

STATE OF MAINE RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR THE INGESTION EXPOSURE PATHWAY



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**STATE OF MAINE
RADIOLOGICAL EMERGENCY RESPONSE PLAN
FOR THE INGESTION EXPOSURE PATHWAY**

This revision to the Ingestion Exposure Pathway Emergency Response Plan for the State of Maine will become effective upon review and approval of the Governor on the date specified below. It is intended that this plan conform to the terms and conditions of the General Laws of Maine as amended, and such Federal acts and regulations as may be applicable.

The Plan outlines the procedures of the agencies that would respond to an accident at one of the nuclear power generating plants located in New Hampshire or New Brunswick.

The revision date is May, 2015.

Signed: _____
MEMA Director

Dated: _____

Signed: _____
Governor of Maine

Dated: _____

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**STATE OF MAINE
RADIOLOGICAL EMERGENCY RESPONSE PLAN
FOR THE
INGESTION EXPOSURE PATHWAY**

**Assignment of Responsibility
Planning Standard A**

I. PURPOSE

Mission

To protect the citizens of Maine from the possible effects of contamination to human food, animal feeds, and water resulting from a radioactive release into the environment from a nuclear power plant.

Scope

Protect members of the populace from food and water contamination with radioactive material.

Protect animals in the human food chain from the possible ingestion of food and water contaminated by radioactive materials.

Issue initial and follow-up messages to response agencies and the public from the Maine Emergency Management Agency (MEMA)

Basis for Plan Development

In the event of an accidental radiological release from a nuclear power plant, radionuclides may be released to the environment. The purpose of this Plan is to establish policies and procedures to implement Protective Actions on the basis of federal and state radiological criteria; these Protective Actions, if implemented, would minimize the effect on public health. For radiological emergency planning purposes, consideration should be given to the ingestion exposure pathway as follows:

The ingestion exposure pathway is, by federal guidance, approximately a 50-mile radius around a commercial nuclear power plant.

The principle exposure from the ingestion exposure pathway is most likely to occur through the consumption of contaminated food, water, or milk. Necessary protective measures and public concern may require modification of the production, processing, and the marketing cycle of contaminated products within affected areas. There may be variances in deposition and uptake within the ingestion exposure pathway which may require detailed field sampling. There are a number of nuclides which may be released in a reactor accident, though the predominant nuclides for the ingestion exposure pathway on a short term basis (up to several days) are expected to be radioiodines.

Three ingestion exposure pathways will be considered in this emergency plan; milk, water, aquaculture, and food.

The milk pathway is potentially the most critical ingestion exposure pathway (pasture-cow-milk-processor-distributor-consumer) due to the potential effects on certain population segments.

The water pathway may include drinking water supply intakes, reservoirs, and water treatment plants.

The food pathway may involve fruit, vegetables, and crops grown within the affected area, as well as the transporters, processors, and distributors of these products. The food and milk pathways may involve small family farms that produce for themselves and distribute to the local market only, as well as large commercial farms, whose production is processed in many locations and delivered to widely dispersed consumers, therefore, interstate milk and food shipments may also be affected. Animal feed for farm animals whose milk or meat will be consumed is also of concern. Emphasis is placed on preventing contamination of food, or preventing contaminated foods from entering the food supply chain, in preference to issuing protective actions following contamination.

State governments have the responsibility to initiate Protective Actions in the event that a radiological incident causes radioactive contamination of food, water, or milk. To provide guidance on appropriate planning for such Protective Actions, the Food and Drug Administration (FDA) published recommendations in the Federal Register of August 13, 1998, concerning threshold of actions levels for dealing with accidental radioactive contamination of food, water and milk supplies.

The State of Maine has adopted the FDA's recommendations in determining the levels and types of Protective Actions.

The FDA's guidance recommends protective actions which apply to all food pathways:

Precautionary Actions – Actions that are applicable to situations which cause minimal impact on the food supply. These actions would be intended to prevent or reduce the concentration of radioactivity in food or animal feed.

Protective Actions – Actions taken by responsible officials as recommended by state authorities to isolate food containing radioactivity to prevent its introduction into commerce, at which the responsible official must determine whether condemnation or another disposition is appropriate.

The decision to implement Precautionary Actions generally will be based on known or potential releases to the environment, whereas the decision to take Protective Actions should be based on actual radiological sample measurements in the pathway of concern. Actions would be ordered by the Governor of Maine as advised by the state Radiation Control Program, the Department of Agriculture, Conservation and Forestry, the Department of Environmental Protection, the Department of Inland Fisheries and Wildlife, the Department of Marine Resources and other key state agencies involved in ingestion pathway emergency response.

II. ASSIGNMENT OF RESPONSIBILITY (ORGANIZATION CONTROL)

Situation

The adjacent state of New Hampshire and the Canadian Province of New Brunswick have nuclear power plants which are capable of releasing radioactive materials under accident conditions. Certain meteorological circumstances may cause contamination of parts of Maine. Maine is not in the 10-mile radius plume exposure pathway for either of these sites, though it is in the 50-mile radius ingestion exposure pathway of both sites. Nuclear power stations within 50 miles of Maine are:

Seabrook Power Station, Unit 1, Seabrook, NH
Point Lepreau Nuclear , Point Lepreau, NB, Canada

Figure II-2 & 3 illustrates the 50-mile ingestion exposure pathways for commercial nuclear plants that could affect Maine.

Assumptions

In the event of a release, officials at the Seabrook Facility will notify the New Hampshire State Police. The New Hampshire State Police will notify the New Hampshire Emergency Management Agency who will notify the Maine State Police. The Maine State Police will then notify MEMA, DHHS/CDC and the Governor's Office. Notification will include the emergency classification level. The radiological health authorities from the affected state/province will open lines of communication with Maine.

In the event of a release or emergency at the Point Lepreau Nuclear Plant, officials at the New Brunswick Emergency Measures Organization (NBEMO) will notify the Maine Emergency Management Agency (MEMA).

MEMA will, in turn, alert the Maine Department of Health and Human Services (MDHHS), Center for Disease Control (CDC), Radiation Control Program, Maine Department of Environmental Protection (MDEP) Bureau of Remediation and Waste Management (BRWM), Maine Department of Agriculture, Conservation and Forestry (DACF), and communicate with the Governor's Office to verify notification and assure that appropriate actions are taken.

MEMA will notify the Maine National Guard 11th Civil Support Team for Field Sample Team support and Maine State Laboratory, and the United States Food and Drug Administration Winchester Engineering Analytical Center (wherein known as WEAC) to analyze all samples collected by MDHHS/CDC and MDEP. The results will be transmitted to the SEOC for the appropriate state agencies to recommend protective actions to the Governor.

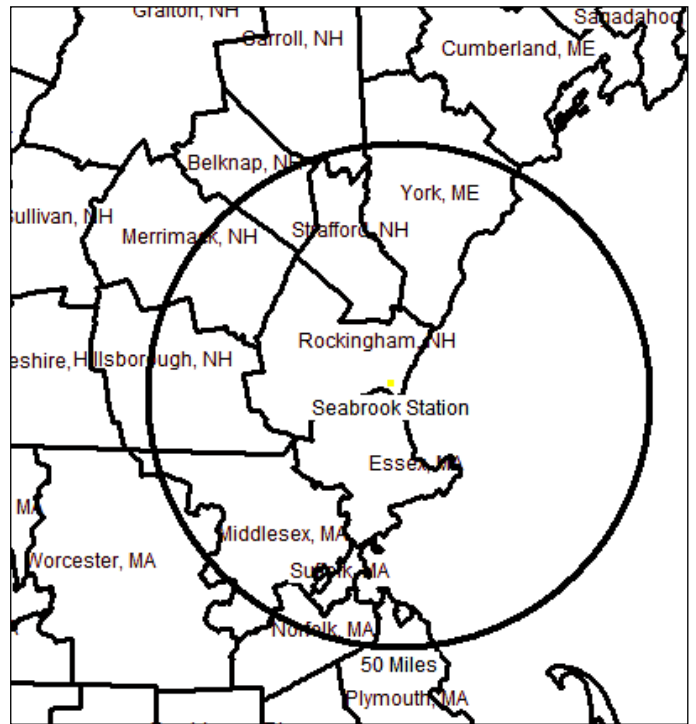
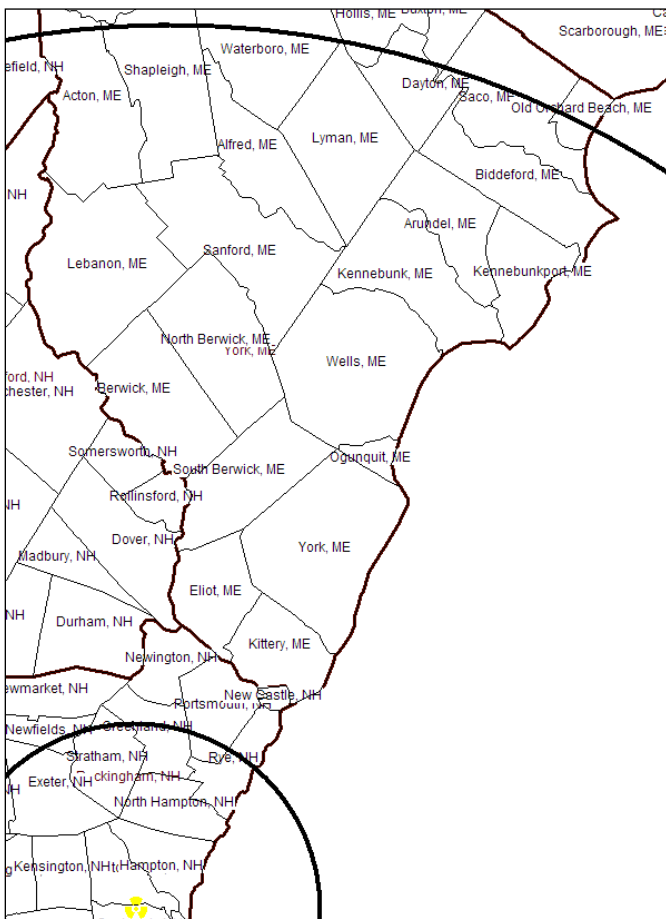
**Figure II-1
Functional Responsibilities Table**

	County Commissioners	County EMA	Red Cross	Local Fire	Local Police	County Sheriff	School District	State Police	Maine DOT	Maine DEP	DHHS/CDC	MDMR	MDACF	MEMA	Governor's Office
Command and Control	S	S				S		S						C	P
Alerting and Notification	S	S		S	S	S		A						P	A
Communication	S	S			S	S		S						P	
Public Information		S						S		S	A	S	S	P	S
Fire and Rescue				P	S	S		S							
Traffic Control				S	S	S		P	A						
Emergency Medical Services				P										C	
Law Enforcement					A	A		P							
Public Health										S	P	S	S	C	
Environmental Protection										P	A	S	S	C	
Social Services			S								P				
Transportation		C	S				P							C	
Mass Care Facilities		C	P											C	
Evacuation		C	P	S				S						C	
Radiation Exposure								S		S	P		S	C	
Public Education		S								S	S	S	S	P	
Prevention and Preparedness	S	A	S											P	
Protective Response Training		S								A	P			C	

