NEW YORK STATE
COMPREHENSIVE EMERGENCY MANAGEMENT PLAN

RADIOLOGICAL HAZARDS ANNEX
FOR FIXED NUCLEAR FACILITIES

PREPARED BY THE NEW YORK STATE
DISASTER PREPAREDNESS COMMISSION

April 2022
Table of Contents

Section I: General Considerations and Planning Guidelines
Preface
A. Introduction
B. Purpose
C. Scope
D. Situation
E. Planning Assumptions
F. Risk Assessment
G. Concept of Operations
H. Authorities and Support Plans
I. Annex Maintenance

Section II: Preparedness
A. Radiological Preparedness Planning
B. Roles and Resources
C. After Action Reports
D. Situation
E. Planning Assumptions
F. Risk Assessment
G. Concept of Operations

Section III: Response
A. Alert, Notification and Plan Activation
B. State Response Activation
C. Public Warning and Emergency Information
D. Direction and Control
E. Response Roles
F. ESF Roles
G. ESF Matrix
H. State EOC Checklist

Section IV: Recovery
A. Overview
B. Assistance
C. Roles and Responsibility

Appendices
Appendix A - Acronyms
Preface

New York State has continuously addressed the safety of its citizens regarding ionizing radiation. The New York State Department of Health (DOH) is the State agency having primary responsibility in this area. The status of primary responsibility was designated by the former State Atomic Energy Council in 1971 and later formally affirmed by the Governor of New York in his letter of March 18, 1975, to the United States Nuclear Regulatory Commission.

The New York State Public Health Law (Section 206) gives the Commissioner of Health broad authority for protecting the health and life of the people of New York State. Section 201 of that law further assigns the Commissioner of Health the responsibility for the protection of the public health regarding the use of ionizing radiation.

To carry out these actions the State developed and implemented an emergency plan for radiation accidents in 1971. This plan provided for a coordinated effort among Federal, State, and local agencies, to prevent or minimize hazards to life and health in the event of a radiological incident. The plan assigned the State Health Commissioner the responsibility for recommending protective actions. It also recognized that the primary responsibility for implementing actions to mitigate the effects of a radiological incident rests with the local political subdivisions affected by the incident.

Key events have occurred since that State emergency plan for radiation incidents was written, manifesting a need for extensive revision to that plan. Article 2-B of the New York State Executive Law (State and Local Natural and Manmade Disaster Preparedness) was enacted in 1979 which, among its provisions, created a State Disaster Preparedness Commission (DPC). This Commission is charged with a wide variety of powers and responsibilities designed to provide a comprehensive emergency system to prevent or react to emergencies or disasters within the State.

Article 2-B was amended in 1981 to deal with certain aspects of Radiological Emergency Preparedness specifically. The law provides that counties are the first line of defense in handling emergencies subject to an assumption of responsibility by the State pursuant to a State Declaration of Disaster Emergency (see Executive Law, Section 24, McKinney's Consolidated Laws of New York, Volume 18).

In 2012, the Nuclear Regulatory Commission and the Federal Emergency Management Agency implemented a final radiological emergency preparedness rulemaking which included the consolidation of various planning requirements and guidance documents. Specifically, the FEMA Radiological Emergency Preparedness (REP) Program Manual was issued in April 2012, which superseded and consolidated a number of FEMA REP guidance documents that detailed requirements for offsite response organizations (OROs) to implement the planning standards and criteria contained in NUREG-0654-FEMA-REP-1: “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Fixed nuclear facilities”. New planning requirements included criteria for Hostile Action Based (HAB) events, changes to an 8-year exercise planning cycle and scenario variability requirements, among others. Accordingly, New York has addressed these requirements in the current plan. The current REP Program Manual is dated January 2019.
A. Introduction

New York State is home to four Fixed Nuclear Facilities, impacting seven counties. These four facilities are comprised of three boil water reactors (BWR) and one pressure water reactor (PWR). New York State is within ten miles of the Millstone nuclear power facility in Connecticut, which impacts one NYS county.

The State Office of Emergency Management (State OEM) will serve as the operational arm of the Disaster Preparedness Commission (DPC) and is responsible for implementing provisions of Article 2B and any rules and policies adopted by the DPC. The director of State OEM shall exercise the authority given to the DPC Under Section 29 of Article 2B, to coordinate and direct state agencies and assets in response to a state disaster emergency.

