNEP elements indicated in bold type).

3.3 FNEP DEPARTMENTAL REPRESENTATIVES IN THE FERMS AND NERS

In order to carry out overall consequence management during a nuclear emergency, Public Safety Canada/Government Operations Centre will call upon departmental representatives from primary and **supporting departments** to provide expertise and augment the GOC, as described in the FERP. When FNEP arrangements are initiated, these representatives will include additional Executive- and Management- level personnel (or their delegates) as well as technical/scientific experts and **liaison officers** from the FNEP TAG.

Health Canada, in consultation with FNEP partners, maintains a list of departmental representatives who may be called upon to staff positions within the FNEP-FERMS and FNEP-NERS. Detailed descriptions of the roles and responsibilities assigned to FNEP Departmental Representatives are contained in the relevant FNEP-FERMS and FNEP-NERS Operating Procedures (including TAG operating procedures).

3.3.1 FNEP-FERMS Senior/Executive Level: FNEP Senior Officials

In accordance with the FERP, the Federal Coordinating Officer (FCO) is responsible for the overall coordination of the federal emergency response. This role will be filled by the Deputy Minister, Public Safety (or delegate) on behalf of the Minister of Public Safety. The Deputy Ministers' Emergency Management Committee will be co-chaired by the Deputy Ministers of Public Safety and Health Canada.

The FCO and Senior/Executive groups will be supported by the FNEP Senior Officials, which will be staffed by the ADM/HECSB, Health Canada (or delegate) and a senior technical manager from the federal on-site authority (CNSC or DND/CF, as appropriate). The FNEP Senior Officials will provide strategic direction and guidance with respect to response arrangements and capabilities under FNEP. They will also support the FCO when presenting recommendations from the FNEP TAG for action and approval by the Committee of ADMs (and other groups as appropriate).

3.3.2 FNEP-FERMS Management Team: Director General (HC) and FNEP TAG Chair

During a nuclear emergency involving FNEP, the FERMS Management Team will be augmented by the Chair of the FNEP TAG or delegate (see Section 3.3.3). As well, the Director General, ERHSD/HECSB, Health Canada (or delegate) and a senior official from the appropriate on-site authority will support the FNEP-FERMS management team through the Committee of Directors General. These individuals will contribute to briefings of the Executive committees on FNEP TAG products and recommendations to inform integrated decision-making and response to requests for assistance and will elaborate on the functions being carried out in the GOC with respect to managing the radiological hazard.

In addition to responsibility for the FNEP TAG, the FNEP TAG Chair also recommends, in consultation with relevant FNEP partners:

- changes to the FNEP response level;
- implementation of relevant Provincial/Territorial Annexes; and
- transition from a FNEP response to the recovery phase.

3.3.3 FNEP Technical Assessment Group

Members of the FNEP TAG, according to their roles and responsibilities supply, develop and interpret technical data necessary to understand the actual or potential off-site radiological situation, and formulate science-based recommendations for decision makers on protective or corrective actions to manage the off-site radiological risks and hazards. For emergencies involving licensed activities, this will be

supported through on-site situational awareness and risk assessment provided by the appropriate federal on-site authority (CNSC or DND/CF).

The FNEP TAG works in collaboration with the other organizations in the GOC to maintain situational awareness and conduct risk assessment, and support integrated planning and decision-making across the federal response. The TAG is chaired by the Director, Radiation Protection Bureau (or delegate) and its members are drawn from FNEP partner organizations that have scientific/technical expertise and capabilities essential to evaluating and mitigating the impacts of a nuclear emergency according to the NEFs.

The FNEP TAG supports Federal and Provincial/Territorial authorities in activities that may include monitoring and assessing the nuclear emergency situation, providing information on its possible evolution and potential impacts, undertaking field monitoring and assessment (see Section 3.3.4), preparing specialised decision-support and geomatics products, formulating protective action recommendations for the radiological protection of emergency workers, public and environment as required, preparing technical communications products in support of the Federal Public Communications Coordination Group and ensuring technical liaison with relevant counterparts. The FNEP TAG will support the delivery of relevant NEFs and provincial requests for assistance. The FNEP TAG may establish task or response teams or identify groups of experts within its operations to undertake specific technical assessment functions, such as environmental pathways modelling, radiological health impacts assessment or field-based monitoring and surveillance.

The FNEP TAG provides its assessments and recommendations for off-site radiological impacts and protective measures of the emergency to senior executives, management and operational level components of the FERMS, as well as to other organizations involved in the management of the emergency, in particular the provincial **science/technical groups**. It maintains technical liaison with external technical stakeholders and counterparts in other countries and relevant international organizations (e.g. IAEA).

FNEP TAG operating procedures are included in the FNEP supporting documents (Annex D).

3.3.4 Federal Radiological Task Teams

Subject to the magnitude of the emergency, Subject Matter Experts (SME) from FNEP designated organizations may be called upon to carry out a particular task or series of tasks. For example, the Federal radiological task teams of subject matter experts may be deployed to the site of a nuclear emergency when specialized equipment and/or expertise are required for radiological monitoring and assessment. For an event within the scope of FNEP, radiological task teams will operate under the direction of the federal or provincial technical assessment group. Some examples of the activities carried out by federal radiological task teams under FNEP include environmental monitoring, aerial surveillance, population screening, bio-dosimetry, ingestion monitoring, and monitoring of emergency workers.

These resources will be scaled and configured as required to meet the response requirements of the emergency. Multiple teams may be deployed to address different requirements during the emergency. The concept of operations for federal radiological task team operations can be found in Annex D.

The same assets may also be deployed to provide support to security events (prevention, mitigation, investigation); in this case, the team(s) will operate under arrangements described in the *Federal CBRNE Plan* (under development in 2012) and supporting documents.

3.3.5 FNEP Liaison Officers and Representatives

FNEP Liaison Officers serve as the link between the FNEP TAG and other stakeholders, including:

- the GOC (if FNEP TAG is located elsewhere);
- other GOC groups (primary functions), as required;
- senior management committees (when required);
- the Federal Public Communications Coordination Group and/or members of departmental communications organizations;
- Federal radiological task team(s);
- coordinating groups in the affected region(s);
- provincial/territorial technical assessment groups or emergency operations centres if no technical assessment group exists;
- International Atomic Energy Agency (IAEA) and other international agencies as required; and
- counterparts in other countries.

In the context of the FNEP, liaison requires a strong ability to interpret technical information and communicate it to both technical and non-specialist audiences.

Details regarding FNEP Liaison Officers and representatives assigned to regional and provincial/territorial sites will be included in the FNEP Provincial/Territorial Annexes. Public Safety Canada/Government Operations Centre will oversee the overall coordination between federal and regional operations.

3.3.6 FNEP Regional Officer

The FNEP Regional Officer is a regional senior official selected by Health Canada. This position will normally be staffed by the Health Canada Regional Director General (or delegate). The FNEP Regional Officer works with the Public Safety Canada Regional Director and FNEP TAG liaison officers (as required) to coordinate federal radiological consequence management support to regional and provincial/territorial response activities. More details about these positions in each region will be provided in the FNEP Provincial Annexes[9], where applicable.

3.3.7 FNEP Federal Spokesperson(s)

In accordance with existing provincial nuclear emergency plans, **provincial/territorial information centres** will be the main source of public and media information on aspects of emergency operations and protective actions. Federal communications will be managed by the Federal Public Communications Coordination Group, which is led by Public Safety's Communications Directorate in keeping with FERP-ESF 12. The FNEP Federal Spokesperson(s) will present the federal position concerning the nuclear emergency in coordination with the provincial information centres. The FNEP Federal Spokesperson(s) is designated by the FERMS Senior/Executive Level.

For emergencies involving NPVs where DND/CF assumes the role of the federal on-site authority, DND/CF personnel will provide public and media information at the local level, work in cooperation with the municipal or provincial information centres and provide spokesperson(s) as required. DND/CF will be responsible for sharing local public and media information products with the Federal Public Communications Coordination Group.

[9] Provincial Annexes are being reviewed and revised at time of press.

4 CONCEPT OF OPERATIONS

The following sections describe the FNEP response levels and outline the overall concept of operations for assembling the FNEP-FERMS and delivering the NEFs.

4.1 FNEP RESPONSE LEVELS

In non-emergency situations, the FNEP is maintained at a routine preparedness level, including standard monitoring and other preparedness functions. The FNEP describes three levels of heightened response, ranging from enhanced monitoring activities through to a full-scale technical response. Levels 1 through 3 are consistent with the response levels under the FERP.

In most cases, the response levels of the FNEP and FERP will be identical during a nuclear emergency. However, subject to the specific circumstances of the emergency, the trigger to raise the response level of the FNEP and establish the FNEP TAG may be made prior to, concurrently with or following decisions of the FERP response level (for example, in the case of concurrent emergencies, emergencies abroad, or situations that have started as a non-nuclear emergency).

As with the FERP, the FNEP response level will be assigned based on factors such as the nature, magnitude, progression and location of the event, the actual or potential impacts on Canadians, and the need for broader operations as coordinated through the FERMS. FNEP response levels will be established by HC in response to triggers and in consultation with Public Safety Canada/Government Operations Centre and other relevant authorities (e.g. the CNSC for events at nuclear facilities in Canada, or DND/CF for events involving NPVs).

The FNEP Response Levels described below provide a logical progression from routine operations to a fully integrated response.

Routine Operations

Health Canada maintains a 24/7 notification and alerting capability for the FNEP, monitors situations of interest, conducts internal **reporting** and responds to drills, exercises and requests for information about routine matters and events that are not likely to escalate. These activities are managed by the Radiation Protection Bureau with input from partners when required, and include normal preparedness activities (see Section 6). Other federal organizations, such as the CNSC, PHAC and Public Safety as the National Warning Point also maintain 24/7 notification and alerting capabilities and will notify the FNEP Duty Officer as required.

Level 1 – Enhanced Reporting

A Level 1 response indicates an actual or potential nuclear event, incident or threat that may degrade and require an integrated response by the federal government. Upon notification of such an event, links will be established between Health Canada (Radiation Protection Bureau), Public Safety Canada/Government Operations Centre, and CNSC or DND/CF as appropriate, to enable enhanced and coordinated reporting, monitoring and readiness for a potential escalation of response.

Health Canada staff, in consultation with the relevant on-site authority, if applicable, will monitor the situation and may call upon FNEP partners to contribute to off-site situational awareness and risk assessment. This will be done in coordination with Public Safety/Government Operations

Centre. Most personnel will operate from their normal work offices or from their departmental emergency operations centre, in accordance with their departmental plans; if required, they may also be requested to physically meet at the GOC or other appropriate centre. FNEP Liaison Officers and regional technical specialists may be deployed in accordance with the appropriate provincial/territorial nuclear emergency plans or FNEP Provincial Annex.

A Level 1 response may be triggered by events such as, but not limited to:

- Notification of a situation or event of safety significance (eg: **INES**[10] Level 2 or greater) at a licensed **nuclear facility** in Canada or abroad;
- Notification of a potential re-entry of a space object with radioactive material, elevated radiation levels of unknown origin or other potential radiological threat; or
- Other emergencies in Canada or abroad that could require coordinated radiological expertise or assistance.

Level 2 – Risk Assessment and Planning

A Level 2 response is required when a developing event reaches a point where it becomes prudent to identify and characterise possible scenarios and impacts, and to proactively consider a range of response options in anticipation of requests for recommendations. This will require more interdepartmental coordination than Level 1.

At FNEP Level 2, the FNEP-FERMS and FNEP TAG officials may be convened to undertake more NEFs and work extended hours. They will work collaboratively with other FERMS designated officials and provide assessments to support situational awareness, risk assessment and other functions within the GOC. FNEP TAG members will also participate in anticipatory action planning with the GOC.