**Figure II-2
Seabrook Station Ingestion Zone**

**Seabrook Station
Ingestion Zone**

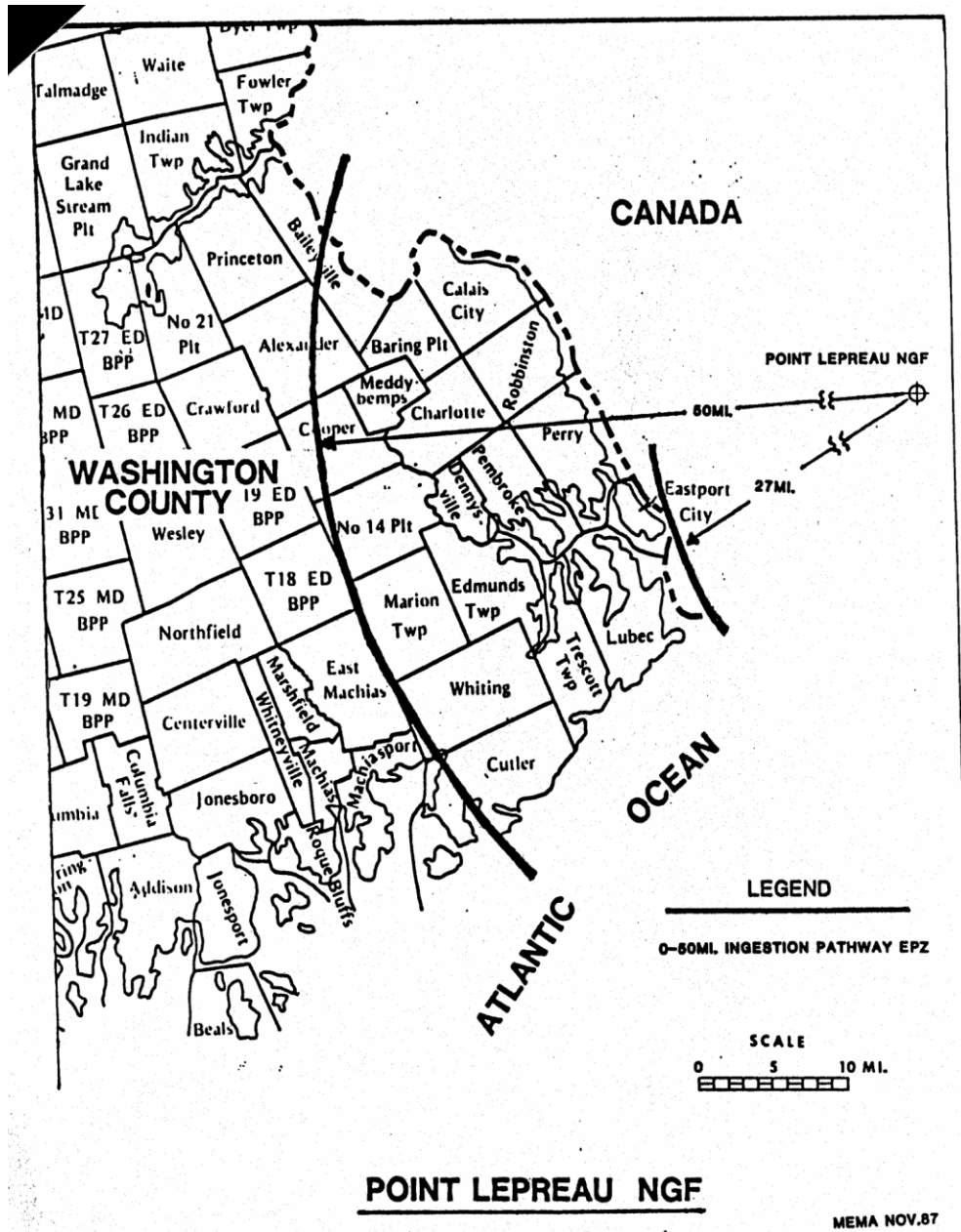
50 Mile radius



COMMUNITIES INVOLVED IN YORK COUNTY

- | | |
|---------------|-------------------|
| Acton | Lyman |
| Alfred | North Berwick |
| Arundel | Ogunquit |
| Berwick | Old Orchard Beach |
| Biddeford | Saco |
| Dayton | Sanford |
| Eliot | Shapleigh |
| Kennebunk | South Berwick |
| Kennebunkport | Waterboro |
| Kittery | Wells |
| Lebanon | York |

**Figure II-3
Point LePreau Ingestion Zone**



Communities include:

- | | | | |
|-------------------|------------------|------------|----------------|
| Alexander | Cooper | Lubec | Plantation #14 |
| Baileyville | Cutler | Marion | Pleasant Point |
| Baring Plantation | Dennysville | Meddybemps | Robbinston |
| Calais | Eastport | Pembroke | Trescott |
| Charlotte | Edmunds Township | Perry | Whiting |

Emergency Response Support and Resources Planning Standard C

A. General

The objectives of the State of Maine Radiological Emergency Response Plan for the Ingestion Exposure Pathway (hereinafter referred to as the plan) for an incident at the Seabrook Power Station or the Point Lepreau Nuclear Plant (hereinafter referred to as stations) are to delineate Protective Actions to be taken to minimize the consequences to the health and safety of the Maine public.

To accomplish these objectives, emergency preparedness actions taken by the State of Maine and the local communities will be coordinated on a planning and procedural basis. State plans and procedures for the 50-mile ingestion exposure pathway will be employed should it be necessary to sample this pathway or to interdict food, water, milk, livestock, and feed control. The plan comprises a broad overall concept of operations through mutual planning, common notification, and assessment procedures.

When requested by the State, federal agencies that have regulatory involvement, such as the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), of the Department of Health and Human Services (DHHS), the U.S. Department of Agriculture (USDA), the Nuclear Regulatory Commission (NRC), the Federal Radiological Assistance Program (RAP) of the Department of Energy (DOE), and the Federal Emergency Management Agency (FEMA), will initiate emergency response actions that are contained in the Federal Radiological Emergency Response Plan (FREERP).

The federal agencies for this plan are the NRC and FEMA. While the affected facility will be in close contact with the NRC, it will be the responsibility of the MEMA to request state and federal support, as necessary, from FEMA. Upon receipt of a request from the MEMA Director, FEMA will deploy a State Liaison Officer (SLO) to the Maine Emergency Operations Center (EOC). Experience has shown response time to average approximately three hours following such request. The State Liaison Officer will provide a contact for coordination of state and local assistance requests. The State Liaison Officer at MEMA will request assistance via FEMA, Region I.

The Director of MEMA, or the director's designee, will act as the State Coordinating Officer (SCO). The SCO will coordinate operating effectiveness between federal, state, local, volunteer, and private agencies.

B. Direction and Control

1. Command Responsibilities

The interactions of responsible state agencies in activating particular ingestion exposure pathway emergency functions are shown in Figure III-1.

a. **Agencies**

Governor

The Governor will assume overall command responsibilities of an emergency affecting Maine, caused by a radiological incident at a nuclear power station. The Governor is responsible for authorizing preventive and/or emergency protective actions, based upon recommendations from those state agencies that assume coordinating roles in an emergency situation. The Governor shall be responsible for directing the actions of all state agencies. The Governor may proclaim a State of Emergency and may personally take direct operational control of any or all parts of the emergency management forces and functions in the state.

Maine Emergency Management Agency (MEMA)

The Director of MEMA will assume overall coordination responsibilities in an emergency situation after notification of a radiological incident by the Maine State Police. The Director shall provide briefings to the Governor, as requested. The Director also has overall responsibility for the ingestion pathway planning effort and plan maintenance.

MEMA has the following emergency responsibilities:

Disseminating emergency data to other local, state, and federal agencies concerning the nature of the threat, time factors, weather, and capabilities of dealing with the threat.

Maintaining and operating the State EOC located at 75 Commerce Drive, Augusta, Maine. The EOC shall be appropriately equipped for emergency operations on a 24 hour per day basis and is provided with a reliable emergency backup power supply system. MEMA will develop listings of EOC equipment and conduct periodic testing to ensure facility readiness.

Providing reliable radio communication network links between all responsible local, state and federal agencies and the State Emergency Operations Center (EOC) capable of 24 hour per day operation. The EOC also has communication links with the National Weather Service, the Federal Emergency Management Agency (FEMA), and support agencies identified in this plan.

Coordinating services, materials, support, and manpower to any of the agencies having emergency response functions to ensure the saving of lives and the protection of property, to the greatest extent possible.

Providing radiological exposure control equipment and briefings for emergency workers assigned to field operations.

Coordinating the dissemination of public information via mail or direct personal notifications for implementation of Protective Actions in the event of a Site Area Emergency or a General Emergency. Twenty-four hour Emergency Alert System and public information capability exists at the State EOC under the control of MEMA. EAS operations are governed under the State EAS plan (under separate cover) and MEMA procedures. The Maine State Police also maintain EAS activation capability in the dispatch center.

Public information shall include an explanation of radiation contamination, contact points for additional information, and instructions on protective measures. This information will be disseminated via media releases, EAS, and, if necessary, direct notification.

Maintain farm and food processor information pamphlets on-line at the MEMA website (*Emergency Information for Farmers, Food Processors and Distributors*, 2015 edition) and assist MDACF with distribution of printed copies, as necessary.

Offering an annual informational meeting to the media and county emergency management staff for review of the emergency plan. Detailed procedures for the dissemination of public information are contained in Appendix G of the plan and ESF-10 of the *State Emergency Operations Plan (EOP)*.

Preparing plans, training events, exercises, and programs to increase and improve response capabilities.

MEMA informs the County Emergency Management Agencies of ongoing situations. Each County Emergency Management Agency has direct communications to the State EOC via telephone, computer through the internet, and radio. The MS-COMMNET radio system and amateur radio system provides backup. The communities within the 50-mile ingestion exposure pathway for each nuclear power station are listed in Table II-2 and Table II-3.

Maine Department of Health and Human Services Center for Disease Control (MDHHS/CDC) Radiation Control Program

The Director of MDHHS/CDC will, upon notification by MEMA of a radiological emergency situation, assume responsibility as the key agency for command and coordination of emergency Protective Actions for which MDHHS/CDC is primarily responsible. Emergency Protective Actions which MDACF, MDMR, and MDEP are responsible for are public safety, food, water, aquaculture, and milk control.

Maine DHHS/CDC has the following responsibilities in the event of an ingestion exposure pathway radiological emergency affecting the public:

Responding to any request for assistance in order to protect the public health and preserving the ingestion exposure pathway environment from the effects of radioactive contamination.

Establishing Protective Action Guides (PAGs) for Maine based on the U.S. Environmental Protective Agency (EPA 400) and U.S. Food and Drug Administration PAGs.

Recommending appropriate protective actions after assessment has been completed.

Specifying sample location, identifying type and quantity for collection, and determining sample analysis accuracy and count times.

Deploying emergency response teams to affected areas in coordination with MDEP and MDACF to collect milk, processed food, and drinking water samples for radiological analysis which will determine the need for protective actions.

Ensuring that contaminated food, milk, and drinking water do not reach the ingestion exposure pathways. MDACF is responsible for directing and coordinating activities affecting distribution of food, milk, and drinking water at the wholesale and retail level. These activities will include enforcing embargoes, establishing food control stations at borders with adjacent states, and determining the need for exposure control areas within the state.

Appointing a Technical Liaison Officer to coordinate federal agency technical response activities.

Maine Department of Environmental Protection (MDEP)

Upon notification by MEMA of an emergency situation, the Commissioner of MDEP will assume responsibility as the key agency for emergency Protective Actions related to private drinking water protection and environmental protection.

Functions of these Protective Actions to be performed by MDDEP are:

Take samples and provide decontamination to other state agencies.

Take environmental samples and transport for testing.

Maine Department of Agriculture, Forestry, and Conservation (MACF)

Upon notification by MEMA of an emergency situation, the Commissioner of MDACF will assume responsibility as the key agency for emergency Protective Actions related to livestock and feed control. The livestock control for which the Animal Health Section of the RIDEM Agriculture Division will assume primary responsibility and feed control for which the Marketing Section of RIDEM will assume primary responsibility.

Functions of these Protective Actions to be performed by MDACF are:

Deploying emergency response teams to affected areas in coordination with the DHHS/CDC to collect field samples.

Controlling livestock and feed at the farm level to determine if radioactive contamination is above predetermined concentrations.

Controlling farm produce at the farm level in the event that analysis of samples reveals radioactive contaminants above predetermined concentrations.

Ensuring that contaminated food or milk does not reach the ingestion exposure pathways. DACF is responsible for directing and coordinating activities affecting distribution of food and milk at the farm level.

Maintaining addresses and listings of farms for rapid distribution of farm information pamphlets, as necessary.

Maine National Guard 11th Civil Support Team and WEAC.

The 11th Civil Support (11th CST) will serve as the primary facility in Maine for receipt of environmental and food product samples. The 11th CST will work in coordination with the EOC, MDEP, and MDHHS/CDC regarding sample priority and transport methods to the Maine State Laboratory, other qualified state laboratories, and the WEAC.

They have the following emergency responsibilities:

The 11th CST will perform radiological decontamination of emergency workers and vehicles, as necessary, during emergency operations and sample receipt of environmental and food product samples.

The Maine State Laboratory, other qualified state laboratories, and the WEAC of Winchester, MA will perform laboratory analysis of food, water, and milk samples for low levels of radiation. Results of the samples analysis will be provided to MDHHS/CDC for evaluation.

Maine Department of Marine Resources (MDMR)

Upon notification by MEMA of an emergency situation, the Commissioner of MDMR will assume responsibility as the key agency for emergency protective actions related to monitoring and protecting the aquaculture industry from radioactive contamination.

Functions of these Protective Actions performed by MDMR are:

Monitoring the Maine aquaculture/fishing industry.

Closing the fishery to harvesting or outdoor storage of the catch, if necessary and preventing the distribution of contaminated catch.