B. Purpose and Relation to the NYS CEMP


The CEMP has been structured into three distinct, but interconnected volumes. These are:

Volume 1: All-Hazard Mitigation Plan
Volume 2: Response and Short-Term Recovery
Volume 3: Long-Term Recovery Plan

The purpose of the CEMP is to identify the State’s overarching policies, authorities and response organizational structure that will be implemented in an emergency or disaster situation that warrants a State response. In addition, the CEMP identifies the lines of coordination and the centralized coordination of resources that will be utilized in directing the State’s resources and capabilities in responding to and recovering from a disaster. Further, the CEMP serves as the foundational framework for the State’s response levels and serves as the operational basis of which other functional and hazard-specific annexes will build upon.

The purpose of the Radiological Hazards Annex for Fixed Nuclear Facilities is to minimize the risk to the health of the inhabitants of the State of New York in the event of a radiological incident. This will be accomplished by identifying measures to prevent and mitigate such an incident by developing mechanisms to coordinate Federal, State, local and private sectors resources, prior, during and after such an incident; and by providing for recovery following a radiological incident. A radiological incident is an event at a nuclear power plant that may result in the loss of control of a radiation source, leading to a hazard or potential hazard to health or property.

This Hazard Specific Annex also ensures that the strategic and broad-based nature of the CEMP is more defined to allow the State to adequately prepare for, respond to and recover from a major radiological incident. This will include utilizing individual agency activities, as appropriate.
Further, this Annex identifies the key mechanisms in coordinating with the local response and identifies the lines of coordination to interoperate with the Federal response via the National Response Framework (NRF) and the Federal Nuclear-Radiological Incident Annex.

C. Scope

This Annex applies to any radiological incident at a fixed nuclear facility within the borders of New York State, contiguous states or in the Province of Ontario, Canada, that warrants a response beyond standard agency statutory obligations to a collective State DPC response.

This Annex applies to all State agencies and authorities that may be directed to respond to such an event and builds upon the process and structure of the CEMP by addressing unique policies, situations, operating concepts, and responsibilities. Response operations to this type of event will encompass the efforts identified in this annex and utilize existing capabilities of other annexes to the CEMP. Further, this Annex acknowledges that local and State response capabilities may be exceeded, necessitating the use of Federal agencies and resources.

D. Situation

Fixed Nuclear Power Facilities: Within New York State, there are four nuclear power plant sites that are briefly described below. The contiguous states of Connecticut and the Province of Ontario have operating sites that could impact portions of New York State and therefore, are referenced in this plan.

Indian Point Energy Center Site
Indian Point site is located on the east bank of the Hudson River in the Village of Buchanan in Westchester County. Rockland, Putnam, and Orange Counties are in the 10-mile Emergency Planning Zone (EPZ). In April of 2021, Indian Point shut down and began the decommission process. The full decommission process will take several years. The site is comprised of 239 acres owned by Holtec Corporation.

Robert Emmett (RE) Ginna Nuclear Power Plant Site
The RE Ginna site is located on the south shore of Lake Ontario in Wayne County; 20 miles east of northwest of Rochester, on a 426-acre area. A portion of Monroe County is included in the 10-mile EPZ. The reactor is a PWR, which generates 576 megawatts of electricity. Constellation Energy operates the facility and is owned by Constellation Corporation.

Nine Mile Point and James A. FitzPatrick Nuclear Power Plant Site
The Nine Mile Point and James A. FitzPatrick sites are located in Oswego County, on the south shore of Lake Ontario, in the Town of Scriba; seven miles northeast of the City of Oswego, and 36 miles northwest of Syracuse. Together, they can generate 1,907 net megawatts (MW) on a 1,500-acre area owned by Constellation Corporation. Nine Mile Point has two BWR units and James A. FitzPatrick has one BWR Unit.

Other Non-Commercial Reactors in New York State

Naval Nuclear Laboratory
Naval Nuclear Laboratory (NNL) operates two separate sites: the NNL site in the Town of Niskayuna, 2 miles east of the City of Schenectady, and the Kenneth A. Kesselring Site Operation in West Milton, 17 miles north of Schenectady and 9 miles southwest of Saratoga Springs.
Niskayuna is the primary site for the NNL, focusing on the design and development of naval propulsion plants and reactor cores. The West Milton site operates two land-based prototypes of shipboard reactor plants. This site is also used to train officers and enlisted personnel for the U.S. Navy’s fleet of nuclear-powered vessels.

Contiguous State or Province

**Millstone**
Millstone is located on the Connecticut shore of Long Island Sound, on the east shore of the Niantic Bay; 7.5 miles northwest of Fishers Island and 8 miles north of Plum Island both of which are in Suffolk County, NY. The Millstone site is 500-acre site owned by Dominion Nuclear Connecticut Inc housing 2 PWR units. Millstone Unit Two PWR produces 882 megawatts and Unit Three PWR produces 1,155 megawatts of electricity. Millstone Unit One is permanently shut down.