A Level 2 response may be triggered by events such as, but not limited to:

- Notification of a **site area emergency** at a licensed facility in Canada or abroad that could potentially lead to off-site consequences;
- Notification of a Base Emergency aboard an NPV - a confined nuclear emergency or a significant risk of a confined nuclear emergency with no imminent threat of radiological release to the environment; or
- Notice of a stolen or, discovery of a missing, dangerous source intended for malicious human exposure and/or contamination, re-entry of a space object with radioactive material in an unpopulated area or elevated radiation levels of unknown origin.

Level 3 – Coordinated Federal Scientific and Technical Response

At Level 3, the full FNEP will be implemented to coordinate the federal technical response and potential deployment of federal radiological task teams. All FNEP TAG members as well as FNEP management and executive representatives will convene at the GOC or another appropriate emergency centre as defined in the FNEP, FERP and regional operating procedures.

The FNEP TAG will work collaboratively with other organizations in the GOC to provide technical assessments for off-site situational awareness and risk assessment, to formulate recommendations for mitigation of radiological consequences, and to support and engage other primary operations functions. For emergencies involving licensed activities, this will be supported through on-site

[10] INES: International Nuclear Event Scale of the IAEA and OECD/NEA.

situational awareness and risk assessment provided by the appropriate federal on-site authority (CNSC or DND/CF). Level 3 includes enhanced reporting, risk assessments and planning as required.

A Level 3 response may be triggered by the events such as, but not limited to:

- Notification of a **general emergency** at a nuclear power plant in Canada that has or could potentially lead to off-site consequences;
- Hydrogen explosion in a nuclear power plant reactor building;
- A request for radiological assistance from a province under the FNEP, provincial nuclear plan or pre-existing federal-provincial/territorial arrangements;
- Notification of a general emergency aboard an NPV - a nuclear emergency with a radiological release or a significant risk of a radiological release to the environment;
- General emergency abroad that could lead to significant impacts on Canadians abroad or on Canada;
- Re-entry in a populated area of a satellite with radioactive sources;
- Confirmed malicious use of radiological or nuclear materials that constitute an actual or potential public health risk.

4.2 FEDERAL ALL-HAZARDS FRAMEWORK AS APPLIED TO NUCLEAR EMERGENCY RESPONSE PLANNING IN CANADA

The occurrence of a nuclear emergency leads to a sequence of response actions focussed on managing the incident, mitigating its effects, and protecting the public from the actual or potential effects of the incident. The following activities are undertaken by the respective organization/jurisdiction in accordance with their plans:

- The site operator/licensee (licensed facility), or on-scene responders (other events) manages the on-scene response;
- Local governments manage and conduct emergency operations within their boundaries;
- Provincial/Territorial governments raise response levels of **provincial/territorial emergency operations centres** as required to coordinate provincial/territorial actions in accordance with their respective nuclear or "all-hazards" emergency response plans;
- The Federal government conducts emergency operations, coordinated through the GOC, which are either defined in the FERP and ESFs or in accordance with federal mandates, and provides, in accordance with prior arrangements, or at the request of the provincial/territorial government, national support services and resources coordinated through NERS;
- Radiological technical assessments and science-based recommendations are developed and integrated with federal-provincial/territorial operations through the provisions of the FNEP and NEFs and/or relevant FNEP Provincial/territorial Annexes;
- The Federal government liaises with the international community, including notification, information exchange and requests/offers of assistance under international conventions and agreements;
- For emergencies abroad, the Federal government conducts emergency operations, coordinated through DFAIT and with Public Safety Canada/Government Operations Centre that are either defined in the FERP and ESFs or in accordance with federal mandates. This includes operations to support Canadians in affected areas, to manage the potential impacts on Canada (including travel and trade) or to respond to requests for assistance from affected countries. Other federal

partners and the GOC will support DFAIT when relevant.

4.3 FNEP OPERATIONS

The FNEP brings together the necessary technical expertise from multiple federal government institutions within the all-hazards framework of the FERP and coordinates the timely delivery of the hazard-specific assessments and recommendations through the FNEP TAG to the emergency managers. FNEP integrates into the overall Government of Canada governance as described in Section 3 of this plan.

Coordination under the FNEP is accomplished through three main preparedness tasks:

- identifying the requirements needed to support the technical response for the implementation of the Nuclear Emergency Functions, as listed in Table 4.1;
- assigning them to federal government institutions based on their mandates and capabilities, as in Annex A; and
- carrying out collaborative preparedness activities so that FNEP partners are ready to respond, as in Section 6 and FNEP-FERMS/NERS Operating Procedures.

This approach respects the mandates and capabilities of FNEP partners, and is scalable and adaptable to fit the response levels and emergency categories identified for FNEP. In general, the extent of involvement of the partners in the FNEP TAG, and of the FNEP TAG in the overall response, will depend on the nature of the event, the FNEP response level, and the type and level of assistance requested.

Table 4.1: Nuclear Emergency Functions

1 NOTIFICATION AND MONITORING	
1.1	Maintain a 24/7 notification and monitoring capability for FNEP arrangements.
1.2	Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.
1.3	Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.
1.4	Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO)[11] and other international organizations.
2 LIAISON AND COORDINATION	
2.1	Maintain technical liaison and coordinate with the provincial technical teams.
2.2	Establish and maintain technical liaison with relevant response partners.
2.3	Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.
2.4	Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.
3 TECHNICAL ASSESSMENT OF RADIOLOGICAL HAZARDS AND IMPACTS	
3.1	Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.
3.2	Gather and consolidate technical information on the emergency.
3.3	Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.
3.4	Evaluate environmental transfer of the radioactive materials within Canada, the affected country or

[11] WHO notification under the *International Health Regulations* is the responsibility of the Public Health Agency of Canada.

towards Canada as applicable (e.g., atmospheric/marine transport models, ground contamination, etc.). 3.5 Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate. 3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response. 3.7 Perform laboratory analysis of food, soil, air filters, etc. 3.8 Propose emergency classification level (International Nuclear Event Scale) and report to the IAEA. 3.9 Prepare specialized products to support radiological assessment and decision-making on countermeasures.
4 FIELD OPERATIONS 4.1 Conduct and coordinate radiological monitoring and surveying. 4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis. 4.3 Support radiological contamination screening activities (e.g. for public, passengers or conveyances). 4.4 Assess monitoring data to verify radiological release/presence of contamination. 4.5 Conduct planning for decontamination activities. 4.6 Provide just-in-time training to field operators and/or first responders (police, fire, medical and others). 4.7 Support FNEP TAG field operations with emergency telecommunications equipment and services. 4.8 Assist in the control of food and goods imported from affected areas.
5 PROTECTIVE ACTION RECOMMENDATIONS 5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.). 5.2 Implement protective actions under federal jurisdiction. 5.3 Contribute to assessments of the actual or potential impacts of protective actions.
6 PROTECTION OF EMERGENCY WORKERS 6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services. 6.2 Coordinate the implementation of occupational radiation protection programs for federal emergency workers, or in support of provinces.
7 MEDICAL RESPONSE 7.1 Provide training for the treatment of contaminated and/or overexposed casualties. 7.2 Provide or arrange for the provision of medical radiation expertise and capabilities for the treatment of contaminated and/or overexposed casualties.
8 INFORMING THE PUBLIC 8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions. 8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences. 8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.
9 TRANSITION TO RECOVERY 9.1 Contribute to developing a recovery action plan.
10 **DE-ESCALATION** 10.1 Assist in de-escalation of the FNEP.

4.4 NOTIFICATION AND MONITORING

4.4.1 Initial Notifications

Category A, B and C Emergencies: When an emergency occurs in these categories the Provincial or Territorial **Emergency Management Organization** and the CNSC (for licensed nuclear facilities) or DND/CF (for NPVs) will normally be the first government agencies to receive the initial report.

Category D Emergencies: For other serious radiological events in North America, individual federal or provincial/territorial organizations may be notified through their partners, or through other defined notification arrangements.

Category E Emergencies: For a nuclear emergency outside North America, Health Canada, CNSC, DFAIT, Environment Canada, Public Safety Canada/Government Operations Centre or another federal organisation may receive first notification through their partners, or under arrangements with international organizations, in particular the IAEA (see also Section 4.4.3).

4.4.2 Subsequent Notifications and Fan-out

Upon notification of an actual or potential nuclear emergency, the federal department/agency or **Provincial/territorial Emergency Measures Organization** who receives the notification, will notify forthwith Health Canada's 24/7 FNEP emergency notification number.

Based on its assessment of the information, Health Canada, in consultation with appropriate FNEP partners (including CNSC or DND/CF, as appropriate) will assess the need for changing the FNEP response level, as required, and notify federal FNEP partners accordingly. Public Safety Canada/ Government Operations Centre will handle all other notifications under the FERP.

4.4.3 International Notifications

The Government of Canada is expected, by international conventions (see below), to notify international partners in the event of a nuclear emergency that affects public health or that may have radiological impacts beyond Canadian borders. This section identifies only these notifications. FNEP partners may also notify and interact with their international counterparts through their own established mechanisms.

IAEA Conventions: Canada is a signatory to the *Convention on Early Notification of a Nuclear Accident* (IAEA, 1986), which specifies that an accident state directly notify other potentially impacted countries and the IAEA of such an emergency, using pre-established mechanisms and points of contact. Health Canada and CNSC as designated national competent authorities for the Convention (for events in Canada) are responsible for liaising with the IAEA, and will work with DFAIT and Public Safety Canada/Government Operations Centre to establish and maintain links with international organizations in accordance with the requirements of this Convention.

WHO International Health Regulations: Under the World Health Organization (WHO) *International Health Regulations (IHR),* the Public Health Agency of Canada (PHAC), as Canada's WHO National Focal Point alerts the WHO in the event of a nuclear emergency with actual or potential public health impacts. PHAC will issue the alerts in consultation with Health Canada and the CNSC or DND/CF and liaise with the FNEP TAG and the GOC, as appropriate.

4.4.4 Implementation of the FNEP-FERMS

The process for implementation of the FNEP-FERMS is the same for all Categories of emergencies, and is scaled according to the FERP and FNEP response levels.

Implementation of the FNEP-FERMS will be undertaken in a coordinated manner between Public Safety Canada/Government Operations Centre and Health Canada, as described in the FNEP-FERMS/NERS Operating Procedures. The decision to implement some or all of the FERMS rests with Public Safety Canada/Government Operations Centre. The authority to convene and coordinate the FNEP TAG in support of an integrated government response rests with Health Canada. Health Canada will inform the Provincial/Territorial Emergency Management Organization(s) and federal government institutions concerned of the FNEP response level.

When the FNEP TAG is convened, Health Canada will inform the FNEP partners of the location of the emergency operations centre for TAG operations[12], the time at which they are expected to report to the centre, and any other relevant instructions.

The FNEP TAG will coordinate and implement the required NEFs to support emergency management actions, integrated planning and decision-making, according to operational procedures. Federal radiological response assets may be deployed to support a province or territory upon request, or in accordance with pre-established arrangements.

4.4.5 Implementation of a FNEP Provincial/Territorial Annex

In most cases, provinces include representation from federal regional officials in their nuclear emergency plans. Unless otherwise indicated in a FNEP Provincial/Territorial Annex, regionally-based FNEP Designated Officials will normally be located at the provincial/territorial emergency operations centre. In the event of implementation of a provincial nuclear plan, these officials report and coordinate their activities through their home offices until such time as the FNEP-FERMS is established.

4.5 LIAISON AND COORDINATION

4.5.1 National Coordination and Operations

In accordance with the FERP, Public Safety Canada/Government Operations Centre, with the support of federal organizations involved in the FNEP, develops the overall inter-departmental strategy for federal operations, coordinate the overall federal response, and coordinate the provision of federal resources to provinces and territories.

Regional resources will be coordinated by the appropriate **Federal Coordination Centre** (FCC). FCCs will liaise and seek additional federal assistance through the Government Operations Centre.

The FNEP TAG representatives contribute to the development of incident action plans and facilitate deployment of federal field technical/scientific resources in support of provincial/territorial operations. The FCC may facilitate communications and information exchange between the FNEP TAG and these deployed field resources.