Collecting samples of marine organisms for testing.

Maine Department of Inland Fisheries and Wildlife (MDIFW)

Upon notification by MEMA of an emergency situation, the Commissioner of MDIFW will assume responsibility as the key agency for emergency protective actions related to monitoring and protecting the fishing and hunting public from radioactive contamination.

Functions of these Protective Actions performed by MDIFW are:

Monitoring recreational fishing and hunting.

Collecting samples of fish and wildlife for testing.

Provide information to the recreational hunting /fishing public in coordination with MDHHS/CDC.

Maine National Guard (MENG)

The Maine National Guard can be available for mission assignments, such as security, public information, and emergency communications. MEMA will request MENG assistance through the National Guard Liaison Officer at the EOC.

Maine State Police

The New Hampshire OEM or NBEMO will notify the Maine State Police of a radiological emergency affecting Maine.

Upon receipt of this notification, the Maine State Police have the following responsibilities:

Providing 24 hour notification capabilities to the Governor's Office and the Maine Emergency Management Agency in the event of a radiological emergency. Details of notifications to be made and appropriate telephone numbers are contained in plans and procedures located at the Augusta RCC

Dispatching a State Police Liaison Trooper to the State EOC.

Review the Traffic Control Plan and take appropriate actions based on the EAL notification.

b. Federal Agencies

Federal support is anticipated only when local community, county, and state resources for emergency response have been exhausted. The primary resource for federal assistance is through the Federal Radiological Emergency Response Plan (FRERP). The FRERP has been developed by the Federal Emergency Management Agency (FEMA) and eleven other federal agencies have provided written concurrence. The signatory FRERP agencies are:

- Federal Emergency Management Agency
- Department of Transportation
- Nuclear Regulatory Commission
- Environmental Protection Agency
- Department of Energy
- National Communication System
- Department of Agriculture
- Department of Defense
- Department of Commerce
- Department of the Interior
- Department of Health and Human Services
- Department of Housing and Urban Development

Any requests for federal support of state emergency response activities would be made by the Director of MEMA (for non-technical assistance) and the Director of Maine CDC (for technical assistance) to FEMA, Region I. A FEMA, Region I State Liaison Officer (SLO) will be dispatched to the Maine EOC, as requested.

c. Private Agencies

Private agencies involved in radiological emergency response are listed below with their functions:

Seabrook Power Station – assists MEMA and MDHHS/CDC in secondary assessment.

Point Lepreau Nuclear Station – assists MEMA and DHHS/CDC in accident assessment.

American Red Cross – assists MEMA as requested.

d. Local Agencies

Local agencies that may have radiological emergency response functions are shown in Figures II- and II-3 :

Heads of government in affected local communities will be notified by respective County EMA office of the emergency and advised of any action deemed necessary.

Local water system managers assist MDHHS/CDC in water control, as necessary. The communities affected by the nuclear power plants are listed in Table II-1.

Emergency Classification System Planning Standard D

A standard emergency classification and action level scheme, the foundation of which includes facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by the facility licensees for determinations of minimum initial offsite response measures.

The recognized classification system has four Emergency Action Levels (EAL's):

**Unusual Event
Alert
Site Area Emergency
General Emergency**

For each of the following Emergency Classification Levels, the initiation times for various actions are given as a planning aid. These are reasonably realistic times and are given as a range because of the variety of scenarios that can be postulated. The time required to completely perform a particular Protective Action can vary with the time of day, the area affected, weather, and available resources. Time for completion also depends greatly on the extent of the area to be covered.

UNUSUAL EVENT

Events are in progress or have occurred which indicate *potential degradation in the level of safety of the plant*. No release of radioactive material requiring off-site response or monitoring is expected unless further degradation occurs.

No actions required by the State of Maine however the MEMA Duty officer will monitor situation for any changes.

ALERT

Events are in process or have occurred which involve an actual or potential substantial degradation in the level of safety of the plant. Any releases of radioactive material from the plant are expected to be limited to a small fraction of the EPA Protective Action Guides (PAGs)

Notification of Maine by New Hampshire or New Brunswick – within the first hour of the event.

The ALERT emergency classification level will not result in consumer product contamination. However, it involves the following functions:

Accident Assessment – None
Notification – Provision of updates to key agencies

EOC Activation - Partial activation with staffing based on initiating criteria and actual other events ongoing.

SITE AREA EMERGENCY

Events are in process or have occurred that result in actual or likely major failures of plant functions needed for protection of the public. Any releases of radioactive material are not expected to exceed the EPA PAGs except near the site boundary.

The initial incident notification time should be within the first hour by adjoining state or provincial authorities. The anticipated assessment actions will begin to yield results within 4 hours to several days if a release toward Maine is occurring and the escalation of the event is imminent.

The initiation of consumer product control, based on the above time to contaminate the food pathway, is 2 hours to several days.

The SITE AREA EMERGENCY classification level could result in consumer product and livestock feed contamination. It involves the following functions:

Accident Assessment – Activation of field monitoring/sampling teams in the event of a release toward Maine.

Notification – Provision of updates to key agencies and activation of the State EOC.

Protective Actions – Food, water, milk, livestock, and feed control. In most cases, actions for the SITE AREA EMERGENCY classification level will range from no action to preventive actions.

In this emergency classification level the EOC will be activated and affected agencies may be notified dependent on release and wind direction. The public will also be advised by media releases. Sampling teams will be placed on standby or deployed. Precautionary actions such as placing milking animals on stored feed may be implemented.

GENERAL EMERGENCY

A general emergency involves actual or imminent substantial core damage or melting of reactor fuel with the potential for loss of containment integrity. Radioactive releases during a general emergency can reasonably be expected to exceed EPA PAGs for more than the immediate site area.

The initial incident notification time should be within the first hour, by adjoining state or provincial authorities.

The anticipated assessment actions will begin to yield results within 2 hours, to several days.

The initiation of consumer product control for the contaminated food pathway, based on the above time line, is 2 hours to several days.

The GENERAL EMERGENCY classification level involves the following functions:

Accident Assessment – Activation of field monitoring/sampling teams.

Notification and Communication – Provision of updates to key agencies, field communication, and establishing intra, interstate or international communication.

Protective Actions – Actions for food, water, milk, livestock and feed control will range from no action to emergency actions such as interdiction, depending on release amount, duration, and wind direction.

In this emergency classification level the EOC is activated and all affected agencies are activated.

Notification Methods and Procedures Planning Standard E

The State of Maine in the event of plan activation in either New Hampshire or New Brunswick will receive initial notification from their respective EMA offices. This initial notification will take place with one hour of their receiving notification from the affected plant. Notification will be received by the Maine State Police through the Augusta RCC within one hour. The State Police, in turn, by their plans and procedures, will inform the Maine Emergency Management Agency Director/Duty Officer and the Maine Radiological Control Program of the nature of an incident as soon as notification is received. Notification will include the emergency classification level. The radiological health authorities from the affected state will open lines of communication with Maine.

MEMA will, in turn, confirm the alert with Maine Department of Health (DHE), County Emergency Management Agencies and communicate with the Governor's Office to verify notification and assure that appropriate actions are taken.

Based on the event the MEMA Director will open there Emergency Operation Center (EOC) which is located at 45 Commerce Drive in Augusta, Maine. The director will notify EOC personnel by using the HAN system and instruct them on what our next steps will be. For an Unusual Event MEMA will be at a Level 1 which can be monitored from a desk or at home. For an Alert MEMA will have the EOC partially staffed. For a Site Area Emergency MEMA will have a full EOC activation which includes MEMA staff and ERT members and would be at a Level 3. For a General Emergency MEMA would have a full EOC activation and be at a Level 4. For levels 3 and 4 MEMA would be staffed for 24 hours.

Field teams would be notified by Maine Radiological Control Program. All equipment will be checked and distributed depending on the event. MEMA would notify Maine DHHS to make sure there plans and procedures are being activated with regards to food, water, milk and livestock.

The MEMA PIO will utilize the media via TV and radio to notify the public in the affected areas if Protective Actions should be required. MEMA will monitor media releases from the affected States where the release is occurring to make sure our information corresponds with their releases.

MEMA will distribute pre-printed informational pamphlets as needed to the agricultural community including farmers, food processors, producers, and distributors as needed. These materials will contain general information on radioactive contamination and protective measures, as well as specific information for farmers, food processors, and distributors. Contact points for additional information will also be included. Maine DHHS and MEMA maintain current listings of farms, food processors, and distributors which will be utilized to mail or directly deliver informational materials to the affected community.

Emergency Communications Planning Standard F

- 1.a. Primary equipment used shall be email in normal operating picture. Notification most likely will come from the Maine Emergency Management Agency (MEMA) Duty Officer. The secondary link would most likely be telephone which will utilize more than likely cellular devices, as well as Maine.gov delivery as well.

Twenty- four hour coverage is provided by calling the Maine Emergency Management Agency (MEMA) at 207 624 – 4400, non – normal working hours is monitored by the Maine State Police Augusta Regional Communication Center, or the MEMA Duty Officer pager at 207 851 – 8898.

- 1.b. Primary communication method to the affected areas would be made by the State of Maine email delivery system in conjunction with MEMA’s Emergency Alert System (EAS).

Primary radio communications to the County governments in the affected area will be made by MEMA’S VHF digital trunked system. Notifications to the locals will be made by utilizing the RegionNet system on the MEMA system.

The backup method of communication should be made by MEMA’s WebEOC reporting software alerting numerous disciplines.

The backup radio communications to the affected areas will be made by Amateur Radios (HAM) from MEMA’s Radio Center.

- 1.c. MEMA will contact Federal partners utilizing email, phone, and the backup system FEMA National Radio System (FNARS). The FNARS utilize a high frequency radio that is capable of voice, phone, and chat, that is located at the FEMA Bunker in Maynard, Massachusetts.
- 1.d. Primary communication to radiological teams will utilize the Maine State Communication Network (MSCommNet) VHF digital trunked systems with mobile radios for the State agencies. Other radiological teams will utilize mobile radios on the RegionNet side of the MSCommNet System. Other methods would be email, cellular, and Satellite phones.
- 1.e. The MEMA Duty Officer will notify the Director of MEMA and a decision will be made to activate the Emergency Operations Center (EOC). Once activated, notification to staff will be made the State’s Gov.delivery notification system (HAN). Notification to Radiological units will be made via telephone either landline, and/ cellular devices.

- 1.f. Communication to NRC from MEMA will be made via telephone and/or email.

2. Primary communication between MEMA and hospitals and medical facilities will be made via telephone. Alternative methods will be email, HAM radio, and satellite phones.

Primary communication between ambulances and hospital and medical facilities is cellular devices with backup VHF mobile to base stations

3. The NRC will be contacted by the facility itself.

Normal communications between Hospitals and Medical Facilities ensure constant reliable connectivity to all units.

Public Information Planning Standard G

1. PUBLIC INFORMATION POLICIES

Procedures and policies facilitating access to and timely dissemination of information have been established as detailed in Maine ESF-15. The following general policies apply:

All news releases addressing State policy decisions as well as releases not of an immediate lifesaving nature shall emanate from the Governor's Office or be approved by a designee of that office for release through the Joint Information Center.

Each NPP shall maintain responsibility for the release of information to the news media regarding on-site conditions-and other corporate information, including information concerning their employees.

The Governor's Director of Communications or his/her designee will serve as the chief Public Information Officer (PIO) and chief state spokesperson, and may be assisted by a team of other Public Information Officers from state agencies on the ERT team, in processing all news in a timely and accurate manner. A Joint Information Center (JIC) will be established at the State Emergency Operations Center (EOC) to provide information for release using all available and appropriate communications channels.

All organizations with emergency responsibilities in this plan will coordinate requests for information with the JIC when established. A State Media Center may be established at the State House in Augusta, or in a media facility adjacent to the State EOC at the MEMA Offices on Commerce Drive in Augusta.

A Maine PIO may be dispatched to the NH EOC in Concord, NH or to Fredericton, NB to provide the State of Maine PIO team with NH, MA or NB public information releases, news releases and EAS messages and utility briefings as appropriate. Such materials will be shared electronically with the JIC in accordance with established protocols.

State agencies or individuals who desire to release any official public information will coordinate with the JIC at the State of Maine EOC.

1.1. Help Line

A single toll-free telephone number, which can be reached throughout the State of Maine, will be made public in order to respond to public concerns and provide information and emergency instructions. Maine 211 is expected to be used to provide this service, in accordance with established protocols. However, because of the sensitive and complex nature of a potential radiological emergency, other or additional arrangements for a Help Line may be directed by the Governor or his/her designee.