Federal support to on-site emergency management will be coordinated through the general provisions of

[12] This may be the Government Operations Centre or another location as appropriate.

the FERP.

4.5.2 Provincial/Territorial Coordination

Following the implementation of a provincial nuclear emergency plan, the FNEP Regional Officer, FNEP Liaison Officer(s) and Spokesperson will join the provincial/territorial emergency management organization, in accordance with the relevant provincial plan and/or the FNEP Provincial Annex as applicable. Coordination between the federal-provincial emergency response organizations will be conducted according to the arrangements described in the FERP and NERS (see section 3.2, Figure 3.2), augmented by provisions in the FNEP.

Direct liaison between the FNEP TAG and the provincial/territorial science/technical group will be established and may be facilitated by FNEP Technical Liaison officers deployed to the Provincial EOC. The FNEP Technical Liaison officers are drawn from regional technical specialists or deployed from Ottawa, as appropriate. In general, requests for technical assessment support from the provincial science/technical group will be directed to the FNEP TAG through the FNEP Technical Liaison Officers. Additional details on arrangements are included in the FNEP Provincial Annexes (under revision).

4.5.3 Canada-USA and International Liaison for Events in Canada

Coordination with the government of the United States of America during a nuclear emergency impacting both countries will be consistent with the principles and measures contained in relevant international conventions and bi-lateral agreements.

Many adjoining municipalities, provinces, states, and federal government institutions on both sides of the border have established early notification arrangements, mutual aid agreements, and/or joint response plans that apply to a nuclear emergency situation. Some of these provide for representation in the provincial /state or federal emergency operations centres by officials from the neighbouring country.

Where existing bilateral agreements permit direct communication, provision of mutual aid, or liaison between organizations in Canada and United States, provincial/federal authorities will inform the GOC, the FNEP-TAG and DFAIT of consultations with their United States counterparts during a nuclear emergency. Consultations, commitments, or decisions taken among organisations in direct contact will not exceed the scope of the relevant agreement(s) and will be coordinated with the appropriate Canadian authorities.

Communications with the international community and requests and/or offers of technical/scientific assistance coordinated through the IAEA will be conducted in accordance with *Convention on Early Notification of a Nuclear Accident* (IAEA, 1986), *Emergency Communications Emergency Notification and Assistance Technical Operations Manual – ENATOM* (IAEA, 2010), *Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency* (IAEA, 1996a) and the *IAEA Response and Assistance Network – RANET* (IAEA 2010), for which Health Canada and the CNSC are the Canadian national competent authorities. Communications with the WHO will be conducted by PHAC in accordance with the provisions of the *International Health Regulations* and relevant supporting documents. Communications with the World Meteorological Organisation will be managed by Environment Canada in accordance with the relevant technical communications procedures. All such technical communications with the international community will be coordinated through the GOC and the FNEP TAG. Coordination between international organisations in support of the accident State will be undertaken within the framework of the *Joint Radiation Emergency Management Plan of the International Organisations – JPLAN* (IAEA, 2010).

Liaison officials from other neighbouring countries may also be sent to Canada in order to provide direct liaison with organizations in their home countries.

In coordination with the IAEA, technical liaison and assessment teams may also be dispatched from the IAEA to assist with the assessment of the event. Such teams will be coordinated through DFAIT and work in collaboration with the FNEP TAG.

Notwithstanding the above, all international communications and other liaison activities will be in accordance with the advice, procedures and assistance of DFAIT. DFAIT will also lead the information exchange through official diplomatic channels, including through the Permanent Mission of Canada to the International Organizations in Vienna (VPERM).

4.5.4 International Liaison for Events Abroad

In the event of a Category E emergency, Health Canada exercises its role as national competent authority to IAEA so that information exchange and requests for assistance follow the Conventions and associated mechanisms described in Section 4.5.3.

As above, DFAIT will lead the information exchange through official diplomatic channels, including through the Permanent Mission of Canada to the International Organizations in Vienna (VPERM). Additionally, one or more federal officials may be designated to carry out liaison or support activities at the IAEA, in the country where the event has occurred or at the nearest Canadian Mission in the affected area. DFAIT may be asked to provide staff from the nearest local Canadian Mission to carry out these functions on an interim basis until replaced by other staff.

Bilateral exchange and distribution of information between Canada and another country will follow existing channels established by DFAIT. DFAIT will provide information to diplomatic and embassy staff and Canadians living or travelling in the affected area. The GOC will support the facilitation of information exchange amongst federal partners and subject matter experts involved in the emergency response.

4.6 TECHNICAL ASSESSMENT OF RADIOLOGICAL HAZARDS AND IMPACTS

In accordance with the NEFs, the FNEP TAG undertakes a coordinated technical assessment of the off-site radiological hazards and their potential evolution to support integrated planning and decision making. For emergencies involving licensed activities, this will be supported through on-site situational awareness and risk assessment, provided by the appropriate federal on-site authority (CNSC or DND/CF) to the FNEP TAG. This will include results of scientific and technical assessments on the evolution of the emergency on-site. Other members of the FNEP TAG will contribute to the full technical assessment according to their roles and responsibilities (Annex A).

When a province or territory requests federal technical assessment support the level of support provided will complement existing provincial technical assessment capabilities. This could range from evaluating the impacts to neighbouring provinces and territories to performing a full assessment of the radiological impacts of the event within the province and recommending protective actions.

The FNEP TAG will obtain information from all relevant sources, including: pre-existing data-sharing arrangements with provinces, FNEP Partners, radiological monitoring networks and deployed federal assets (see section 4.7); federal government institutions with specialized expertise in areas relevant to the technical assessment; other countries; and/or the IAEA and other international organizations.

The FNEP TAG will share, in a timely manner, its technical assessments with the provincial/territorial technical group through the FNEP Liaison Officer, through other established federal-provincial-territorial mechanisms, and through any established and agreed information exchange tools (e.g., web-enabled applications). The FNEP TAG will inform the GOC of its assessments and recommendations for protective or mitigation actions within federal jurisdiction.

4.7 FIELD OPERATIONS IN SUPPORT OF PROVINCES OR TERRITORIES

For domestic emergencies, or those having direct impact on Canada, monitoring of radiation in the environment and sampling of agricultural products, food, soil, water, etc., will normally be coordinated by the province, with federal involvement and support as appropriate.

Federal radiological monitoring networks and real time radiation detection systems, including Health Canada's cross-country networks, will be used to monitor the environment for radiological contamination in order to provide information about the radioactive source, assess the risk to health and formulate protective action recommendations. In cases of prior agreement with provinces/territories (for example as described in the FNEP Provincial Annexes) in areas of federal jurisdiction, or at the request of a province/territory, additional federal field capabilities may be deployed to assist and support provincial/territorial operations and radiological monitoring and sampling. Deployment of field resources will be supported through the GOC Operations, Planning and Logistics functions, as described in the FERP and in coordination with other national plans, such as the *Federal CBRNE Plan* (under development in 2012).

In the case of Category E emergencies, federal support for monitoring the Canadian environment, imports, and travellers from affected areas will be coordinated by the FNEP TAG in collaboration with the GOC Operations, Planning and Logistics functions. International deployment of personnel and/or equipment will be undertaken through bi-lateral or multi-lateral arrangements (as described in Section 4.5.4) and coordinated primarily through DFAIT.

For Category A-E emergencies, all processed data collected by federal monitoring and sampling capabilities will be provided directly to the FNEP TAG and the province's technical/science groups.

4.8 PROTECTIVE ACTION RECOMMENDATIONS

Decisions and criteria regarding off-site protective actions are normally within provincial/territorial jurisdiction. Federal actions will support provincial/territorial authorities through the rapid exchange of technical assessment information. In the event of a provincial/territorial request for federal recommendations concerning the implementation of protective actions, the FNEP TAG will develop its recommendations based on, in order of priority, provincial, federal or international guidance, where available. In all cases, the timeliness of decisions on protective actions and their implementation will be paramount.

In the event that protective actions are required on federal lands (such as parks or aboriginal lands), their implementation will be carried out in a manner consistent with local and provincial/territorial response activities, normally coordinated by the province. Regional headquarters of federal departments or agencies likely to be affected by such measures will be kept informed by the FCC. If required, federal regional headquarters will implement protective actions in coordination with the province or territory.

In the event of a nuclear emergency originating at a federal facility, such as Chalk River Laboratories, the federal department or agency that owns or operates the facility will be responsible for all on-site interventions and will coordinate off-site activities with municipal, provincial/territorial and federal officials. This includes Category C events.

For emergencies occurring outside of Canada, the FNEP TAG will monitor the advice given by authorities in the country of the emergency. Based on this information, as well as its own technical assessments, the FNEP TAG will formulate recommendations for appropriate protective action for Canadians in affected countries, as well as advisories for travellers and on trade.

4.9 PROTECTION OF EMERGENCY WORKERS

In accordance with the *Canada Labour Code* and the *Canada Occupational Health and Safety Regulations (Canada Labour Code),* the health and safety of employees is primarily a responsibility of their respective employers. Therefore all personnel designated to field operations need to be authorized to perform their expected activities, with appropriate personal protective equipment (PPE), procedures and adequate training on radiation protection, use and limitations of PPE and other related tasks. Employees deployed as part of radiological task teams are responsible for using appropriate PPE and for following all necessary training and procedures.

As required and requested, the FNEP TAG may provide recommendations and coordinate the use of specialized equipment (such as radiation **dosimeters**) to help protect workers where potential exposure to radiation may occur. Where dose limits and other response criteria do not already exist, the FNEP TAG may provide radiation protection advice in accordance with relevant regulations or guidelines.

4.10 MANAGING THE MEDICAL RESPONSE

The provision of medical care, including the medical response to a nuclear emergency, primarily falls under provincial/territorial jurisdiction. The Health Portfolio maintains limited supplies of **medical countermeasures** for internal radiological contamination in PHAC's National Emergency Stockpile System.[13] Upon request by appropriate medical or public health authorities, these supplies can be made available to provincial/territorial authorities for use in their response to a nuclear emergency.

The federal government may also assist provincial/territorial authorities by providing training and guidelines in support of their preparedness activities.

4.11 INFORMING THE PUBLIC[14]

Previous nuclear emergency situations have highlighted the primary importance of coordinated, proactive and transparent public communications as part of effective emergency response. As such, all jurisdictions involved in the emergency response (operators, local, provincial/territorial and federal authorities) should coordinate their media and public communications.

---

[13] Examples of medical countermeasures in PHAC's National Emergency Stockpile System include, Prussian Blue, Ca- and Zn-DTPA, and potassium iodide (KI).

[14] This section focusses on public communications. Alerting of the public of an emergency situation is outside the scope of this plan.

For domestic nuclear emergencies, and other emergencies impacting provinces or territories, provincial/territorial information centres will be the main source of public and media information on aspects of emergency operations and protective actions.

At the federal level, the Federal Public Communications Coordination Group, led by Public Safety Canada's Communications Directorate, in accordance with the FERP, ESF# 12, will coordinate the federal government's communications response to the public, media and affected stakeholders in collaboration with the provinces/territories, as well as private sector stakeholders as required. Federal government institutions will contribute information to this group according to their mandates.

FNEP Federal Spokesperson(s) will present the federal position with respect to the nuclear emergency and according to the specific issues. For emergencies occurring at licensed facilities, the facility operator and the CNSC will provide information about on-site conditions. For Category C emergencies, DND/CF will provide information about an affected nuclear powered vessel.

To support the activities of the federal communications group in informing the public, media, workers, etc., a FNEP TAG task team will be established to develop or provide technical input into communications products. These will address topics such as technical information on the emergency, monitoring results and assessment of impacts. Products will be provided to the Federal Public Communications Coordination Group through a FNEP TAG Liaison Officer situated in the group.

In addition to the FNEP Federal Spokespersons, other federal public affairs staff may be dispatched to the provincial/territorial information centres when the latter are established, in accordance with the Provincial emergency plans or the FNEP Annexes (as applicable), to help coordinate information to the media and the public.

In cases where a provincial/territorial information centre is not established (for example, some Category D emergencies), the Federal Public Communications Coordination Group will provide the main source of information, in coordination with individual federal government institutions.

5 TRANSITION TO RECOVERY AND FNEP DE-ESCALATION

The FNEP is designed to deal with the off-site response to a nuclear emergency. Once the situation has stabilized and immediate and other actions for the protection of public health and safety have been completed, emergency management of the radiological hazard will shift from the **response phase** to recovery and the FNEP will return to routine operations.

Responsibility for recovery is largely within provincial/territorial jurisdiction. The decision to transition to recovery will be taken by these authorities in the case of an emergency occurring in or near Canada, and by the federal authorities in the event of a far-field emergency. Some FNEP partners and FNEP Designated Officials may be involved in support of restoration efforts of the affected areas. Individual departments will engage in Government of Canada action planning and implementation of recovery activities in accordance with their primary and supporting responsibilities in the ESFs.

It is important to identify early in the event potential issues that will need to be addressed during the long-term recovery after an emergency. Preparedness activities will include the development of a basic framework recovery plan to address common issues to facilitate the transition to recovery operations. The FNEP TAG will contribute to development of this plan for a specific emergency as part of transition activities.

The transition to recovery includes, but is not limited to, the development of long term plans for the following activities. Federal authorities including the FNEP TAG may have a role to play in the following:

- A recovery management plan, including reference levels on residual dose from long-term contamination and strategy for restoration of normal socio-economic activities, including international aspects;
- Monitoring of contaminated areas, assessment of potential doses to public and workers, and assessment of medium and long-term health hazards;
- Environmental decontamination and radioactive waste disposal operations;
- Maintenance of dose registries for emergency workers;
- Non-radiological recovery operations;
- Implementation and administration of federal post-disaster financial assistance programs under the *Nuclear Liability Act,* if applicable; and
- Proactive and transparent public information and international communications related to all of the above activities.

5.1 RETURN TO ROUTINE REPORTING

When the focus of activities shifts from emergency response to recovery activities, the FNEP Senior Official in consultation with the FNEP TAG Chair, ADM Emergency Management & Regional Operations (PS) and Federal Coordinating Officer will recommend the return of the FNEP to routine reporting level, and stand down of some or all components of FNEP not required for transition to recovery. This may be done independently of, but in coordination with, the overall FERP response level and operations of the FERMS, specifically in situations where the non-radiological impacts of the situation are not yet stabilized.

The DM or ADM Committee, in consultation with the Privy Council Office, will approve the transition to

recovery and termination of the emergency. Complementary actions include:

- Designating a **Primary Federal Minister** for Recovery and a National Recovery Coordinator; and
- Approving the time frame for hand-over from the Federal Coordinating Officer and FNEP Senior Official to a National Recovery Coordinator.

The National Recovery Coordinator will be responsible for identifying federal recovery priorities in consultation with provinces, and for assembling and coordinating a National Recovery Support Organization to implement the federal recovery activities. This will normally include information on recovery issues identified by the FNEP TAG. The National Recovery Support Organization may contain elements of the FERMS.

The transition to recovery of all affected areas and hand-over to the National Recovery Coordinator signify closure of the response phase.

6 EMERGENCY PREPAREDNESS ACTIVITIES

6.1 PREPAREDNESS ACTIVITIES OF DESIGNATED FEDERAL GOVERNMENT INSTITUTIONS

In order to achieve and maintain an adequate level of preparedness for nuclear emergencies, all federal government institutions that might be involved in or impacted by a nuclear emergency, whether in headquarters or in regions, should:

- Develop and maintain appropriate departmental or agency plans and procedures to carry out their roles and responsibilities as described in the FNEP, and identify and maintain the related infrastructures and capabilities;
- Maintain human resources adequately authorised, trained, and equipped to carry out their plans and procedures;
- Participate in intra- and interdepartmental nuclear emergency preparedness committees as needed;
- Participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned to keep plans up-to-date and to incorporate current knowledge;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies or research aimed at developing or improving any necessary standards, guidelines, capabilities and interoperability.

Health Canada, in conjunction with Public Safety Canada, coordinates with relevant emergency preparedness committees, and maintains a nuclear emergency training, drill and exercise programme. This programme includes development and implementation of a long-term program for training, drills and exercises involving the FNEP Designated Officials and FNEP task teams, and participation in Federal, provincial/territorial, and international drills and exercises, including those organised under the auspices of IAEA (ConvEx exercises) and the OECD Nuclear Energy Agency (INEX exercises). Targeted drills and exercises will be conducted on a routine basis, with a large-scale multi-jurisdictional exercise occurring, in general, once every 2-3 years.

6.2 NUCLEAR EMERGENCY PREPAREDNESS COMMITTEES

As part of its preparedness activities, an Assistant Deputy Ministers Emergency Management Committee provides a forum for the Government of Canada's emergency management processes and readiness. Working groups and committees may be established under the ADM committee to support interdepartmental collaboration on specific nuclear emergency preparedness and response topics.

The federal government also collaborates with provinces and territories to develop and maintain the national emergency preparedness and response framework. As elaborated in *An Emergency Management Framework for Canada*, the Senior Officials Responsible for Emergency Management (SOREM) provides a forum for federal, provincial and territorial discussions and emergency response integration. Working groups may be established to support intergovernmental collaboration on issue-specific multi-stakeholder aspects.

Within this governance structure, the planning organization for the FNEP is supported by two standing

nuclear emergency preparedness advisory committees (Table 6.2). In collaboration with Public Safety Canada, Health Canada provides the chair and secretariat for these committees. Federal departments/agencies and Provincial/Territorial Emergency Management Organizations will participate as required in the relevant committees so that:

- all interdepartmental and inter-jurisdictional planning and preparedness issues and activities relevant to nuclear emergencies are adequately coordinated, and
- any concerns raised are considered and resolved.

TABLE 6.2: Multi-organization and inter-jurisdictional scientific/technical radiological committees

Committees	Mandate
Interdepartmental Radiological-Nuclear Emergency Management Coordinating Committee. (Chaired by Health Canada)	To facilitate coordination of federal nuclear emergency preparedness and response arrangements, maintenance of the FNEP, information exchange and joint projects in the areas of nuclear emergency preparedness programs, response standards, emergency assistance, exercises and other related issues.
Federal/Provincial/Territorial Radiological-Nuclear Emergency Management Coordinating Committee. (Co-chaired by Health Canada and a Provincial authority)	To facilitate coordination of federal nuclear emergency preparedness and response arrangements with the provinces and territories, and provide a forum for information exchange and development of plans and joint projects to improve nuclear emergency management, including the coordination, development and implementation of a long-term exercise program.

Other ad-hoc preparedness committees may be established as required to address specific areas of nuclear emergency preparedness such as capacity building, exercise planning or inter-jurisdictional cooperation.

ANNEX A:
RESPONSIBILITIES OF DESIGNATED FEDERAL GOVERNMENT INSTITUTIONS FOR NUCLEAR EMERGENCY FUNCTIONS

Because of the inherent technical nature and complexity of nuclear emergencies, the FNEP introduces event-specific Nuclear Emergency Functions (NEFs). NEFs are technical response functions that group actions specifically related to nuclear emergency preparedness and response and that complement the Emergency Support Functions in the FERP. Responsibilities for each NEF are assigned to primary and supporting departments or agencies. As roles and responsibilities depend upon the specific mandates and capabilities of Federal government institutions, and the nature of the emergency, functions and assigned departmental responsibilities include, but are not necessarily limited to those identified in the FNEP. All organizations involved in the FNEP are expected to develop their own plans, procedures and capabilities to fulfil their NEF responsibilities.

A.1 NUCLEAR EMERGENCY FUNCTION MAINTENANCE PROCESS

As primary department for the FNEP, Health Canada, in coordination with Public Safety Canada/Government Operations Centre, will coordinate regular reviews of the NEFs with primary and supporting departments as part of the FNEP regular review cycle. Additional reviews may be conducted if experience with a significant incident, exercise or regulatory change indicates a requirement to do so. Recommended changes will be submitted through the responsible department or agency to respective senior management for approval. Upon completion of the review process, the NEFs will be updated as per approved changes.

A.2 RESPONSIBILITIES OF DESIGNATED FEDERAL GOVERNMENT INSTITUTIONS

Table A.1 lists the responsibilities of designated Federal government institutions for the identified NEFs. Detailed roles and responsibilities for each NEF are provided below in a series of organisation-specific tables. For some NEFs for which provinces/territories have the lead, federal government institutions will only have a supporting role.

Table A.1: Organisational Responsibilities for Nuclear Emergency Functions

NUCLEAR EMERGENCY FUNCTIONS		P = Primary C = Shared Primary Responsibility (e.g. scenario driven or other specific arrangement) S = Supporting																	
		AAFC	AANDC	AECL	CBSA	CFIA	CNSC	DFAIT	DFO	DND/CF	EC	HC	HRSDC	NRCan	PCO	PHAC	PS/GOC	RCMP	TC
1 NOTIFICATION AND MONITORING																			
1.1	Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S	S	S	S	S	S	C^	S	S	S	C	S	S	S	S	C	S	S
1.2	Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.			S	S		S	C^	S	S	S	P		S		S	S		
1.3	Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.						S	C^		S	S	P					S	S	
1.4	Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.				S		S	C		S		S		S		C	C		S
2 LIAISON AND COORDINATION																			
2.1	Maintain technical liaison and coordinate with the provincial technical teams.	S		S		S	C			S		C				S	S		
2.2	Establish and maintain technical liaison with relevant response partners.						C	S		S		C					S	C	S
2.3	Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.						S	C^		C	S	C				C	C	S	
2.4	Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.			S			C	C		S	S	C		S		S	S	S	
3 TECHNICAL ASSESSMENT OF RADIOLOGICAL HAZARDS AND IMPACTS																			
3.1	Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.			S	S	S	S			S/C*	S	P		S		S		S	
3.2	Gather and consolidate technical information on the emergency.			S			C	C^		S/C*	S	C		S		S	S	C	S
3.3	Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.			S			P			P*	S	S		S				S	
3.4	Evaluate environmental transfer of the radioactive materials within Canada, the affected country or towards Canada as applicable (e.g., atmospheric/marine transport models, ground contamination, etc.).									S*	P	S							
3.5	Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate.			S			S			S	S	P						S	
3.6	Identify national and international technical/scientific resources and laboratories potentially required in support of response.	S		S		S	S		S	S		P							
3.7	Perform laboratory analysis of food, soil, air filters, etc.			S			C		S	S		C							
3.8	Propose emergency classification level (International Nuclear Event Scale) and report to the IAEA.						P			S*									
3.9	Prepare specialized products to support radiological assessment and decision-making on countermeasures.						S			S*	S	P		S			S		
4 FIELD OPERATIONS																			
4.1	Conduct and coordinate radiological monitoring and surveying.	S		S			S		C	S/C*		C		C			S	S	S
4.2	Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S		S		C	S		C	S/C*	S	C					S	S	S
4.3	Support radiological contamination screening activities (e.g. for public, passengers or conveyances).			S			S			S		P				S		S	

* For Category C emergencies.
^ For Category E emergencies.