1.2 Brochures

Printed information on the effects of radiation and methods for preventing radiological contamination of food products will be distributed to farmers and food processing facilities within the Maine portion of the IPZ by the University of Maine Cooperative Extension Service and/or the County EMAs and is available for download from the MEMA or Maine Prepares website.

1.3 Radio/TV

In the event of an accident at a NPP, News Releases will be the primary means of providing the public with information and instructions. If appropriate, the Emergency Alert System (EAS) will also be used for delivering protective action information to those affected. Use of EAS will be in accordance with the State of Maine EAS plan.

News releases that contain Protective Action Decisions and detailed implementation instructions for the ingestion pathway will be formulated in the State EOC in Augusta and coordinated, as needed, with New Hampshire or New Brunswick. Once the message is prepared it will be reviewed and approved by appropriate ERT members and by the Governor's representative/designee at the State EOC before release.

All news releases and EAS messages will also be published on the MEMA website and distributed directly to news release subscribers as well as through all other available and appropriate communications channels.

Information may also be provided by National Oceanic and Atmospheric Agency/ NOAA Weather Radio Stations.

Emergency Facilities and Equipment Planning Standard H

Emergency Response Facilities utilized in the event of an accident at Seabrook Station or the Point Lepreau Facility that has the potential of impacting the State of Maine is described in this section.

STATE EMERGENCY OPERATIONS CENTER

The State EOC (SEOC) is located at 45 Commerce Drive in Augusta, Maine within the Central Maine Commerce Center. In the event of a Seabrook Station or Point Lepreau accident, representatives of the State agencies shown in **Figure 3.1-1** would proceed to the State EOC. Emergency Response Team members would be notified by the Maine Health Alert Network or by telephone. Emergency response is directed from the State EOC. The SEOC has space for more than 50 staff including 20 state and federal agencies to coordinate in the event of an incident. Additional rooms and equipment are available adjacent to the SEOC in the same building. The primary means of communication with the other emergency response facilities is by telephone or computer via the internet. Two-way radio, amateur radio, cell phones and satellite phones are back-up means of communication. The SEOC has back-up heat and power supplied by two back-up generators located on-site. The SEOC is a secure facility and requires permission or key cards to access the facility. The Director of Operations and Response is responsible for maintaining operational readiness of the SEOC. Should the SEOC be disabled or unavailable an alternate SEOC will be established at Camp Keyes, the State National Guard Headquarters, at 294 Winthrop Street, Building 7, in Augusta.

H.4 – ACTIVATION AND STAFFING OF THE SEOC

MEMA has a Duty Officer on duty 24 hours a day, 7 days a week and 365 days a year. The duty officer would receive initial notifications from the Maine State Police and is required to open the SEOC within 1.5 hours of notification of an incident. The Duty Officer can activate our MaineHAN notification system to bring MEMA Staff and members of our ERT to the SEOC within 2 hours. The SEOC is operational when staff can effectively communicate with the affected facility and staff the Operations and Planning desks in the SEOC. We expect the SEOC would be fully operational within 2 hours of notification. A staff/position roster is available as part of our SEOC Utilization Plan and Emergency Operations Plan.

YORK COUNTY EMERGENCY OPERATIONS CENTER

The York County EOC is located 149 Jordan Springs Road next to the York County Jail in Alfred, Maine. Personnel from York County Emergency Management Agency and associated response agencies would proceed to the County EOC in the event of an accident at Seabrook Station. The York County EOC may be used as a State Incident Field Office (IFO) and as a staging area for state field teams.

WASHINGTON COUNTY EMERGENCY OPERATIONS CENTER

The Washington County EOC is located at 28 Center Street in the County Courthouse Building in Machias. Personnel from Washington County Emergency Management Agency and associated response agencies would proceed to the County EOC in the event of an accident at Point Lepreau. The

Washington County EOC may be used as a State Incident Field Office (IFO) and as a staging area for state field teams.

EMERGENCY OPERATIONS FACILITY (EOF)

An Emergency Operations Facility (EOF) is located in Newington, New Hampshire. The EOF is operated by Seabrook Station and may be staffed by representatives from Seabrook Station, federal agencies and State agencies from New Hampshire, Massachusetts and Maine. A Radiological Health Specialist from Maine Radiation Control Program (MRCP) will proceed to the EOF in the event of an accident at Seabrook Station that has the potential to affect the State of Maine.

An Emergency Operations Facility will be established at the New Brunswick Emergency Measures Organization (NBEMO) 65 Brunswick Street, Fredericton, New Brunswick for any incident at the Point Lepreau facility. The NBEMO is staffed by representatives from Point Lepreau, Canadian federal and New Brunswick provincial officials. MEMA will assign a staff liaison to the NBEMO EOF during an incident that has the potential to affect the State of Maine.

H.10 – EMERGENCY EQUIPMENT AND INSTRUMENTS

MEMA stores and maintains a stockpile of dosimetry monitors (film badges, direct reading dosimeters) at the Maine State Police Barracks in Alfred. Our plan designates 25 traffic control points that will be staffed by state troopers, county deputies, local police officers or Maine DOT staff during an event. The traffic control points will serve to direct people evacuating the Seabrook area to the proper sheltering area. We have 40 dosimeters at the barracks in Alfred. A minimum of 30 will be available at all times, one for each traffic control point and 5 spares. We will send 10 of the 40 out quarterly for annual calibration. All will be inspected quarterly for proper operation. In addition, MEMA has 13 electronic direct read dosimeters at our Augusta office 1.5 hours from Kittery and 2.5 hours from Calais. Maine DHHS/CDC has an additional 20 electronic direct read dosimeters at their Augusta office.

The State of Maine does not maintain any portal monitors, however US Customs and Border Protection operate and maintain portal monitors at border crossings along the Maine/Quebec/New Brunswick borders. In particular, portal monitors are available at the border crossings in Calais, Vanceboro, and Houlton, the most likely points of entry for people evacuating an incident at the Point Lepreau facility.

In addition to film badge dosimeters (permanent record), thermoluminescent dosimeters (TLD) and electronic direct read dosimeters, DHHS/CDC maintains a list of field monitoring and radiation sampling equipment listed in the table below. Location of the equipment, calibration dates and due dates are listed as part of the table.

Instruments

Serial Number	Model	Status	Calibration Date	Calibration Due
3324	Exploranium GR-100N	In-house	9/11/2014	9/11/2015
3348	Exploranium GR-100	In-house	9/11/2014	9/11/2015
3381	Exploranium GR-100	In-house	9/11/2014	9/11/2015
158917	Ludlum 9	In-house	9/12/2014	9/12/2015
291330	Isotrak RAD60	In-house	9/12/2014	9/12/2015
291350	Isotrak RAD60	In-house	9/12/2014	9/12/2015
3370	Exploranium GR-100	In-house	9/12/2014	9/12/2015
3379	Exploranium GR-100	In-house	9/12/2014	9/12/2015
123337	Ludlum 9	In-house	9/16/2014	9/16/2015
112782	Ludlum 12	In-house	10/29/2014	10/29/2015
89035	Ludlum 3	In-house	10/29/2014	10/29/2015
2909	Exploranium GR-135	In-house	10/31/2014	10/31/2015
3305	Exploranium GR-100	In-house	10/31/2014	10/31/2015
84332	Ludlum 19	In-house	11/1/2014	11/1/2015
106627	Ludlum 14C	In-house	11/3/2014	11/3/2015
110429	Ludlum 14C	In-house	11/3/2014	11/3/2015
173186	Ludlum 2241	In-house	11/3/2014	11/3/2015
91532	Ludlum 19	In-house	11/3/2014	11/3/2015
2907N	Exploranium GR-135	In-house	11/18/2014	11/18/2015
NB 282436	W715 0-1000mR	In-house	2/23/2015	2/23/2016
NB 282438	W138 0-200mR	In-house	2/23/2015	2/23/2016
NB 282439	W138 0-200mR	In-house	2/23/2015	2/23/2016
NB 282416	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282417	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282418	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282419	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282420	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282421	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282423	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282424	W725 0-5R	In-house	2/24/2015	2/24/2016
NB 282415	W725 0-5R	Needs repair	2/27/2015	
NB 282422	W725 0-5R	Needs repair	2/27/2015	

Serial Number	Model	Status	Calibration Date	Calibration Due
NB 282435	W715 0-1000mR	Needs repair	2/27/2015	
002509	V725 0-5R	In-house	3/5/2015	3/5/2016
002602	V725 0-5R	In-house	3/5/2015	3/5/2016
NB 282426	W725 0-5R	In-house	3/5/2015	3/5/2016
NB 282427	W725 0-5R	In storage	3/5/2015	3/5/2016
NB 282429	W725 0-5R	In-house	3/5/2015	3/5/2016
NB 282430	W725 0-5R	In-house	3/5/2015	3/5/2016
NB 282437	W715 0-1000mR	In-house	3/5/2015	3/5/2016
NB 282440	W138 0-200mR	In-house	3/5/2015	3/5/2016

HEALTH & ENVIRONMENTAL TESTING LABORATORY

The Health & Environmental Testing Laboratory (also referred to as the Public Health Laboratory) within the state Department of Health and Human Services will receive samples of food, milk, water, vegetation, soil, etc., collected in the field in accordance with MRCP Procedures. Samples will be processed in accordance with priorities established by MRCP accident assessment personnel.

Testing of samples will be performed at the Health & Environmental Testing Laboratory, which is located behind the DHHS main offices on State Street in Augusta, across the street from the State Capitol. If the volume of samples exceeds the capacity of the Laboratory, samples will be dispatched to nearby laboratories available through the New England Compact or the Federal Radiological Emergency Response Plan. Additional field sampling and laboratory analysis equipment maintained by DHHS/CDC Radiation Control Program and the Public Health Laboratory include:

RADIATION EVALUATION EQUIPMENT – STATE OF MAINE

QUANTITY	TYPE	MANUFACTURER	MODEL #	LAB	FIELD	ALPHA	BETA	GAMMA	X-RAY	NEUTRON
1	IOW BCKGND PROPORTIONAL	CANBERRA	2404	X		X	X			
2	WINDOWLESS GAS- FLOW PROPORTIONAL	NUCLEAR MEASUREMENTS	PC-5	X		X				
1	LIQUID SCINT	PACKARD TRICARB	TR1600	X		X	X			
1	20% GeLi	CANBERRA	7229	X				X		
1	20% Ge	CANBERRA	GC2020	X				X		
2	3X3 NaI	HARSHAW		X				X		
3	NaI	LUDLUM	19		X			X		
4	GM , NaI	LUDLUM	14C		X	X	X	X		
1	ZnS, GM	LUDLUM	12		X	X				
2	NaI	LUDLUM	3		X			X		
2	ION CHAMBER	LUDLUM	9		X		X	X		
1	TLD READER	PANASONIC	UD702E	X			X	X		
1	PIPS (SILICON DETECTOR WITH ALPHA SPECT)	CANBERRA	7401	X		X				
1	MULTICHANNEL ANALYZER	NUCLEAR DATA	66	X				X		
1	MULTICHANNEL ANALYZER	CANBERRA	GENIE PC	X		X		X		
1	NaI, ZnS	LUDLUM	2241 SCALER		X	X ZnS		X		
1	GM, BF3	LUDLUM	15		X		X	X		X BF3
2	GM	DOSIMETER	ISO RAD60		X			X		
3	HIGH VOLUME AIR SAMPLER	RADECO			X					
14	Dosimeter	Arrowtech	W725 0-5R					X		
4	Dosimeter	Arrowtech	W715 0-1000mR					X		
4	Dosimeter	Arrowtech	0-200mR					X		

H.11 – EMERGENCY KITS

Emergency kits for radiological incidents at the Seabrook plant are stored at the Maine State Police Barracks in Alfred. There are 40 kits consisting of two potassium iodide (KI) tablets, a film badge dosimeter for a permanent record of exposure and an electronic direct read dosimeter each kit. There are additional TLD's that are being phased out of the kits at this time. The kits are distributed to law enforcement officers in York County that will staff the 25 traffic control points to direct evacuation. The law enforcement officers include state police, county sheriffs, and local municipal police. Each of the officers will be equipped with a kit and they will already have the required flashlights, cell phones and two-way radios for communication. Maine DOT and local public works departments will supply the required barricades and orange cones to provide additional traffic control at the 25 control points. Additional kits are available at the MEMA Office in Augusta and can be transported to Washington County in the event of an incident at the Point Lepreau Facility.