NUCLEAR EMERGENCY FUNCTIONS		P = Primary C = Shared Primary Responsibility (e.g. scenario driven or other specific arrangement) S = Supporting																		
		AAFC	AANDC	AECL	CBSA	CFIA	CNSC	DFAIT	DFO	DND/CF	EC	HC	HRSDC	NRCan	PCO	PHAC	PS/GOC	RCMP	TC
4.4	Assess monitoring data to verify radiological release/presence of contamination.			S			S			S		P		S				S	S
4.5	Conduct planning for decontamination activities (Provincial lead).			S			S			S		S				S	S	S	
4.6	Provide just-in-time training to field operators and/or first responders (police, fire, medical and others).			C			C			S		C		C			S		
4.7	Support FNEP TAG field operations with emergency telecommunications equipment and services.									S		P					S		
4.8	Assist in the control of food and goods imported from affected areas.				S	P													
5 PROTECTIVE ACTION RECOMMENDATIONS																			
5.1	Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).			S			S	S		S/C*	S	P		S		S	S		
5.2	Implement protective actions under federal jurisdiction.	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P		S
5.3	Contribute to assessments of the actual or potential impacts of protective actions.	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P		S
6 PROTECTION OF EMERGENCY WORKERS																			
6.1	Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.			S			S			S		P		S		S	S		S
6.2	Coordinate the implementation of occupational radiation protection programs for federal emergency workers, or in support of provinces.											P							
7 MEDICAL RESPONSE																			
7.1	Provide training for the treatment of contaminated and/or overexposed casualties.									S		P				S			
7.2	Provide or arrange for the provision of medical radiation expertise and capabilities for the treatment of contaminated and/or overexposed casualties.			S						S		S				S			
8 INFORMING THE PUBLIC																			
8.1	Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.			S			S	C^		S	S	C				S	S	S	
8.2	Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S	S	S	S	S	S	C^	S	S	S	S	S	S	S	S	C	S	S
8.3	Provide SME support and spokespersons for operation of a media centre and other communication functions.	S	S	S	S	S	S	C^	S	S	S	S	S	S	S	S	C	S	S
9 TRANSITION TO RECOVERY																			
9.1	Contribute to developing a recovery action plan. (Note: CNSC primary for licensed facilities, DND/CF primary for nuclear powered vessels.)			S			P			S/P*		S		S			S		S
10 DEACTIVATION																			
10.1	Assist in de-escalation of the FNEP.			S			S			S	S	S					P		

* For Category C emergencies.

^ For Category E emergencies.

ABORIGINAL AFFAIRS AND NORTHERN DEVELOPMENT CANADA

FERP/ESF Responsibilities

Responsible for supporting relevant actions consistent with the FERP.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain a national all-hazards departmental emergency management plan that addresses responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Note: Aboriginal Affairs and Northern Development Canada (AANDC) National Emergency Management Plan is an all-hazards plan that addresses the requirements as it pertains to the FNEP.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide support and information as directed by the primary department.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Assist in the dissemination of public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide support and operational advice on the transition to recovery and de-escalation of FNEP as it pertains to First Nation communities.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.[15]	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

[15] AANDC to provide support only with impacts affecting First Nation communities.

AGRICULTURE AND AGRI-FOOD CANADA

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #3 – Agriculture and Agri-Food.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	S
3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response.	S
4.1 Conduct and coordinate radiological monitoring and surveying.	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

ATOMIC ENERGY OF CANADA LIMITED

FERP/ESF Responsibilities

Responsible for supporting relevant actions consistent with the FERP.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel who are equipped to carry out plan and procedures
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Agency to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- AECL (for emergency at Chalk River Laboratories) to gather on-site data, share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide stand-by resources and facilities for laboratory analysis.
- Provide support in the analysis of technical data and response trends.
- Provide technical support, equipment and facilities and health physics support, including an emergency involving an NPV.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Gather and provide information on the CANDU system and specialized knowledge arising from AECL's own research activities (e.g., plutonium handling).

- Provide technical support for the shipment of radioactive material and the disposal of contaminated soil, equipment, etc.
- On request, provide personnel and resources for field monitoring, for survey and control of contamination and exposure.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	S
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S
3.2 Gather and consolidate technical information on the emergency.	S
3.3 Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.	S
3.5 Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate.	S
3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response.	S
3.7 Perform laboratory analysis of food, soil, air filters, etc.	S
4.1 Conduct and coordinate radiological monitoring and surveying.	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S
4.3 Support radiological contamination screening activities (e.g. for public, passengers or conveyances).	S
4.4 Assess monitoring data to verify radiological release/presence of contamination.	S
4.5 Conduct planning for decontamination activities.	S
4.6 Provide just-in-time training to field operators and/or first responders (police, fire, medical and others).	C
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	S
7.2 Provide or arrange for the provision of medical radiation expertise and capabilities for the treatment of contaminated and/or overexposed casualties.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S
9.1 Contribute to developing a recovery action plan.	S
10.1 Assist in de-escalation of the FNEP.	S

CANADA BORDER SERVICES AGENCY

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #13-Border Services.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Agency to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, and indirect support to the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources that may be made available in support of operations, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Facilitate the movement across the Canadian border of specialized resources needed for response to a nuclear emergency.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.[16]	S
4.8 Assist in the control of food and goods imported from affected areas.	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

[16] CBSA provides detection and identification of actual or potential radiological hazards within Canada or the affected country, as applicable.

CANADIAN FOOD INSPECTION AGENCY

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #3 – Agriculture and Agri-Food.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in the FNEP, and identify and maintain own, or list of others who have the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Provide staff for an ingestion impact assessment Response team;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Agency to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share information with the FNEP TAG and support the TAG to formulate recommendations for areas within CFIA jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Conduct and coordinate departmental activities for monitoring and sampling for consumer foods and agricultural products including animal feed.
- Assist in collecting agri-food samples for analysis by other partners for radioactive contamination.

- Work with other Federal and Provincial authorities to undertake activities within their mandated areas to support the TAG in the evaluation of radiological hazards on agricultural lands, facilities, commodities, agricultural food stuff, consumer food products and livestock.
- Work with other Federal and Provincial authorities to implement protective actions for consumer foods, plants and plant products and animals and animal feed under federal jurisdiction or as requested by a province.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S
3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response.	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	C
4.8 Assist in the control of food and goods imported from affected areas.	P
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S

CANADIAN NUCLEAR SAFETY COMMISSION

FERP/ESF Responsibilities

Responsible for supporting relevant actions consistent with the FERP.

Preparedness

- Participate in the multi-organizational radiological and nuclear emergency preparedness committees;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel who are equipped to carry out plan and procedures
- Provide personnel and resources on-site for regulatory support (e.g. guidance, compliance verification, and regulatory approval), monitoring and sampling as necessary.
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Commission to:

- Notify their own staff, headquarters, regional and site offices to establish and maintain a departmental EOC, to provide required staff (Liaison Officer and/or Subject Matter Expert) to support the GOC, (scientific and operational support to provincial emergency management organizations and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify resources available for regulatory operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Provide advice and assistance to Public Safety with respect to their communications and operational requirements.
- Formulate requests for assistance, to use and manage offered assistance for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons, technical and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.

- Establish and maintain liaison with federal institutions, NGOs, foreign governments, international organizations, the private sector (e.g., industry, universities), and Canadian nuclear facility or with foreign regulators (such as U.S. NRC).
- Gather on-site data from the Canadian nuclear facility or foreign regulators (such as U.S. NRC) and share with TAG and others.
- As part of TAG, monitor and assess the results of plume dispersion and dose projection models.
- Provide regulatory support (e.g. guidance, verification, regulatory approval) and stand-by laboratory analysis as necessary.
- Provide support in the analysis of technical data and response trends.
- Provide resources for regulatory verification and action.
- Verify compliance with regulatory requirements and determine regulatory action.
- Provide regulatory support (e.g. guidance, compliance verification, regulatory approval) and arrange transport of radioactive material as necessary.
- Provide radiation protection standards for on-site nuclear energy workers, and technical support and advice on radiation protection.
- Provide support, as required, for liaison with international agencies.
- On request, and subject to availability, to allow use of the CNSC media facilities as media centre for the GOC until an alternate location is established and operating.
- Provide available public information material on nuclear safety, radiation and regulatory matters.
- Propose emergency classification level (INES) for accidents or incidents in Canada.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
1.3 Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.	S
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	S
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	C
2.2 Establish and maintain technical liaison with relevant response partners.	C
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	S
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	C
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S
3.2 Gather and consolidate technical information on the emergency.	C
3.3 Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.	P
3.5 Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate.	S
3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response.	S
3.7 Perform laboratory analysis of food, soil, air filters, etc.	C
3.8 Propose emergency classification level (International Nuclear Event Scale) and report to the IAEA.	P
3.9 Prepare specialized products to support radiological assessment and decision-making on countermeasures.	S
4.1 Conduct and coordinate radiological monitoring and surveying.	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S
4.3 Support radiological contamination screening activities (e.g. for public, passengers or conveyances).	S
4.4 Assess monitoring data to verify radiological release/presence of contamination.	S
4.5 Conduct planning for decontamination activities.	S
4.6 Provide just-in-time training to field operators and/or first responders (police, fire, medical and others).	C
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S
9.1 Contribute to developing a recovery action plan. (Note: CNSC primary for licensed facilities, DND/CF primary for nuclear powered vessels.)	P
10.1 Assist in de-escalation of the FNEP.	S

DEPARTMENT OF NATIONAL DEFENCE/CANADIAN FORCES

FERP/ESF Responsibilities

As a supporting department, CF assistance is utilized as a force of last resort. Canadian Forces assistance may be provided under authority of section 273.6 (1) of the *National Defence Act*, or other appropriate authority, in support of a federal response. Commitment of DND/CF resources in support of this plan may require a letter of request from the Minister of Health to the Minister of National Defence at the time of the event. While a verbal request can be made it would be required to be followed by a letter as soon as practical. DND/CF is the primary department for dealing with emergencies involving a nuclear powered vessel (category C emergencies).

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in the FNEP, and identify, maintain the infrastructures, trained personnel and capabilities needed to implement them;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Liaise with military partners.
- As requested and required, provide support for liaison with international agencies, including advice on existing plans and arrangements.
- Provide field monitoring capabilities in support of provinces for areas outside the emergency planning zones.
- Provide personnel and resources for on-site analysis, survey and control of contamination and exposure.
- Provide stand-by resources and facilities for laboratory analysis.
- Provide support in the analysis of technical data and response trends.

- Provide personnel and resources for operations in the Emergency Planning Zone, including for an emergency involving an NPV.
- Provide assistance in disseminating and customizing information products on protective actions to target and specialized audiences.
- As requested provide available radiological/nuclear scientific and technical subject matter experts and specialized equipment for deployment as part of the Federal radiological response team and provide when available a senior scientific expert to act as science advisor.

For emergencies involving an NPV (Category C):

- Gather data for an emergency involving an NPV.
- Provide available public information material on NPVs and military nuclear devices.
- Assist the National Coordinator in implementing the FNEP to provide a Federal Spokesperson (for technical aspects of an NPV accident) and the Federal Operations Liaison Officer.
- As part of TAG, monitor and assess the results of plume dispersion and dose projection models.
- Provide emergency personnel and equipment for emergencies involving a NPV.
- Provide technical and health physics support for an emergency involving an NPV.
- Provide radiation protection standards for on-site radiation workers and technical support and advice on radiation protection.
- Provide recommendations for protective actions for urgent protective actions such as evacuation and sheltering to the off-site civilian authorities (i.e. province or municipalities).

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S/S*
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S/S*
1.3 Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.	S
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	S
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	S
2.2 Establish and maintain technical liaison with relevant response partners.	S
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	C
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S/C*
3.2 Gather and consolidate technical information on the emergency.	S/C*
3.3 Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.	P*
3.4 Evaluate environmental transfer of the radioactive materials within Canada, the affected country or towards Canada as applicable (e.g., atmospheric/marine transport models, ground contamination, etc.).	S*
3.5 Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate.	S/S*
3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response.	S/S*
3.7 Perform laboratory analysis of food, soil, air filters, etc.	S/S*
3.8 Propose emergency classification level (International Nuclear Event Scale) and report to the IAEA.	S*
3.9 Prepare specialized products to support radiological assessment and decision-making on countermeasures.	S*
4.1 Conduct and coordinate radiological monitoring and surveying.	S/C*
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S/C*
4.3 Support radiological contamination screening activities (e.g. for public, passengers or conveyances).	S
4.4 Assess monitoring data to verify radiological release/presence of contamination.	S/S*
4.5 Conduct planning for decontamination activities.	S
4.6 Provide just-in-time training to field operators and/or first responders (police, fire, medical and others).	S
4.7 Support FNEP TAG field operations with emergency telecommunications equipment and services.	S/S*
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S/C*
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	S
7.1 Provide training for the treatment of contaminated and/or overexposed casualties.	S
7.2 Provide or arrange for the provision of medical radiation expertise and capabilities for the treatment of contaminated and/or overexposed casualties.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S
9.1 Contribute to developing a recovery action plan. (Note: CNSC primary for licensed facilities, DND/CF primary for nuclear powered vessels.)	S/P*

10.1 Assist in de-escalation of the FNEP.	S

*For NPV emergencies.

ENVIRONMENT CANADA

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #6 - Environment.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify to the TAG departmental resources available to support the response and remediation within the department's jurisdiction and mandate; to contact and deploy the department's national and regional personnel and equipment, and to provide environmental monitoring and assessment to the TAG as required
- Share results of analysis of assessment data and formulate recommendations for areas within their mandate.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and provide communications support, as required.
- Provide available public information material relevant to emergency situation.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Provide meteorological, hydrological and ice conditions and weather forecasts. Deploy automated emergency weather stations where possible and as required.
- Provide atmospheric dispersion modeling assessment to the TAG and if requested or required, to a province for federal purposes.
- Assist in locating the plume of RN material in air and/or water.
- Provide a support capability to the TAG for the evaluation of radiological hazards and for the evaluation of national impacts of interventions for environmental impacts.

- Chair the TAG response team on plume dispersion modeling , if required.
- Provide support in the analysis of technical data and response trends.
- Provide support, as required, for liaison with international agencies.
- Provide assistance in disseminating and customizing information products on protective actions to target and specialized audiences.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
1.3 Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.	S
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	S
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S
3.2 Gather and consolidate technical information on the emergency.	S
3.3 Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.	S
3.4 Evaluate environmental transfer of the radioactive materials within Canada, the affected country or towards Canada as applicable (e.g., atmospheric/marine transport models, ground contamination, etc.) [17]	P
3.5 Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate.	S
3.9 Prepare specialized products to support radiological assessment and decision-making on countermeasures.	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S
10.1 Assist in de-escalation of the FNEP.	S

[17] CBSA provides detection and identification of actual or potential radiological hazards within Canada or the affected country, as applicable.

FISHERIES AND OCEANS CANADA

FERP/ESF Responsibilities

Responsible for supporting relevant actions consistent with the FERP.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in the FNEP Annex A, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Gather technical information on the accident facility or source, for emergency involving a vessel at sea.
- Provide oceanographic or hydrographic information related to marine dispersion plumes.
- Provide a capability to TAG for the evaluation of radiological hazards and for the evaluation of national impacts of interventions, for marine transportation over sea routes except in ports and St. Lawrence Seaway.

- Implement protective actions under federal jurisdiction or as requested by a province for marine traffic control over sea routes except in ports and St. Lawrence Seaway.
- Provide air and ground transportation support within available capabilities.
- Support operations with their existing telecommunications systems and to identify transportation resources required for transport of telecommunications equipment to the site.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response.	S
3.7 Perform laboratory analysis of food, soil, air filters, etc.	S
4.1 Conduct and coordinate radiological monitoring and surveying.	C
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	C
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

FOREIGN AFFAIRS AND INTERNATIONAL TRADE CANADA

FERP/ESF Responsibilities

With respect to domestic emergencies, DFAIT is responsible for all relevant actions consistent with FERP Emergency Support Function #9 – International Coordination. With respect to emergencies abroad, DFAIT is responsible for implementing relevant departmental emergency management policies, plans and procedures.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Lead international response coordination for a nuclear emergency in a foreign country.
- Establish and maintain liaison with federal institutions, NGOs, foreign governments, international organizations, the private sector (e.g., industry, universities), etc. with foreign governments, international organizations, Canadian embassies and Ottawa based foreign embassies.

- Provide advice and assistance on the handling of offers and requests for assistance from foreign governments taking into account Canada's international commitments.
- Assist FERMS-Communications Group in disseminating and customizing the information products on protective actions to target and specialized audiences for Canadians abroad, relevant Canadian missions and Ottawa-based foreign embassies.
- Provide operating staff, as required, for specialized interpreting or translation skills and for contact and liaison with foreign media both in Ottawa and abroad.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	C^
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	C^
1.3 Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.	C^
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	C
2.2 Establish and maintain technical liaison with relevant response partners.	S
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	C^
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance. [18]	C
3.2 Gather and consolidate technical information on the emergency.	C^
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	C^
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	C^
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	C^

^ For Category E emergencies.

[18] For DFAIT, this only applies to emergencies abroad.

HEALTH CANADA

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #5 – Public Health and Essential Human Services.

Preparedness

- Develop and maintain appropriate departmental or agency plans and procedures to carry out their roles and responsibilities as described in the FNEP Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Participate in intra- and interdepartmental nuclear emergency preparedness committees as needed;
- Maintain human resources adequately trained and equipped to carry out their plans and procedures;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies or research aimed at developing or improving any necessary standards, guidelines, capabilities and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify its own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement its plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report its activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate its activities with its provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy its national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within its jurisdiction.
- Provide advice and assistance to Public Safety with respect to its telecommunications requirements.
- Formulate requests for assistance, to use and manage resources offered for operations within its mandates, and to provide information on its ability to provide assistance.
- Identify audiences within its mandate and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Chair the Response team on radiation protection for emergency workers, and to chair the Response team on ingestion impact assessment, if required.

- Staff the GOC Management Team for an emergency in Canada or the U.S.A. near the Can-U.S.A. border.
- Provide support, as required, for liaison with international agencies, including advice on existing plans and arrangements.
- Run atmospheric trajectory, dispersion and/or dose projection models if requested by a province or required for federal purposes, and to provide outputs to TAG.
- Conduct and coordinate departmental activities for monitoring and sampling for environmental radioactivity measurements.
- Provide existing resources and facilities for laboratory analysis.
- Provide an inventory of laboratories which can perform radiological analysis.
- Provide advice on public health and safety issues, including drinking water, consumer food products and other radiological protection issues.
- Provide support in the analysis of technical data and response trends.
- Provide a capability to TAG for the formulation of recommendations for protective actions including urgent protective actions such as evacuation and sheltering, when requested by a province.
- Coordinate the identification of experts and capabilities in Canada and abroad, to provide medical radiation expertise and to provide bioassay, radiobiology and in vivo monitoring services for evaluation of internal doses.
- Provide radiation protection standards for off-site emergency workers; support in radiation protection issues; dosimeters and emergency supplies of iodine tablets; bioassay, radiobiology and in vivo monitoring services for evaluation of internal doses, and to evaluate cumulative external doses.
- Provide assistance in disseminating and customizing information products on protective actions to target and specialized audiences.
- Provide material on radiation protection issues and the FNEP.
- Provide existing public inquiries systems.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	C
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	C
1.3 Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.	C
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	S
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	C
2.2 Establish and maintain technical liaison with relevant response partners.	C
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	C
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	C
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	P
3.2 Gather and consolidate technical information on the emergency.	C
3.3 Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.	S
3.4 Evaluate environmental transfer of the radioactive materials within Canada, the affected country or towards Canada as applicable (e.g., atmospheric/marine transport models, ground contamination, etc.).	S
3.5 Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate.	P
3.6 Identify national and international technical/scientific resources and laboratories potentially required in support of response.	P
3.7 Perform laboratory analysis of food, soil, air filters, etc.	C
3.9 Prepare specialized products to support radiological assessment and decision-making on countermeasures.	P
4.1 Conduct and coordinate radiological monitoring and surveying.	C
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	C
4.3 Support radiological contamination screening activities (e.g. for public, passengers or conveyances).	P
4.4 Assess monitoring data to verify radiological release/presence of contamination.	P
4.5 Conduct planning for decontamination activities.	S
4.6 Provide just-in-time training to field operators and/or first responders (police, fire, medical and others).	C
4.7 Support FNEP TAG field operations with emergency telecommunications equipment and services.	P
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	P
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	P
6.2 Coordinate the implementation of occupational radiation protection programs for federal emergency workers, or in support of provinces.	P
7.1 Provide training for the treatment of contaminated and/or overexposed casualties.	P
7.2 Provide or arrange for the provision of medical radiation expertise and capabilities for the treatment of contaminated and/or overexposed casualties.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	C
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

9.1 Contribute to developing a recovery action plan.	S
10.1 Assist in de-escalation of the FNEP.	S

HUMAN RESOURCES AND SKILLS DEVELOPMENT CANADA

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #7 – Human and Social Services.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Provide support for the GOC.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

NATURAL RESOURCES CANADA

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #4- Energy Production and Distribution.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge;
- Creation and maintenance of radiation background maps for major Canadian urban centres.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide aerial and/or ground based mobile monitoring data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Assist as required to gather technical information on the accident facility or source.
- Provide remote sensing or other surveying services.
- Provide an inventory of potential aerial monitoring capabilities and resources.

- Provide support in the analysis of technical data and response trends, especially for contamination and remediation of low-level radioactive contaminated areas through the LLRWMO.
- Conduct remediation of low-level radioactive contaminated areas through the LLRWMO.
- Provide assistance in ensuring that communications have considered the risks within a larger context including societal costs of intervention measures.
- Provide material on liability and compensation issues relating to the *Nuclear Liability Act*.
- Coordinate responses or actions related to nuclear liability as provided in the *Nuclear Liability Act*.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	S
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S
3.2 Gather and consolidate technical information on the emergency.	S
3.3 Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials.	S
3.9 Prepare specialized products to support radiological assessment and decision-making on countermeasures.	S
4.1 Conduct and coordinate radiological monitoring and surveying.[19]	C
4.4 Assess monitoring data to verify radiological release/presence of contamination.	S
4.6 Provide just-in-time training to field operators and/or first responders (police, fire, medical and others).	C
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S
9.1 Contribute to developing a recovery action plan.	S

[19] In order to perform air and ground surveillance, NRCan may require the provision of a vehicle and/or an aircraft.

PRIVY COUNCIL OFFICE

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Office to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice on the transition to recovery and de-escalation of FNEP, as it affects assigned mandates.
- Approve designation of the Lead Federal Department for Response, to chair a task team on Government/Cabinet briefings, if required.
- Provide standard Government/Cabinet briefing documents.
- Approve designation of the Lead Federal Minister for Recovery and a National Recovery Coordinator, and to assist the Executive Group and the National Coordinator in making the transition to Recovery.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

PUBLIC HEALTH AGENCY OF CANADA

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #5 – Public Health and Essential Human Services.

Preparedness

- Participate in the multi-organizational radiological and nuclear emergency preparedness committees;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice relating to assigned mandates, for the transition to recovery and de-escalation of FNEP.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	C
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	S
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	C
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S
3.2 Gather and consolidate technical information on the emergency.	S
4.3 Support radiological contamination screening activities (e.g. for public, passengers or conveyances).	S
4.5 Conduct planning for decontamination activities.	S
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	S
7.1 Provide training for the treatment of contaminated and/or overexposed casualties.	S
7.2 Provide or arrange for the provision of medical radiation expertise and capabilities for the treatment of contaminated and/or overexposed casualties.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

PUBLIC SAFETY CANADA/GOVERNMENT OPERATIONS CENTRE

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP, including Emergency Support Function #11 - Logistics Operations Management and ESF #12 - Communications.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify their own staff, headquarters and regional offices, to establish and maintain a departmental EOC, to provide required staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC, when required.
- Implement their plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency, to report their activities to the appropriate Federal Liaison Officer and to the GOC, and to coordinate their activities with their provincial counterpart, as necessary.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis of assessment data and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance, to use and manage resources offered for operations within their mandates, and to provide information on their ability to provide assistance.
- Identify audiences within their mandates and to provide spokespersons and support personnel, as required.
- Provide available public information material relevant to emergency situation.
- Provide information and personnel to staff public inquiries systems.
- Provide technical and operational advice relating to assigned mandates, for the transition to recovery and de-escalation of FNEP.
- Arrange for support for the GOC and identify communications requirements.
- Chair the task team on public inquiries and rumour control, if required.
- Provide the interim Federal Coordinating Officer.
- Designate the Federal Operations Liaison Officer and assist the National Coordinator in implementing the FNEP.