H.12 – SAMPLE TRANSPORT AND ANALYSIS OF RADIOLOGICAL DATA

Radiological samples taken in the field will be transported to the Public Health Laboratory by DEP Response Services Technicians or by DHHS/CDC Radiation Control Program Staff. The Public Health Laboratory will report lab data to the SEOC by email. DHHS/CDC Radiological Control Program staff will assess the field monitoring and laboratory data at the SEOC. All field monitoring data will be relayed to the SEOC for analysis.

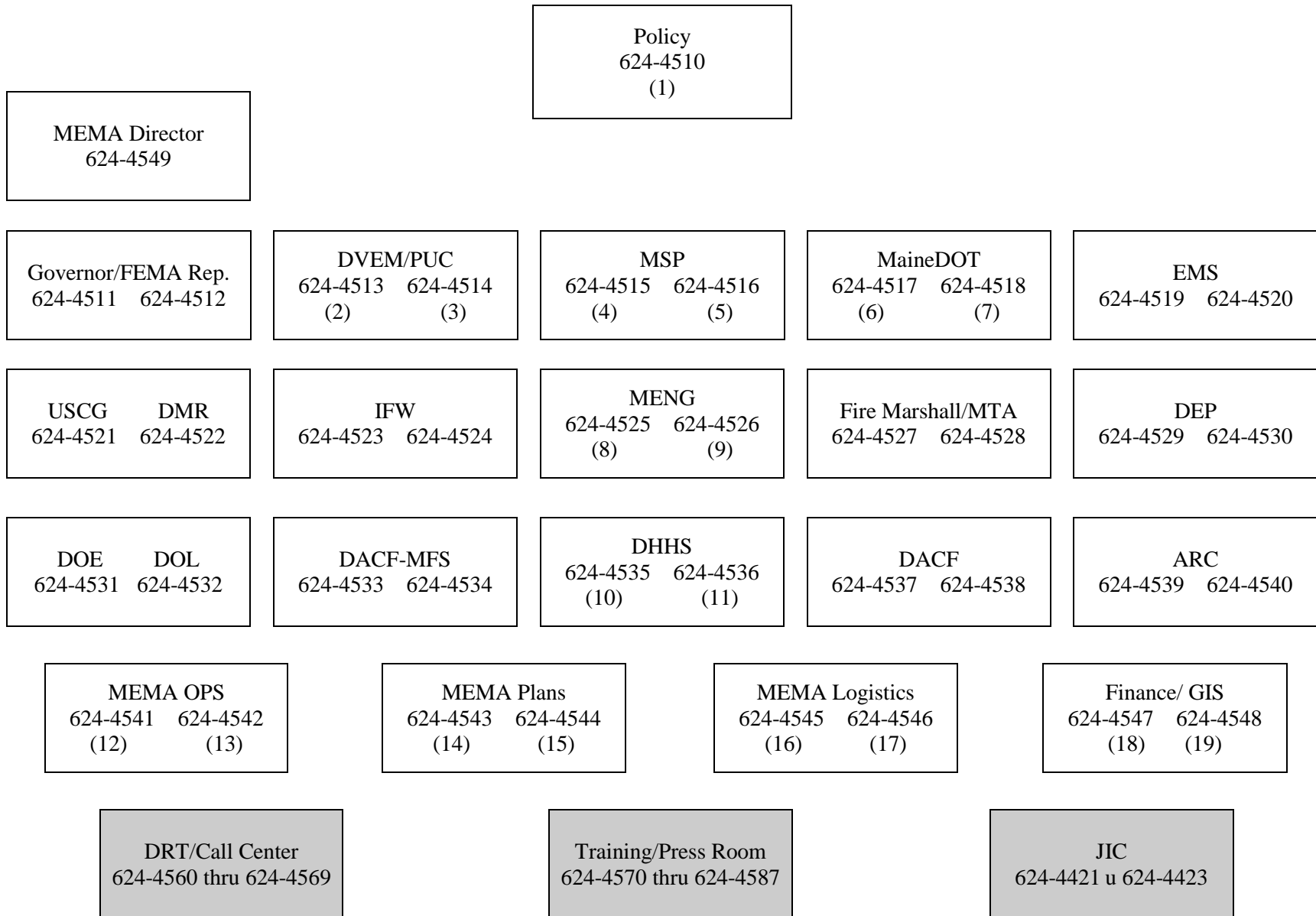
UTILITY JOINT MEDIA CENTER

The Seabrook Media Center is located at the EOF in Newington, New Hampshire. This facility is utilized to prepare and distribute news releases and to permit exchanges of information among the designated spokespersons for Florida Power and Light/Seabrook Station, State agencies and Federal agencies. News releases prepared by one of the designated spokespersons will be reviewed with his counterparts before release to the news media. A Maine PIO may proceed to the Media Center here or at the Media Center at the NH EOC in Concord, NH in the event of an accident at Seabrook Station.

MAINE MEDIA CENTER

The Maine Media Center is located 45 Commerce Drive, Central Maine Commerce Center, in Augusta, unless otherwise directed by the Governor. This facility is used to distribute news releases to the press from the State of Maine. A member of the Governor's Press office will proceed to the Maine Media Center in the event of an accident at Seabrook Station.

Emergency Operations Center Foot Print/Phone Chart



Accident Assessment Planning Stand I

I. General

This chapter describes the responsibilities for assessing the offsite impacts of a radiological emergency at a nuclear power plant or spent fuel storage location and its effects on the health and wellbeing of the residents and visitors of Maine. The state's capability for making accident assessments and performing field monitoring are described and carried out according to the Radiation Control Program's (RCP) standard operating procedures.

II. Initial Assessment

The licensee will provide accident assessment and protective action recommendations to the Risk counties, and the State Management Team (SMT). The results of the assessment will be reported to state and local organizations in accordance with RCP procedure 2.01.

III. Field Monitoring

A. Resources and Capabilities

Field monitoring within the Plume Exposure Pathway around nuclear power plant sites is provided by health physicists from the RCP. Laboratory support and equipment available for use by the field monitoring team is identified in attachment A of this chapter. The specific systems and methods for radiation measurement, location and tracking of the radioactive plume, airborne radioiodine concentration measurement, and estimating integrated dose from actual and projected dose rates are outlined in the RCP's standard operating procedures and the Radiological Health Specialist Checklist. The Maine Health and Environmental Testing Laboratory will serve as the sole point for receiving samples for analysis during the initial phase of emergency response.

B. Activation of Field Teams

Upon receipt of notification of an emergency, the RCP Officer will contact the Maine Emergency Management Duty Officer for verification and then to determine what, if any, protective actions have been implemented. The RCP Duty Officer will use existing information, in accordance with established Department of Health and Human Services procedures, to evaluate the potential for offsite exposure and to determine the adequacy of Protective Actions. Based upon the evaluation, the RCP Duty Officer will determine whether to activate emergency field teams. If field teams are activated then the Field Team Coordinator will follow procedure 2.60 for field team assignments and briefing.

C. Coordination of Assessment and Monitoring Activities

The coordination of field assessment and monitoring activities is the responsibility of the RCP under Emergency Support Function (ESF) 8, as defined in Chapter 2 of this Annex. The Radiological Health Specialist and the Field Team coordinator will maintain contact with the field teams by whatever means necessary for relay of data collected by the field teams to the State EOC and the Radiological Health Specialist for dose assessment activities.

D. Local Government's Role

The counties and towns will implement decisions based on radiological monitoring data provided by the licensee or the RCP Team in accordance with county/town emergency response plans and procedures.

IV. Additional Assessment and Monitoring Support

A. Emergency Management Assistance Compact

When it is determined that an accident at a nuclear power plant cannot be adequately controlled with resources available to state radiological response personnel, a request will be forwarded by ESF 8 the Radiological Health Specialist for the additional resources needed. The request will contain the following information:

1. Description of the problem
2. Type of resources needed
3. Which state has the resources
4. Where the resources need to be delivered
5. Clear direction to assembly point or point of delivery
6. Estimated time the resources will be needed
7. If resources include people, what arrangements have been made for housing, etc

If the Governor, State Coordinating Officer, or designee concurs with the need for assistance as requested, the Governor, the State Coordinating Officer or designee will contact the Governor or designee of the Emergency Management Assistance Compact state that has the resources and request the specified assistance.

B. National Response Framework

The provisions of the National Response Framework (NRF) will be used for federal interagency coordination for radiological emergency response. Under the NRF, the Department of Energy coordinates federal offsite radiological environmental monitoring and assessment activities as the lead technical organization in the Federal Radiological Monitoring and Assessment Center, regardless of who is designated the federal coordinating agency. The Federal Radiological Monitoring and Assessment Center will be established at or near the incident location in coordination with the Department of Homeland Security, the coordinating agency, other federal agencies, and state and local authorities.

In addition, the Department of Energy's Region 1 office at the Brookhaven National Laboratory maintains a Radiological Assistance Program. A Radiological Assistance Program response is tailored based on the scale of the event and additional Radiological Assistance Program teams and resources can be deployed as necessary.

Activation of these assets will occur when the Department of Energy has been notified that a radiological emergency has occurred and that federal assistance has been requested. These requests may be made by the Radiological Health Specialist or the State Coordinating Officer.

The following personnel and equipment resources are available and will be provided on request:

1. Radiological monitoring and environmental specialists with supporting equipment
2. Aerial radiological monitoring equipment
3. Fixed and mobile laboratory support
4. Remote handling equipment
5. Technical assistance in predicting the dispersion of radioactivity into the environment
6. Medical consultation on the treatment of injuries complicated by radioactive contamination
7. Technical support for emergency public information

Federal Radiological Monitoring and Assessment Center and Radiological Assistance Program teams will work to ensure the coordination between State, local and federal agencies.

C. **The New England Radiological Health Compact Plan**

The New England Radiological Health Compact Plan provides mutual aid in responding to radiation accidents upon request. The plan describes the monitoring and assessment capabilities of each participating state. The following states have signed into agreement with the plan: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

Activation of the compact plan done by procedure as delineated in the compact plan.

Attachment 1 to Planning Standard I
STATE OF MAINE
RADIATION EVALUATION EQUIPMENT

QUANTITY	TYPE	MANUFACTURER	MODEL #	LAB	FIELD	ALPHA	BETA	GAMMA	X-RAY	NEUTRON	MICROWAVE
1	IOW BCKGND PROPORTIONAL	CANBERRA	2404	X		X	X				
2	WINDOWLESS GAS- FLOW PROPORTIONAL	NUCLEAR MEASUREMENTS	PC-5	X		X					
1	LIQUID SCINT	PACKARD TRICARB	TR1600	X		X	X				
1	20% GeLi	CANBERRA	7229	X				X			
1	20% Ge	CANBERRA	GC2020	X				X			
2	3X3 NaI	HARSHAW		X				X			
3	NaI	LUDLUM	19		X			X			
4	GM , NaI	LUDLUM	14C		X	X	X	X			
1	ZnS, GM	LUDLUM	12		X	X					
2	NaI	LUDLUM	3		X			X			
2	ION CHAMBER	LUDLUM	9		X		X	X			
1	TLD READER	PANASONIC	UD702E	X			X	X			
1	PIPS (SILICON DETECTOR WITH ALPHA SPECT)	CANBERRA	7401	X		X					
1	MULTICHANNEL ANALYZER	NUCLEAR DATA	66	X				X			
1	MULTICHANNEL ANALYZER	CANBERRA	GENIE PC	X		X		X			
1	NaI, ZnS	LUDLUM	2241 SCALER		X	X ZnS		X			
1	GM, BF3	LUDLUM	15		X		X	X		X BF3	
2	GM	DOSIMETER	ISO RAD60		X			X			
3	HIGH VOLUME AIR SAMPLER	RADECO			X						
14	Dosimeter	Arrowtech	W725 0-5R					X			
4	Dosimeter	Arrowtech	W715 0-1000mR					X			
4	Dosimeter	Arrowtech	0-200mR					X			

Protective Response Planning Standard J

I. General

The purpose of this chapter is to establish the range of protective actions that are available to state and local governments for the protection of the public in the plume exposure and Ingestion Pathway Zones (IPZ) in the event of an accidental release of radioactive material from a nuclear power plant.

II. Protective Measures

A. Plume Exposure Pathway

The primary risk for the Plume Exposure Pathway may include external whole body or internal inhalation exposure from the passing radioactive plume. Protective actions to reduce the general public's risk of exposure include evacuation or shelter in place. Potassium Iodide may be used to reduce the risk from the thyroid's absorption of radioactive iodine. Each of these protective actions is addressed in greater detail in each respective site plan.

B. Ingestion Pathway Zone

The primary risk for the ingestion pathway is from the ingestion of contaminated water or foods. The Radiation Control Program (RCP) has adopted protective action guides that are consistent with federal guidance provided by the Food and Drug Administration. Lists and maps for monitoring and assessment data, land use data, dairies, food processing plants, watersheds, water supply intake and treatment plants and reservoirs will be provided to the risk and ingestion counties. The Maine Emergency Management Agency (MEMA) will coordinate with the appropriate state and local agencies to ensure that the Agency has best data available.

III. Concept of Operations

Offsite response to a radiological incident at a nuclear power plant is divided into three phases: the early emergency response phase, the intermediate phase, and the recovery phase.

A. Early Emergency Phase (Plume)

1. Emergency Plans

- a. The State of Maine Radiological Emergency Plan (REP) outlines State agencies that have a lead or support role during a declared emergency. These roles are shared by many State agencies: The Department of Health and Human Services is the lead State agency for exposure pathway responses and the MEMA is responsible for overall state coordination of non-technical radiological resources under this Annex.

Other State agencies may also be involved in implementing protective actions to reduce the public's risk of exposure.

- b. Federal agencies may provide assistance as outlined in the National Response Framework Nuclear/Radiological Incident Annex.

2. Field Monitoring

- a. The Radiation Control Program (RCP) Radiological Health Specialist at the State Emergency Offsite Center (EOC) will be responsible for the coordination and implementation of all field monitoring and sampling activities. Decisions as to where sampling will occur will be made jointly involving staff from the Department of Health and Human Services, the Maine Department of Agriculture, Conservation and Forestry, and the Maine Department of Environmental Protection.
- b. Once the Federal Radiological Monitoring and Assessment Center is operational, the RCP will dispatch a representative along with the field teams to the center. State and federal monitoring teams will be integrated and analytical data from field sampling and monitoring will be sent to the emergency operations facility or other field emergency operations centers as the situation warrants.
- c. State and local staff rosters are maintained by each respective agency.

3. Protective Actions

- a. To protect the public from exposure to or inhalation of radioactive materials, protective actions will be developed and implemented according to the protective action decision process given in Chapter 4 of this Annex. These protective action decisions are then implemented through County and Town emergency response agencies and public alert and notification systems.
- b. Early phase protective action recommendations are generally based on conditions at the plant and projected (calculated) doses. Field measurements (i.e., the analysis of field air samples and beta/gamma measurements) within the emergency planning zone are compared with calculated doses to verify plume location and plant conditions and to confirm the presence or absence of particulates and/or iodines.

B. Intermediate Phase

The intermediate phase begins when the nuclear power plant situation has stabilized, there is no further radioactive release offsite, and reliable environmental measurements are available for use as a basis for decisions on additional protective actions, especially those involving ingestion. It extends until these additional protective actions are terminated. This phase may overlap the early and late phases and may last from weeks to many months.

1. Any precautionary ingestion protective actions implemented during the early phase will still be in effect at the beginning of the intermediate phase. Additional responsibilities include but are not limited to:
 - a. Citizen decontamination, registration, and evacuee monitoring points shall be established in the affected towns in accordance with procedures spelled out in the site plans (Appendices I-IV of this Annex).
 - b. Environmental sampling within the 50-mile Ingestion Pathway Zone (IPZ) will be directed by staff at the Federal Radiological Monitoring and Assessment Center to define the limits of the area of radiological deposition and levels of radioactive contamination in agricultural and dairy products, and water sources. Additional information about sampling procedures and priorities are available in the RCP's standard operating procedures. The RCP, The Department of Agriculture, Conservation and Forestry, and the United States Department of Energy will assist.
 - c. The MEMA compiles data in reference to the location of major food producers, processors, distributors, dairies, and surface water systems within the ingestion pathway zone. The Department of Agriculture, Conservation and Forestry in conjunction with the RCP, is responsible for the development of procedures for utilizing this information to keep affected food producers, processors, and distributors informed about protective actions and required post-incident response actions.
 - d. Maps for recording information on the status of the emergency and for monitoring key land use and other ingestion-related data will be developed and maintained by the county emergency management.
 - e. Initiating or continuing the investigation of long-term agricultural land management practices (e.g., soil removal, crop rotation, tillage, etc.) which reduce future contamination of feed and food crops.
2. Re-entry
 - a. Re-entry operations will be coordinated from the emergency operations facility by the State Coordinating Officer or designee.
 - b. Limited non-emergency worker entries into access-controlled areas (restricted zones) will be permitted for the performance of emergency services, and to provide food and water to livestock within the area.
 - c. Decisions to relax protective measures and allow recovery and re-entry into an evacuated area require a continuous assessment of the radiological situation. The assessment is accomplished by the analysis of radiological monitoring data from air samples, milk, water, and direct radiation measurements. The RCP will determine the feasibility of re-entry into evacuated areas and recommend the appropriate actions to the State Coordinating Officer or designee.

- d. Access control points will be established and enforced by the counties and the State Police or the Department of Transportation as appropriate. They will be used to control all movement into or within a restricted zone. Normally, they will be established in uncontaminated areas.
- e. Agriculture control points will be established by the Department of Agriculture, Conservation and Forestry and co-located with the access control points. They will be used to restrict the flow of all food-stuffs and commercial products from a restricted zone. Food control staff will perform direct radiation surveys of all items leaving the restricted zone to ensure all non-consumable items (personnel, pets, household items, etc.) leaving the restricted zone meets the acceptable contamination limits.
- f. Individuals entering the access-controlled area will be issued personal dosimetry (direct reading and dosimeter badges) at the appropriate county emergency operations center prior to entry. They must be given a brief explanation of the hazards within the area and, if practical, escorted within the area by an emergency worker provided by the Department of Health and Human Services.

Actions to protect the public from the ingestion of radioactively contaminated food or water (e.g., embargo and/or disposal of contaminated food or animals, shut down of surface water intakes for public water supply systems, curtailment of hunting or fishing) will be determined and recommended by the RCP and jointly reviewed by appropriate state and county representatives before presentation to the State Coordinating Officer or designee for final approval.

C. Late Phase (Recovery Phase)

The recovery phase begins when recovery actions designed to reduce radiation levels in the environment to acceptable levels for unrestricted use are commenced, and ends when all recovery actions have been completed. This period may extend from months to years. Some restricted zones may remain because of long-term or permanently uncorrectable contamination at levels hazardous to public health. Humanitarian relief, short-term recovery efforts, and long-term recovery efforts will be conducted in accordance with the REP.

1. Radiological Assessment

- a. The investigation of long-term agricultural land management practices (e.g., soil removal, crop rotation, tillage, etc.) that reduce future contamination of feed and food crops will be continued during this phase.
- b. The identification of long-term impacts on indigenous and migratory wildlife.
- c. The determination of human doses due to ingestion, living on contaminated land, etc.

2. Decontamination

- a. A Decontamination and Restoration Plan will be established with coordination from affected counties, the RCP, the Department of Agriculture and Consumer Services, and federal response resources. The Decontamination and Restoration Plan will address citizen decontamination points, decontamination of buildings and structures, decontamination of agricultural properties, and disposal of contaminated materials.
- b. The decontamination and restoration of buildings and structures will be conducted with priority given to essential basic services (i.e., general government, fire, law enforcement, utilities, etc.)
- c. Evaluation of decontamination activities will be conducted by the Department of Health and Human Services with assistance from federal response agencies.

4. Return

- a. Relaxation of protective action decisions will be recommended jointly by county, state, and federal agencies and authorized by the State Coordinating Officer.
- b. Human services assistance and financial assistance for individuals and businesses will be conducted in accordance with the REP.

5. Relocation

- a. Recommendations for restricted zones will be jointly developed by county, state, and federal agencies and authorized by the State Coordinating Officer.
- b. Human services assistance and financial assistance for individuals and businesses will be conducted in accordance with the REP.

IV. Protective Action Guides

- A. The decision to implement protective actions will be based on the comparison of numerous accident parameters (e.g., release duration and magnitude, weather conditions, etc.) to established protective action guides. Protective action guides for decision-making during the early phase, intermediate phase, and for ingestion of contaminated agricultural products are identified in Figures 11-1 through 11-3 respectively.
- B. In coordination with the licensee, counties and federal agencies present, the RCP Radiological Health Specialist located at the State EOC will recommend protective actions to the impacted counties and the State Coordinating Officer or designee based on dose projections to the public. The State Coordinating Officer or designee and the impacted counties will then make and implement joint protective action decisions.

- C. In circumstances where there is an immediate release of radioactive material, the State Emergency Response Team Chief present in the State Emergency Operations Center, or the senior government official in the county EOC, can implement protective action decisions. Prior to the time when the Department of Health and Human Services Operations Officer arrives at the State EOC, the licensee will be responsible for making protective action recommendations directly to the counties and advising the State Emergency Operation Center.

V. **Evacuation**

- A. Evacuation of the general public normally will be initiated if doses greater than or equal to 1 rem whole body or 5 rem to the thyroid are projected. The public is required to be evacuated if doses greater than or equal to 5 rem or above to the whole body, or 25 rem or above to the thyroid are projected.

Evacuation is the primary protective action for the general public, unless there are circumstances where the evacuation would involve a greater risk than the radiation exposure.

- B. Maps showing evacuation routes, evacuation areas, pre-selected monitoring and sampling points, reception centers and shelters in designated host areas and population distribution around each facility are included in each respective site plan. Each site plan includes means for the notification, protection and relocation of all segments of the resident and transient population including mobility-impaired persons. Each site plan also includes evacuation time estimates. Each county will use the existing day-to-day means for dealing with potential impediments to evacuation and means for controlling access to evacuation areas.
- C. The affected power plant will order the evacuation of non-essential personnel from the site upon declaration of a Site Area Emergency or higher, however, this evacuation may occur at lesser emergency levels.

VI. **In-place Sheltering**

In-place sheltering of the general public can be recommended if projected doses are not anticipated to exceed 5 rem whole body or 25 rem to the thyroid. In-place sheltering may be used for short term releases or if there impediments to evacuations that pose a greater risk of exposure. In-place sheltering also enables a population to be positioned so that communications can be carried out in a timely manner.

VII. **Potassium Iodide (KI)**

Potassium Iodide can be used in those situations where evacuation is not an acceptable protective action for populations that are difficult to move such as prison inmates, hospital and nursing home patients, or others with impaired mobility.

**RECOMMENDED PROTECTIVE ACTION GUIDANCE FOR
THE EARLY PHASE OF AN INCIDENT^a**

Protective Action Guide (projected dose ^b)	Protective Actions	Comments
<p style="text-align: center;">TEDE 1 to 5 rem</p> <p style="text-align: center;">Thyroid CDE 5 to 25 rem</p> <p style="text-align: center;">Skin SDE 50 to 250</p>	Evacuation	Evacuation (or, for some situations, sheltering ^c) should normally be initiated at a TEDE of 1 rem.

^a Adapted from Environmental Protection Agency Manual of Protective Action Guides and Protective Actions for Nuclear Accidents, May 1992, page 2-6.

^b TEDE: total effective dose equivalent, CDE: committed dose equivalent, SDE: shallow dose equivalent.

^c Sheltering may be the preferred Protection Action Guide when it will provide protection equal to or greater than evacuation, based on factors such as source term characteristics, and other temporal and site specific factors.

**PROTECTIVE ACTION GUIDES FOR EXPOSURE TO DEPOSITED RADIOACTIVITY
DURING THE INTERMEDIATE PHASE OF A NUCLEAR INCIDENT^a**

Projected dose in rem	Protective Action	Comments
greater than or equal to 2 greater than or equal to 0.5 in the second or subsequent years	Relocate the general population ^c .	Beta dose to skin may be up to 50 times higher.
less than 2	Apply simple dose reduction techniques ^d .	These protective actions should be taken to reduce doses to as low as practicable levels.

^a Environmental Protection Agency Manual of Protective Action Guides and Protective Actions for Nuclear Accidents, May 1992, page 4-4.

^b The projected sum of effective dose equivalent from external gamma radiation and committed effective dose equivalent from inhalation of re-suspended materials, from exposure or intake during the first year. Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These Protective Action Guides may not provide adequate protection from some long lived radionuclides, therefore, doses in any single year after the first can not exceed 0.5 rem and the cumulative dose over 50 years including the first and second years can not exceed 5 rem.

^c Persons previously evacuated from areas outside the relocation zone defined by this Protective Action Guide may return to occupy their residences. Cases involving relocation of persons at high risk from such action such as hospital patients under intensive care should be evaluated individually.

^d Simple dose reduction techniques include scrubbing and/or flushing hard surfaces, soaking or plowing soil, minor removal of soil from spots where radioactive materials may have concentrated, and spending more time than usual indoors or in other low exposure rate areas.