- Provide an inventory of potential national and international resources for operations.
- Support operations with their existing telecommunications systems and to identify transportation resources required for transport of telecommunications equipment to the site.
- Provide support, as required, for liaison with international agencies.
- Assist with the development of messages for use on the emergency broadcasting system (if available).
- Identify the media centre.
- Provide staff to set up and operate a national media centre.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	C
1.2 Host and/or set-up facilities to support the FNEP TAG and/or Task Teams.	S
1.3 Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.	S
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	C
2.1 Maintain technical liaison and coordinate with the provincial technical teams.	S
2.2 Establish and maintain technical liaison with relevant response partners.	S
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	C
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	S
3.2 Gather and consolidate technical information on the emergency.	S
3.9 Prepare specialized products to support radiological assessment and decision-making on countermeasures.	S
4.1 Conduct and coordinate radiological monitoring and surveying.	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S
4.5 Conduct planning for decontamination activities.	S
4.6 Provide just-in-time training to field operators and/or first responders (police, fire, medical and others).	S
4.7 Support FNEP TAG field operations with emergency telecommunications equipment and services.	S
5.1 Provide recommendations for protective actions in areas of federal jurisdiction or as requested by Province (for example: access control, medical treatment, sheltering, evacuation, food and water control, occupational health and safety, conveyances, imports, etc.).	S
5.2 Implement protective actions under federal jurisdiction.	P
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	P
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	C
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	C
9.1 Contribute to developing a recovery action plan.	S
10.1 Assist in de-escalation of the FNEP.	P

ROYAL CANADIAN MOUNTED POLICE

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function #8 – Law Enforcement which is shared with other Canadian police services where they are the Police of Jurisdiction (POJ).

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Conduct internal notifications as required. Divisional EOCs will activate to the appropriate levels.
- Will provide Liaison Officer (LO) as required to the following; the GOC, provincial/territorial EOCs and municipal Police of Jurisdiction (POJ) EOCs.
- Implement their plans and procedures in accordance with the terms contained in the FERP and FNEP.
- Identify departmental N CBRNE RT resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Share results of analysis and formulate recommendations for areas within their jurisdiction.
- Formulate requests for assistance; to use and manage resources offered and information on their ability to provide assistance.
- Identify OGDs within their mandates and to provide Liaison Officer/SME, as required.
- Cooperate in Public Awareness Programs through designated mechanisms.
- Provide SME advice on the transition to recovery.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.3 Maintain a capability to rapidly assess all notifications and determine changes to the FNEP response level.	S
2.2 Establish and maintain technical liaison with relevant response partners.	C
2.3 Facilitate the deployment of technical and scientific resources for operations in affected areas, including federal radiological task teams for field monitoring, radiological characterization and impact assessment.	S
2.4 Assist in the management of international requests/offers for radiological/nuclear technical/scientific advice or assistance.	S
3.1 Provide a capability for the assessment of actual or potential radiological hazards within Canada or the affected country, as applicable, and for the technical evaluation of countermeasures.	S
3.2 Gather and consolidate technical information on the emergency. [20]	C
3.3 Characterize the source term (reactor, explosives, radiological device, radiation source, etc.), its potential evolution and the actual and potential releases of radioactive materials. [20]	S
3.5 Evaluate actual and potential radiological impacts on health and safety, property and/or the environment and perform dose assessments where appropriate.	S
4.1 Conduct and coordinate radiological monitoring and surveying.[20]	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S
4.3 Support radiological contamination screening activities (e.g. for public, passengers or conveyances).	S
4.4 Assess monitoring data to verify radiological release/presence of contamination.	S
4.5 Conduct planning for decontamination activities. [21]	S
8.1 Develop technical communication products, including technical information and assessment of impacts, for the Federal-Provincial/Territorial emergency communication functions. [22]	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S

Note: *The responsibilities outlined for the RCMP are largely based on their role for response and investigations to malevolent acts involving RN materials.*

[20] This activity is performed by the National CBRNE Response Team (N CBRNE RT) as it relates to their capabilities and expertise.
[21] POJ would provide policing services to maintain public order, including evacuation, traffic control, and quarantine in support of decontamination activities.
[22] Law Enforcement (POJ) and N CBRNE RT will provide assistance in areas of their expertise.

TRANSPORT CANADA

FERP/ESF Responsibilities

Responsible for all relevant actions consistent with FERP Emergency Support Function 1- Transportation.

Preparedness

- Participate in the inter-departmental radiological and nuclear emergency preparedness committee;
- Develop and maintain appropriate departmental plans and procedures to carry out their roles and responsibilities as described in this Annex, and identify and maintain the infrastructures and capabilities needed to implement them;
- Maintain adequately trained personnel equipped to carry out their own plan and procedures with the support of FNEP partners with RN resources;
- Lead and participate in training, drills and exercises to verify that response resources (plans, equipment, procedures) are operational, relevant (e.g. fit-for-purpose), inter-operable and up to date;
- Keep abreast of improvements in approaches, technologies and capabilities relevant to emergency management and participate in projects, studies, or research aimed at developing or improving any necessary standards, guidelines, capabilities, and interoperability;
- Participate in post-emergency and post-exercise after action reviews and address relevant lessons-learned in order to keep plans up-to-date and to incorporate current knowledge.

Response / Provision of Capabilities

Department to:

- Notify TC staff (headquarters and regional offices) of any enhanced requirements needed in its departmental EOC; requirements for establishing and maintaining any of the department's regional EOCs; and, provide staff to support the GOC, the provincial emergency management organization and a federal regional organization EOC when required.
- Implement plans and procedures in accordance with the terms contained in the FERP, FNEP and Provincial Annexes, to respond to the emergency; report activities to the appropriate Federal Liaison Officer and to the GOC; and, coordinate activities with provincial counterparts as necessary.
- Share results of analysis of assessment data and formulate recommendations for areas within jurisdiction.
- Assist with coordinating or responding to requests for assistance; use and manage resources offered for operations within mandate; and, provide information on ability to provide assistance.
- Identify audiences within mandate and provide spokespersons and support personnel, as required.
- Assist Health Canada in disseminating public information material relevant to the emergency situation to TC stakeholders.
- Identify departmental resources available for operations in affected areas, to contact and deploy their national and regional personnel and equipment, and to provide monitoring and sampling data to TAG.
- Provide technical and operational advice relating to assigned mandates, for the transition to recovery and de-escalation of FNEP.
- Participate in a task team on transportation, if required.
- Access verified industry emergency response teams capable of assisting local authorities in monitoring and sampling.
- Implement protective actions under federal jurisdiction or as requested by a province for all transportation modes under Transport Canada authority.
- Ensure contaminated material and any other samples are transported in compliance with Transportation of Dangerous Goods regulations.

- Provide information and advice on transportation matters including resources and operations involved in response, or affected by, the nuclear emergency.
- Assist by disseminating information on protective actions.

NEF Detailed Responsibilities

Responsibilities	NEF
1.1 Maintain a 24/7 notification and monitoring capability for FNEP arrangements.	S
1.4 Maintain a capability for rapid notification and technical liaison with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and other international organizations.	S
2.2 Establish and maintain technical liaison with relevant response partners.	S
3.2 Gather and consolidate technical information on the emergency.	S
4.1 Conduct and coordinate radiological monitoring and surveying.	S
4.2 Support the collection and shipment of environmental, food, and/or investigative samples for laboratory analysis.	S
4.4 Assess monitoring data to verify radiological release/presence of contamination.	S
5.2 Implement protective actions under federal jurisdiction.	S
5.3 Contribute to assessments of the actual or potential impacts of protective actions.	S
6.1 Provide radiation protection advice, assistance and equipment for first responders and federal emergency workers, including provision of emergency dosimetry services.	S
8.2 Assist in dissemination and customization of information products on protective actions to target specialized audiences.	S
8.3 Provide SME support and spokespersons for operation of a media centre and other communication functions.	S
9.1 Contribute to developing a recovery action plan.	S

ANNEX B: BIBLIOGRAPHY

FEDERAL REFERENCES

Canada (1985a). *Canada Labour Code* (amended 2010-01-01).

Canada (1985b). *Nuclear Liability Act.*

Canada (1997). *Nuclear Safety and Control Act* (amended 2010-07-12).

Canada, Canadian Nuclear Safety Commission (2011). *Nuclear and Radiation Glossary* <http://www.nuclearsafety.gc.ca/eng/readingroom/radiation/glossary.cfm>.

Canada, Health Canada (2003). *Canadian Guidelines for Intervention During a Nuclear Emergency*. Ottawa.

Canada, Health Canada (2002). *Federal Nuclear Emergency Plan* (4th ed).

Canada, Health Canada (2001). *Canadian guidelines for the restriction of radioactively contaminated food and water following a nuclear emergency*. Ottawa.

Canada, Public Safety Canada (2012). *Federal CBRNE Plan* (Under development in 2012).

Canada, Public Safety Canada (2011a). *An Emergency Management Framework for Canada (second ed.).*

Canada, Public Safety Canada (2011b). *Federal Emergency Response Plan*.

Canada, Public Safety Canada (2011c). *National Emergency Response System*.

Canada, Public Safety Canada (2009). *Federal Policy for Emergency Management*.

PROVINCIAL REFERENCES

Ontario

Ontario, Emergency Management Ontario (2008). Province of Ontario – Emergency Response Plan. Toronto.

Ontario, Emergency Management Ontario. Ontario Provincial Nuclear Emergency Response Plan: Master Plan (Toronto, 2009) and various *Implementing Plans* for:

- Bruce Power, Toronto (2009);
- Chalk River Laboratories, Toronto (2011);
- Darlington Nuclear Generating Station, Toronto (2009);
- Fermi 2 Nuclear Generating Station, Toronto (2011);
- Other Radiological Emergencies, Toronto (2011); Pickering Nuclear Generating Station, Toronto (2009); and

- Trans-border Nuclear Emergency, Toronto (2011).

Québec

Québec (1996). *Plan des Mesures d'Urgence Nucléaire Externe à la Centrale Nucléaire Gentilly-2*.

New Brunswick

New Brunswick (2012). *Province of New Brunswick Point Lepreau Off-Site Nuclear Emergency Plan*.

INTERNATIONAL REFERENCES

International Atomic Energy Agency (2011). *Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency*. Vienna: IAEA.

International Atomic Energy Agency (2010a). *IAEA Response and Assistance Network – Incident and Emergency Centre (RANET).* Vienna: IAEA.

International Atomic Energy Agency (2010b). *Joint Radiation Emergency Management Plan of the International Organizations*. Vienna: IAEA.

International Atomic Energy Agency (2007). *Emergency Notification and Assistance – Technical Operations Manual*, Vienna: IAEA.

International Atomic Energy Agency (2002). *Preparedness and Response for a Nuclear or Radiological Emergency* (Safety Standards Series*: GS-R-2),* Vienna: IAEA.

International Atomic Energy Agency (1996a). *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*. Vienna: IAEA.

International Atomic Energy Agency (1996b). *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources*. Vienna: IAEA.

International Atomic Energy Agency (1986). *Convention on Early Notification of a Nuclear Accident*. Vienna: IAEA.

International Commission on Radiological Protection (2009). *Annals of the ICRP: Application of the Commission's Recommendations for the Protection of People in Emergency Exposure Situations* ICRP.

International Commission on Radiological Protection (2007). *Annals of the ICRP: The 2007 Recommendations of the International Commission on Radiological Protection.* ICRP.

International Commission on Radiological Protection (2006). *Annals of the ICRP: Assessing Dose of the Representative Person for the Purpose of Radiation Protection of the Public and The Optimisation of Radiological Protection: Broadening the Process.* ICRP.