PROTECTIVE ACTION GUIDES FOR INGESTION OF CONTAMINATED FOODS^a

Type of Dose ^b	Organ of Interest	Projected Dose
Committed effective dose equivalent	Whole Body	5 mSV / 0.5 rem
Committed dose equivalent	Individual tissue or organ	50 mSV / 5 rem

^a FDA document Accidental Contamination of Human Food and Animal Feeds; Recommendations for State and Local Agencies dated August 13,1998

^b Whichever is more limiting.

Radiological Exposure Control Planning Standard K

I. General

This chapter establishes the means and responsibilities for controlling radiological exposures to emergency workers involved in an emergency response. Emergency response organizations will limit exposure to emergency workers by limiting the amount of time spent in radiation areas, limiting entry into radiation areas to the maximum extent possible, using protective clothing, respirators or decontamination when necessary, using dosimetry and radiation monitors to track worker's exposures and authorizing the use of potassium iodide to emergency workers when directed by the Radiation Control Program (RCP) as per RCP standard operating procedures.

II. Exposure Monitoring

A. Emergency Worker Dosimetry

Radiological Incident Assist Team (RIAT) members responding to a radiological / nuclear incident / accident will be issued radiation monitoring devices. The devices are commonly referred to as dosimeters and will include a personal alarm dosimeter (PAD) and a thermoluminescent dosimeter (TLD). Potassium Iodide tablets may also be issued as part of the personal dosimetry package at the discretion of the Radiation Health Specialist (RHS).

Field Team Coordinators (FTC) will ensure that RIAT members assigned to Field Monitoring Teams (FMT) or Incident Command Centers or other assignments where radiation exposure is possible are issued dosimetry and will monitor their exposure while they are in the field. The FTC will work to keep the Total Effective Dose Equivalent (TEDE) below the administrative exposure limit of 1 rem.

FMT members must monitor their exposure in the field by proper use of the PADs. They will periodically report the readings to the FTC.

The Radiation Control Program (RCP) is responsible for controlling exposure to all personnel and will work with supervisors to ensure worker exposure is properly controlled and recorded.

The Radiation Control Program maintains a contract with a dosimetry company that is certified by the National Voluntary Laboratory Accreditation Program to provide thermoluminescent dosimeter badges to Radiological Emergency Response Team personnel (RERT). RERT members will be provided with a permanently assigned TLD and issued a personal alarm dosimeter (PAD) when assigned to a field monitoring team, incident command center, or other assignment where radiation exposure is possible.

B. Dose Records

RIAT will be issued a Personnel Dosimetry Log as shown in Figure 10-1.

While in the field, RIAT member should report accumulated exposures as indicated from the PAD. Exposures to team members will be kept as low as possible. The following guidelines should be followed:

1. Unless otherwise directed, team members should check the personal alarming dosimeters (PAD) every 15 to 30 minutes and record the time and exposure on the Individual's Exposure Record Card (Figure 10-2).
2. If the increase noted on the PAD is greater than or equal to 100 mR, the team member should notify the Field Team Coordinator (FTC).
3. If the reading on the PAD is greater than or equal to 500 mR, the Radiation Health Specialist (RHS) should be notified. The RHS will require the following information:
 - a. Team member 's location (i.e. traffic control point)
 - b. Time team member has been at that location
 - c. Other team members PAD readings collocated with or near the individual.
 - d. Availability of substitute so that worker could be rotated out of the area.
4. If the RHS is unable to be reached, the team member's exposure should be limited to no more than 500 mR as indicated by the PAD.
5. FT members may exceed the above dose limits if required for life saving activity. The FTC should contact the RHS as soon as possible if such an exposure is required.
6. Collection: At the end of each shift all personnel dosimetry devices will be returned to the FTC.
 - a. Personnel Dosimetry Log entry will be completed for each team member. Next to the member's name the time in (returned from the field), and the final reading of the PAD will be entered.
 - b. *PAD readings which exceed 500 mRem should be reported to the RHS.*
 - c. The TLDs will be turned in to the Field Team Coordinator. The TLDs will be kept for reissue to the same individual team member.
 - d. PADs will be turned in. The PAD can be re-zeroed and reissued. The next entry line on the exposure record should be lined out to indicate a "break" in the exposure history.

III. Authorization of Exposure in Excess of Protective Action Guides

The RCP exposure limit is 500 millirem per day and 1000 millirem for the duration of the emergency. These doses will be limited to the level specified in Figure 10-3.

The Field Team Coordinators after consultation with the RCP Radiation Health Specialist, authorize exposure in excess of 500 mR for life saving or activity to protect public health & safety.

IV. Potassium Iodide (KI)

Potassium Iodide can be used to saturate the human thyroid gland with stable iodine and thus prevent the absorption of inhaled or ingested radioactive iodine. Potassium Iodide does not protect other parts of the body against radiation exposure and does not protect the thyroid from external radiation. The greatest percentage of thyroid protection occurs when Potassium Iodide is administered at or about the time of exposure.

A. Authorization for the Use of Potassium Iodide (KI)

Potassium Iodide (KI) is used to block uptake of radioactive iodine (I-131) by the thyroid gland.

Potassium Iodide (KI), in tablet form, is issued as part of the dosimetry kit for the RIAT member in the plume EPZ and for those outside the plume EPZ who may be exposed to contamination. KI will be available for administration to the RIAT member upon order of the Commissioner of the Department of Health and Human Services or his designated representatives.

The following criteria will be considered prior to an order for administration:

1. Following a known release, or if a release is imminent of radioactive gas of unknown composition (% radioiodides);
2. Following a known release or if a release is imminent of radioactive gas of known composition such that an individual could receive a dose to the thyroid of 25 rems.

Dosage will be 130 mg daily for a maximum of 10 days, unless otherwise recommended by the Radiation Health Specialist.

CONTRADICTIONS: KI is contraindicated for individuals with known iodine allergies.

IF A FMT MEMBER REPORTS ANY SIDE EFFECTS OR REACTIONS FROM KI, INSTRUCT THE INDIVIDUAL TO DISCONTINUE ITS USE AND SEEK MEDICAL ATTENTION, IF NEEDED.

V. **Decontamination**

Action levels for determining the need for decontamination of emergency personnel and/or equipment are shown in Figure 10-4.

- A. Radiation Control Program field team personnel who have been in contaminated or potentially contaminated areas will be monitored at the Mobile Emergency Radiological Laboratory. Contaminated personnel will be processed prior to being relieved from duty.
- B. All emergency personnel will be monitored at appropriate county monitoring and washdown stations. Personnel who are contaminated will be processed through appropriate county monitoring and washdown stations. Contaminated personnel that have been injured will be treated at medical facilities identified in Chapter 12 (Medical and Public Health Support) of this Annex.
- C. All contaminated tools, clothing, equipment and other material that cannot be decontaminated will be placed in plastic bags, tagged and placed in suitable containers for later disposition, under the direction of the State Department of Health and Human Services.

FIGURE 10-1

Personnel Dosimetry Log

Recorder: _____

Agency: _____

Telephone: _____

Name & Social Security Number:	Date mm/dy/yr	Time 24 hour clock		TLD		Personal Alarming Dosimeter		Total Exposure	
		Out	In	Badge #	Reading	Ser. #	Reading	TLD	DRD

Radiation Control Program Use Only

FIGURE 10-2
Exposure Record Card

EXPOSURE RECORD CARD (PAD)					
TIME	READING	TIME	READING	TIME	READING
Directions and Dose Limits on the reverse side Turnback Rate = 500 mR					
Radiation Control Program Use Only					

**FIGURE 10-3
EMERGENCY WORKER DOSE LIMITS**

Dose Limit	Application	Condition
500 mREM TEDE ¹	ALARA Limit	Applies to all workers
500 mR/hr	Exposure rate Turnback Dose Rate	Applies primarily to field teams Gamma exposure rate measurement
1 REM TEDE	Total Exposure Turnback Dose Value	Applies to all workers
>1 REM TEDE	Lifesaving or activity to protect public health & safety	FTC direction and RHS notification Active monitoring if possible

^a Total effective dose equivalent during an emergency situation.

**FIGURE 10-4
DECONTAMINATION ACTION GUIDES**

HIGH RADIATION AREAS^a (0.1 to 5.0 mR/hr gamma exposure rates)

<u>When Measured</u>	<u>Closed Window</u>	<u>Recommended Actions</u>
Before Decontamination	less than 2 x background and less than 0.5 mR/h above background	Unconditional release
	greater than 2 x background or greater 0.5 mR/h above background	Decontaminate (equipment held for decay/disposal)
After Decontamination	less than 2 x background and less than 0.5 mR/h above background	Unconditional release (may leave monitoring/ decon station)
	greater than 2 x background or greater than 0.5 mR/h above background	Continue decon or send to low background decon station (equipment as above)

LOW RADIATION AREAS (less than 0.1 mR/hr gamma exposure rates)

<u>When Measured</u>	<u>Open Window</u>	<u>Recommended Actions</u>
Before decontamination	less than 2 x background	Unconditional release
	greater than 2 x background	Simple decontamination
After simple decon (e.g. flushing with water and/ or wiping)	less than 2 x background greater than 2 x background	Unconditional release Full decontamination
After full decon (e.g. washing or scrubbing with soap or solvent followed by flushing with water)	less than 2 x background greater than 2 x background less than 0.5 mR/hr ^b	Unconditional release People continue full decon. Release animals/equipment
After additional full decontamination effort	less than 2 x background greater than 2 x background less than 0.5 mR/hr ^b greater than 0.5 mR/hr ^b	Unconditional release Send people to special care Release animals/equipment Use informed judgement to control animals/equipment

^a Only done in early phase of large particulate release accidents otherwise set up in low background area.

^b Closed window measurements.

Health Effects Associated with Whole-Body Doses Received within a Few Hours^a

Whole Body Dose		Early Fatalities ^b	Whole Body Dose	Prodromal Effect ^c
(rad)	(percent)	(rad)		(percent affect)
140		5	50	2
200		15	100	15
300		50	150	50
400		85	200	85
460		95	250	98

a Risks will be lower for protracted exposure periods.

b Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

c Forewarning symptoms of more serious health effects associated with large doses of radiation.

Approximate Cancer Risk to Average Individuals from 25 rem Effective Dose Equivalent
Delivered Promptly

Age at exposure	Appropriate risk of premature death (deaths per 1,000 persons exposed)	Average years of life lost if premature death occurs
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

Exercise and Drills Planning Standard N

The State of Maine is potentially impacted by two NPP. In each case Maine is only in the ingestion pathway zone and as such is required to have a full participation exercise every eight years for each NPP that impacts Maine.

As part of Maine's annual Training and Exercise Program Workshops (TEPW) upcoming drills and exercises shall be included as part of the overall TEPW agenda and schedule.

1. Drills

Annual drills are conducted to develop and maintain key emergency response skills. These drills shall include:

- Sampling and radioactive analysis of milk, water, vegetation, and soil.
- Testing of communications systems and record keeping with all plan specified agencies and organizations. Communications testing shall also include the understanding of message content.
- Issuance of emergency worker radiological monitoring and personnel dosimetry.

Additionally semi-annual health physics drills will be conducted by the Maine Radiological Control Program.

Issues identified as a result of these drills are followed up by creating a list of such items and correcting them by procedure changes and/or training.

A drill is defined as a supervised instruction period aimed at testing, developing, and maintaining skills in a particular operation.

2. Exercises

Periodic exercises will be conducted to evaluate major portions of the emergency response capabilities of the state and supporting agencies. There are two types of exercises, full-participation and partial participation. A full-participation exercise is an activity which tests appropriate state authorities and licensee personnel physically and actively taking part in testing their integrated capability to adequately assess and respond to an accident at a nuclear power plant.

Full participation includes testing the major portions of the on-site and state emergency plans and mobilization of state, and licensee personnel and other resources in sufficient numbers to verify the capability to respond to the accident scenario.

A partial-participation exercise provides state authorities, voluntarily taking part in the exercise, sufficient opportunity to test direction and control functions; i.e. (a) protective action decision-

making related to emergency action levels and, (b) communication capabilities between the affected site state and the licensee.

For each exercise, Maine, in concert with the utility and affected state or province, will participate in Extent of Play negotiations and exercise scenario development. The scenario will be varied from exercise to exercise to test all the major elements of the plan and preparedness of the State Agencies within a eight-year period. As an example, exercises will be conducted under various weather conditions.

The frequency for full participation and partial participation exercises are as follows:

The States of Maine and New Hampshire, which are responsible for emergency responses within the 50-mile ingestion exposure pathway EPZ, shall exercise their plans and preparedness related to ingestion exposure pathway measures at least once every 8 years.

The State of Maine and Province of New Brunswick shall also conduct joint exercises. Being that these exercises are considered international in scope Maine will follow FEMA and NRC guidance in how we conduct these exercises for the purpose of the 50-mile ingestion exposure pathway EPZ that is within Maine. These exercises shall take place at a minimum every eight years and more often dependent on the Canadian cycle of exercises

Remedial exercises may be required if the emergency plan is not satisfactorily tested, such that FEMA, in consultation with the NRC, cannot find reasonable assurance that adequate protective measures can be taken in the event of a radiological emergency. The extent of state participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding the elements of the plan that were not properly tested in the previous exercise.

Personnel from the utility, federal, and state agencies will control, observe, evaluate and critique the required exercise Maine will work with FEMA to schedule the placement of evaluators during drills and exercises. Evaluators will be provided with an advance copy of the scenario and of the plans and procedures to be tested, and will be briefed as to the schedule of events and evaluation criteria for each location. Evaluators will be provided with guidelines and evaluation sheets applicable to their locations.

A critique will be conducted at the conclusion of each exercise to evaluate the performance of state and local emergency personnel. The critique will be conducted as soon as practical after the exercise.

In most cases, FEMA will conduct the critique. The RAC Chair will prepare a draft exercise report, based on materials developed and collected by FEMA evaluators during the exercise and input from the post-exercise critique and public meeting. The report format and timing will be in accordance with guidance from the "Standard Exercise Report Format" document dated October 1995. The critique and evaluation efforts not sponsored by FEMA will be provided Maine and /or the utility.

3. **Evaluating Observer and Participant Comments**

Maine will review evaluator and participant comments on exercises and drills. Where issues are cited, involved agencies will respond to the comments stating concurrence or disagreement with the validity of the issue.

A consultant process between FEMA, the state, and the utility will determine the remedial actions required to correct confirmed issues.

The Director of MEMA shall ensure that validated issues identified are dispositioned in an appropriate and timely manner.

4. **Conduct of Exercises**

Exercises will be conducted in accordance with FEMA REP-14 and REP-15. Exercise objectives, submissions, and review will be in accordance with FEMA criterion.

All exercises shall also be conducted and documented using HSEEP so as to form a consistent record from design and implementation to AAR and Improvement plan.

Radiological Emergency Response Training Planning Standard O

A training program to support the plan will provide uniform instruction for state agencies and personnel who may be expected to respond to a nuclear incident.

MEMA has primary responsibility for ensuring training is offered annually. The Maine Radiological Control Program shall be responsible for those personnel that work for them along with monitoring and sampling teams.

The objectives of this program will be to provide:

1. Training on the use of the plan, its organization, and systems necessary to affect a response at the state level.
2. Training of field team personnel in sample collection, handling, record keeping, and transportation procedures.
3. Implementation actions for protection of the public from radiological exposure.
4. Training on performing dose calculations after the sample analysis has been completed.
5. Orientation courses for state personnel who will respond to radiological incidences.
6. As a method of training, periodic drills and exercises will be designed to test Ingestion Pathway response procedures and implementation as requested by the State of Maine.
7. Training programs shall normally be offered on an annual basis. More frequent or specialized training programs will be offered as necessary, to allow for personnel changes or drill/exercise identified weaknesses.
8. The MEMA Director has assigned the Technological Hazards Unit Program Manager the responsibility for the Ingestion Exposure Pathway emergency planning and coordination. In addition, this person shall provide for appropriate training of those individuals responsible for the planning effort.

The following training programs will be offered by MEMA on an annual basis and upon request:

1. Traffic Control Emergency Worker

- Overview of radiation and its effects
- Use of the DMC 2000 and related equipment
- Review of the Traffic Control Manual
- Specific job actions
- Pre and post assignment paperwork

2. Radiological Planning for IMATs

- Overview of radiation and its effects
- Review of the ingestion pathway plan
- Role of the IMAT in EOC support
- Review of various ICS forms

3. Radiological knowledge for EOC personnel

- Overview of radiation and its effects
- Review of the ingestion pathway plan
- IAP and sit rep development

The Maine Radiological Control Program will train its employees and those support personnel who form the monitoring and sampling teams along with dose calculations and accident assessment with the necessary training to conduct the duties they will be performing.

PLAN DEVELOPMENT AND MAINTENANCE
Planning Standard P

A. Purpose

This section establishes the method for the development, distribution, control, and revision of the State of Maine Ingestion Exposure Pathway Plan.

B. Responsibilities

1. The Maine Emergency Management Agency (MEMA) is responsible for the overall coordination and conduct of disaster operations.
2. The Director of MEMA, or designee, maintains the master copy of the plan and its revisions, and distributes the plan to the State of Maine agencies. Additional copies will be distributed to counties that lay within a planning zone.
3. The following state/county agencies are responsible for maintenance of assigned controlled copies of the plan.

State of Maine Governor's Office

Maine Emergency Management Agency (MEMA)

Department of Health and Human Services Radiological Control Program (MEDHHS-RCP)

Maine Department of Environmental Protection (MEDEP)

Maine State Police (MSP)

Maine National Guard, Adjutant General (MeTAG)

Commanding Officer, 11th Civil Support Team (11th CST)

Maine Department of Transportation (MeDOT)

Maine Department of Marine Resources (MeDMR)

Maine Department of Agriculture, Conservation and Forestry (MeDACF)

York County Emergency Management Agency (YKEMA)

Washington County Emergency Management Agency (WNEMA)

4. Maine state and county agency directors maintain up-to-date copies of the plans assigned to them. They are responsible for identifying changes in the plan, annually, and providing this information to the Technological Hazards Unit Program Manager, THUPM, by November 1 of each year.

C. Distribution

1. The Director of MEMA shall distribute controlled copies of the plan and revisions. The Controlled Document Distribution List shall be used to record the names of the controlled copy holders of each copy of the plan. This list shall be maintained on file by MEMA.

2. The THUPM of MEMA shall maintain accountability of the plan including revisions, through the use of the Notice of Receipt Form. When the forms are signed and returned by the controlled copy holder, the THUPM of MEMA shall record the date signed on the Notice of Receipt Form.
3. Each designated holder of a controlled copy of the plan shall follow all of the instructions on the Notice of Receipt Form when they receive it. The Notice of Receipt Form should be signed, dated, and returned to MEMA.
4. The THUPM of MEMA shall maintain a master copy of the plan and all future revisions on file.
5. Each State/County of Maine agency head shall use the Document Acknowledgment Sheet to ensure that all staff members are aware of changes to the plan. This form shall remain with the document.

D. Revisions

1. In September of every year, the THUPM of MEMA shall initiate the effort for updating the plan, by sending notices to all controlled copy holders.
2. In the event that controlled copy holders identify the need for an update of the plan, they should bring it to the attention of their agency head who, in turn, shall transmit the revision to the THUPM of MEMA as a proposed update.
3. Updated change pages will contain the change date. Changes will also be noted in the right-hand margins with revision bars (□).
4. Following numerous updates, MEMA will create a revision (i.e., signification change) to the plan. This major revision will be noted by a revision number change.
5. All internal telephone call lists prepared as part of the plan should be updated quarterly. It is the responsibility of each state/county agency identified in the plan to notify MEMA of any telephone number changes.
6. The plan shall be exercised in accordance with FEMA directives (Currently a 8 year cycle).

E. Staff Training

Members of the Technological Hazards Unit will be the primary developers and maintain the ingestion pathway plan for Maine. Training will consist of formal education that is available through FEMA and or private institutions.

At a minimum the following programs will be completed by lead planners:

- IS-3: Radiological Emergency Management
- IS-235.B: Emergency Planning
- IS-301: Radiological Emergency Response
- IS-836: Nuclear/Radiological Incident Annex
- E340: Radiological Emergency Preparedness Planning Course

Additionally the following course is encouraged for each staff member with planning responsibilities:

- Harvard School of Public Health - Radiological Emergency Planning: Terrorism, Security, and Communication

**State of Maine Ingestion Exposure Pathway Plan
Maine Emergency Management Agency**

Controlled Document Notice of Receipt Form

Document: Maine Emergency Response Plan for the Ingestion Exposure Pathway

Document Holder: _____

Document Holder Address: _____

Control Copy Number: _____

Revision Number: _____

Change Number: _____

Authorization for Issue: Director, Maine Emergency Management Agency

Please insert and/or remove pages as indicated on the attached Revision Instruction Notice and destroy all superseded and outdated pages.

Please sign and return this form within 14 days.

This acknowledges receipt of the revisions listed on the attached Revision Instruction Notice. All superseded pages have been removed and destroyed and affected personnel have been notified.

Signature _____

Date _____

When above instructions have been completed, please return the ENTIRE sheet to:

Technological Hazards Unit – Program Manager
Maine Emergency Management Agency
72 State House Station
Augusta, Maine 04333-0072

**State of Maine Ingestion Exposure Pathway Plan
Maine Emergency Management Agency**

Document Acknowledgment Sheet

The following document(s) has been revised, and issued as new. Please read the document(s) prior to affixing your initials on the line provided.

Department: _____

Document Title: _____ Revision No.: _____

Document No.: _____ Revision Date: _____

I have read and am aware of the provisions of the above listed document(s).

<u>Required Personnel</u>	<u>Initials</u>	<u>Date</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
_____	_____	_____
_____	_____	_____

**State of Maine Ingestion Exposure Pathway Plan
Maine Emergency Management Agency**

Revision Instruction Notice

Please update your controlled copy of the **Maine Emergency Response Plan for the Ingestion Pathway Plan** as instructed below”

REMOVE AND DISCARD

INSERT

Please insert and/or remove pages as indicated and destroy all superseded and outdated pages.

AUTHORITIES AND REFERENCES

A. Authorities

1. State of Maine, General Laws Maine, Title 37B, as amended.
2. Title 10, Code of Federal Regulations (CFR), Part 50, Appendix E "Emergency Plans for Production and Utilization Facilities," as revised July 6, 1984.
3. NRC Guide and Checklist for the Development and Evaluation of State and Local Government Radiological Emergency Response Plans in Support of Fixed Nuclear Facilities (NUREG 75-111).
4. NRC/EPA Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants, NUREG-0396, EPA 520-1-78, and EPA 400-R-92-001, 1991, as amended.
5. Federal Civil Defense Act of 1950, Public Law 81-290, as amended.
6. NUREG-0654, FEMA-REP-1, Revision 1, November 1980, as modified by the Addenda published March 2002 (67 FR 30982) "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants".
7. NRC Bulletin 2005-02, Emergency Preparedness and Response Actions for Security Based Events, published July 18, 2005, and any future modifications.

B. References

1. NRC Interagency Radiological Assistance Plan, 1975, as amended.
2. New England Compact on Radiological Health and the New England Radiological Assistance Plan, 1980, as amended.
3. Federal Response Plan, April 1992, as amended.
4. Radiological Emergency Preparedness Exercise Manual, FEMA REP-14, June 2002, as amended.
5. Radiological Emergency Preparedness Exercise Evaluation Methodology, FEMA REP-15, June 2002, as amended.
6. Guidance on Off-site Emergency Radiation Measurement Systems, Phase 1 - Airborne Release, FEMA REP-2, Rev. 2, June 1990, as amended.\

7. Guidance on Off-site Emergency Radiation Measurement Systems, Phase 2 - The Milk Pathway, FEMA REP-12, September 1987, as amended.
8. Guidance on Off-site Emergency Radiation Measurement Systems, Phase 3 - Water and Non-Dairy Food Pathways, FEMA REP-13, May 1990, as amended.
9. Federal Register, Vol. 63, No. 156, August 13, 1998, pg 43402, Department of Health and Human Services, Food and Drug Administration: "Recommendations for State and Local Agencies on the Accidental Radioactive Contamination of Human Food and Animal Feeds", as amended.
10. Further reference materials concerning the ingestion exposure pathway are listed in FEMA "Guidance Memorandum IN-1, The Ingestion Exposure Pathway," Feb. 26, 1988, as amended.
11. Information for farmers:
 - State of Maine Emergency Information for Farmers, Food Processors and Distributors (2014)
 - Radiological Emergency Information for Farmers, Food Processors and Distributors, November 1989, USDA, FEMA, as amended.
12. EPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA 400-R-92-001, May 1992, as amended.

C. Supporting Plans/Documents

1. The State of Maine Emergency Operation Plan
2. State of Maine Emergency Information for Farmers, Food Processors and Distributors (2014)