World Health Organization. *International Health Regulations*. (2006). Geneva: WHO.

ANNEX C: GLOSSARY

Terms and expressions used throughout this document are defined as follows. For each term or expression in the English version of this document, the French version is provided in brackets at the end of the definition.

Access Control: The process of restricting public access into the affected zone. Only emergency workers and other authorized personnel may be provided access. (Contrôle d'accès)

ALARA: An optimization tool in radiation protection used to keep individual, workplace and public dose limits As Low As Reasonably Achievable (ALARA), social and economic factors being taken into account. (ALARA)

Radiological Assurance Monitoring: Actions taken to confirm that radiation levels are safe and fall within background or regulatory limits. (Surveillance Radiologique)

Ca-DTPA and Zn-DTPA (Calcium- and Zinc-diethylenetriamine pentaacetate): Drugs used to increase elimination of ingested radioactive plutonium, americium, californium, curium, cobalt, zirconium, nickel and chromium, in individuals that have been internally contaminated. (Ca-DTPA et Zn-DTPA)

Consequence Management: Measures and activities undertaken to alleviate the damage, loss, hardship and suffering caused by an emergency. It also includes measures to restore essential services, protect public health, and provide emergency relief to affected governments, businesses, and populations. (Gestion des Conséquences)

De-escalation: The process of decreasing the response level of an emergency plan back to a lower level, "routine" or pre-emergency conditions. (Fin de l'application progressive)

(FNEP) Designated Officials: Federal personnel, including subject matter experts, designated by their department or agency to fill specific positions to either represent their organization or to serve in a leading or supporting role within the Federal Emergency Response Management Structure, as defined in the *Federal Nuclear Emergency Plan*. (Responsables désignés du PFUN)

Deterministic Effects or Deterministic Radiological Health Effects: Changes in cells and tissues that are certain to occur after an acute dose of radiation. The severity of health effects – such as skin reddening, burns, and hair loss – increase with the radiation dose received. (Effets déterministes ou effets déterministes radiologiques sur la santé**)**

Dosimeter: A device that is worn or carried by an individual for measuring his or her exposure to radiation. (Dosimètre)

Emergency: An abnormal situation which, to limit damage to persons, property or the environment, requires prompt action beyond normal procedures. (Urgence)

Emergency Management Organization: An organization put in place when a nuclear plan or "all-hazards" emergency plan is implemented, which is responsible for coordinating the response to a nuclear emergency. (Organisation de gestion des urgences)

Emergency Planning Zone: A defined area around a nuclear facility for which detailed planning and preparations are made in advance to take urgent protective actions in the event of a nuclear emergency to reduce the health risk of the local populations. (Zone de planification d'urgence)

Emergency Support Function: General subject area described in the *Federal Emergency Response Plan* which group actions that may be taken by a primary department or agency and where the focus is on providing support in a particular sector to provinces or territories in the response phase of an emergency. (Fonction de soutien d'urgence)

Emergency Worker: Persons performing emergency services who are required to remain in, or to enter areas affected or likely to be affected by radiation from an accident, and for whom special safety arrangements are required. These may include police, firefighters, ambulance and emergency social services workers, and other essential services. (Travailleur d'urgence)

Evacuation: The rapid removal of people from an area to avoid or reduce high-level, short-term exposure to a hazard. (Évacuation)

Federal Coordination Centre: As defined in the FERP, is the focal point for the Federal-regional coordination in support of the Province during response. (Centre de coordination fédéral)

Food (or ingestion) Control: Measures taken to prevent the consumption of, or contamination of the food chain, from, feed and foodstuffs that may have been radioactively contaminated above acceptable levels as a result of a nuclear emergency. (Contrôle des aliments (de l'ingestion))

General Emergency: Events at a nuclear licensed facility resulting in an actual or substantial risk of a release or radiation exposure warranting taking urgent protective actions off site. (Urgence générale)

Government Operations Centre: The federal government operations centre, administered by Public Safety Canada is intended to host designated officials required to fill positions in the Federal Emergency Response Management System in the National Capital Region. The GOC is established to coordinate national support to the affected provinces and activities under federal jurisdiction (Centre des operations du gouvernement)

International Nuclear Event Scale (INES): A scale to promptly and consistently communicate to the public the safety significance of reported events at nuclear installations. Developed jointly by the International Atomic Energy Agency and the Nuclear Energy Agency of the Organization for Economic Co-operation and Development. (Échelle Internationale des événements nucléaires)

Intervention: Any action or provision beyond normal procedures undertaken to manage the emergency and mitigate its impacts, including all emergency organization structures, response actions, communications and public information and directives. (Intervention)

Liaison Officers: Federal officials who are assigned and responsible for ensuring liaison between two or more groups either in the Federal Emergency Response Management System, the corresponding Provincial or Regional structures. (Agents de liaison)

Medical Countermeasures: Medical interventions used to treat people exposed to radiation to reduce the absorbed radiation dose and hence the risk of possible future biological effects. Examples of radiological medical countermeasures: Prussian Blue, Potassium Iodide (KI), Ca-DTPA and Zn-DTPA (diethylenetriamine pentaacetate). They can reduce the body's uptake by blocking organs with the non-

radioactive element or they can increase the elimination of the radioactive element from the body. (Contre-mesures médicales)

Notification: A punctual action by which a specific individual or an organization is formally informed of a critical event, decision or action. (Notification)

Nuclear Emergency: An event which has led or could lead to the release of radioactive material, or exposures to uncontrolled sources of radiation, which pose or could pose a threat to public health and safety, property, and or the environment. This includes emergencies involving nuclear substances as defined in the *Nuclear Safety and Control Act.* Other plans may refer to these as radiological or nuclear accidents or emergencies. (Urgence nucléaire)

Nuclear Emergency Function: A grouping of one or more response actions specific to a nuclear emergency that may be taken by primary and/or supporting institutions. (Fonction d'urgence nucléaire)

Nuclear Facility: A nuclear reactor, subcritical nuclear reactor, research reactor, or plant for the separation, processing, reprocessing or fabrication of fissionable substances from irradiated fuel. It also includes all land, buildings and equipment that are connected or associated with these reactors or plants. (Installation nucléaire)

Nuclear Powered Vessel: A marine vessel whose main propulsion system is driven by a nuclear reactor. (Navire à propulsion nucléaire)

Off-site: The area outside the property boundary of a nuclear facility or of DND land for a Category C emergency. The municipal, provincial and federal levels of government are responsible for off-site emergency planning, preparedness and response. (Hors site)

On-site: The area inside the property boundary, or fence line, of a nuclear facility, or of DND land for a Category C emergency. The operators of nuclear facilities and DND/CF for Category C emergencies are responsible for on-site emergency planning, preparedness and response. (Sur le site)

Potassium Iodide (KI): Substance used to prevent or reduce the uptake of radioactive iodine (radioiodine) by the thyroid. Potassium iodide is also known as a thyroid blocking agent. (Iodure de potassium)

Primary Department or Agency: A federal institution assigned primary responsibility to manage and coordinate one or more nuclear emergency functions. In some cases the primary responsibility may be shared among two or more organizations. (Ministère ou organisme principal)

Protective Action: Measure taken to reduce radiation doses which could be incurred by the population or emergency workers during a nuclear emergency. It is sometimes called countermeasure or protective measure. (Mesures de protection)

Provincial/Territorial Emergency Measures Organization: The organization which is responsible for off-site emergency planning, preparedness and response in a specific province or territory. (Organisation Provinciale ou Territoriale chargée des mesures d'urgence)

Provincial/Territorial Emergency Operations Centre: In the province or territory directly affected by the emergency, a centre operated by a provincial/territorial emergency management organization which coordinates the emergency operations at the provincial level. (Centre provincial ou territorial d'opérations d'urgence)

Provincial/Territorial Information Centre: In the province or territory directly affected by the emergency, a centre operated by a provincial emergency management organization which handles the provision of emergency information to the media and the public. (Centre d'information provincial ou territorial)

Prussian Blue: Drug used to increase the elimination of radioactive cesium, thallium or rubidium in individuals that have been internally contaminated. (Bleu de prusse)

Radiological Consequence Management: Measures and activities undertaken to minimize or alleviate the damage, loss, hardship and suffering due to the radiation hazard arising from a nuclear emergency. (Gestion des impacts radiologiques)

Radiological Emergency: See **Nuclear Emergency.** (Urgence radiologique)

Recovery Phase: The period during which activities focus on restoration of quality of life, social systems, economies, community infrastructures, and the environment. This phase may begin during the response phase and continue for up to several years after the emergency. (Phase de rétablissement)

Reporting: Term referring to the act of informing a specific authority of a given event or situation in accordance with specific regulatory requirements or equivalent criteria. (Rapports (produire des))

Response Phase: The phase during which activities focus on saving human life, on treating the injured, contaminated and overexposed persons, and on preventing and minimizing further health effects and other forms of impacts. This phase may last from a few hours to several weeks after the commencement of the emergency and would transition to the recovery phase, if necessary. (Phase d'intervention)

Safety Significance: refers to an incident at a nuclear facility that has actual, or the potential for degradation of safety systems of the facility. (Incidence sur la sécurité)

Science/technical Group: A group of scientific and technical subject matter experts who perform the scientific/technical activities in an emergency management organization. (Groupe scientifique/technique)

Sheltering: The use of a structure for protection from exposure to an airborne radioactive plume and/or any deposited contamination. (Mise à l'abri)

Site Area Emergency or Base Emergency: Events resulting in a major decrease in the level of protection for those on the site and near the facility, but not sufficient to meet criteria for 'general emergency'. (Urgence sur le site)

Stochastic Effects or Stochastic Radiological Health Effects: A term used to group radiation-induced health effects (such as cancer or inheritable diseases) which have a statistical risk. For these effects, the probability of their occurrence increases proportionally to the radiation dose received: the higher the dose, the higher the probability of occurrence. (Effets stochastiques ou effets stochastiques radiologiques sur la santé)

Supporting Department or Agency: A federal institution assigned responsibility to support one or more emergency functions. (Ministère ou organisme auxiliaire)

Task Team or Response team: A team with the appropriate equipment, which may come from more than one department/agency, who work closely together during the response phase in order to carry out a

very specific task (e.g.: dose prediction). A task team reports to a specific group of the emergency management structure. (Équipe de travail ou équipe d'intervention)

(FNEP) Technical Assessment Group: is a multi-departmental group composed of technical experts from designated FNEP Federal government institutions, and is chaired by a senior technical expert. (Groupe d'évaluation technique du PFUN)

Thyroid Blocking agent: See definition for Potassium Iodide (KI). (Prise de comprimés d'iode)

Urgent Protective Actions: Actions that must be taken promptly in order to be effective, and the effectiveness of which will be markedly reduced if delayed. They include evacuation, sheltering, and administration of thyroid blocking agent, and other measures, as appropriate. (Mesures immédiates de protection)

ANNEX D: LIST OF FNEP SUPPORTING DOCUMENTS

The following is a list of documents intended to provide coordination and operational details associated with the implementation of specific activities, field operations, tasks, and emergency functions described in the FNEP.

- Senior Executive Summary and Response Level Triggers for the FNEP (under development).
- FNEP Duty Officer's Manual
    - Notification, Alerting and Fan-Out Procedures
    - International Alerting
- Technical Assessment Group Operating Procedures
- The Federal Radiological Assessment Team Concept of Operations

Related Federal Plans:

- Federal Emergency Response Plan
    - FERP-ESF 5-Public Health and Essential Human Services
- Canadian Nuclear Safety Commission Nuclear Emergency Response Plan
- NRCan Emergency Management Plan 6: Nuclear and Radiological Incidents
- Health Portfolio Emergency Response Plan and Nuclear Emergency Annex

ANNEX E: PROVINCIAL ANNEXES

Note: Annexes are being reviewed and updated at time of press and will be included when finalized.