The plume exposure EPZ responsibilities of New York State and Suffolk County/Town of Southold with respect to Fishers Island and Plum Island are described in each community's local radiological emergency response plan.

**Pickering Nuclear Generating Station**
Pickering Generating Station is located on the north shore of Lake Ontario in Pickering, Ontario Canada. It is approximately 20 miles northeast of the City of Toronto, approximately 18 miles from the New York State border and 36 miles from the New York State land area. Pickering could affect some 50-mile ingestion pathway counties in Western New York. There are currently six CANDU (Canadian Deuterium Uranium) reactors each with a gross electrical generating capacity of 431 megawatts. The Pickering site is owned and operated by Ontario Power Generation (OPG) and has been operational since 1971.

**Darlington Nuclear Generating Station**
Darlington Nuclear Generating Station is a Canadian nuclear power station located on the north shore of Lake Ontario in Clarington, Ontario. It is located 35 miles northeast of the City of Toronto, approximately 16 miles from the New York State border and 35 miles from NYS land area. Darlington could affect some 50-mile ingestion pathway counties in Western New York. The Darlington station is a large nuclear facility and comprises 4 CANDU nuclear reactors located on the northern shore of Lake Ontario, having a total output of 3,512 MWe (capacity net) when all units are online. The facility was constructed in stages between 1981–1993 by Ontario Hydro. Unit 2 was brought online in 1990, Unit 1 in 1992, and Units 3 and 4 in 1993. Since 1999, Ontario Power Generation (OPG) has operated the Darlington Station.

**E. Planning Assumptions**

**Emergency Classifications**

This Annex adopts the four emergency classification levels (ECLs) for fixed nuclear facilities, established by the NRC. The NRC requires that, when an initiating condition for any of the four emergency classification levels exists, the Nuclear Facility Operator (NFO) shall provide early and prompt notification to both State and local officials. The four emergency classification levels:
RADIOLOGICAL HAZARDS ANNEX FOR FIXED NUCLEAR FACILITIES

Section I

<table>
<thead>
<tr>
<th>Emergency Classification Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification of Unusual Event (NUE)</td>
<td>Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.</td>
</tr>
<tr>
<td>Alert</td>
<td>Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.</td>
</tr>
<tr>
<td>Site Area Emergency</td>
<td>Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near site boundary.</td>
</tr>
<tr>
<td>General Emergency</td>
<td>Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.</td>
</tr>
</tbody>
</table>

Incident Phases

An incident involving a radiological release contains three phases:

- **Early Phase:** The beginning of the incident when immediate decisions for effective use of protective actions are required. This phase may be hours to days.
- **Intermediate Phase:** The beginning of the incident after a release has been controlled. Environmental measurements are available to aid in protective action decisions. This phase may overlap the early and late phase and can be as long as weeks to months.
- **Late Phase:** The beginning of recovery actions designed to reduce radiation levels in the environment to acceptable levels. This phase may extend from months to years.

Emergency Planning Zones

New York State has adopted the Federal concept of Emergency Planning Zones for fixed nuclear facilities. The EPZ around each nuclear facility must be defined for both short-term and long-term periods of exposure to ionizing radiation. These zones are defined as the areas for which planning is needed, to assure that prompt and effective actions can be taken, to protect the public in the event of an accident.
There are two EPZs for each nuclear facility. The first EPZ is the Plume Exposure Pathway, which is the area within (approximately) a ten-mile radius from the site. Although the radius for an EPZ implies a circular area, the actual shape would depend upon the physical and demographic features within that zone. The principal exposure sources within this zone are external whole-body exposure to gamma radiation and exposure through the inhalation of radioactive materials. The level of potential exposure within the Plume EPZ depends on the magnitude and duration of a release and meteorological conditions at that time.

The second zone is the Ingestion Exposure Pathway Zone, which is the area within (approximately) a fifty-mile radius from the site. The principal exposure sources within this zone is the ingestion of contaminated water, or foods such as milk or fresh vegetables. Protective actions for the Ingestion Exposure Pathway are planned to be in place for an extended time period. It is the intent of this planning effort to initiate protective actions as early as possible to prevent or minimize potential radiological contamination.

The concept of these zones and their respective sizes represent the kind and extent of planning and response activities needed for the effective protection of the public health. Depending on the nature of a specific emergency, protective actions might be restricted to a small part of either or both planning zones.

Figure 4 depicts the 10-mile and 50-mile Emergency Planning Zones (EPZs) surrounding the commercial nuclear power generating plants located within New York State and within contiguous states.
Protective Action Guides

Protective Action Guides (PAGs) are used as the basis for initiating activities to minimize the potential exposure of individuals. PAGs are expressed in units of radiation dose (rem) and identify preplanned protective actions should the projected dose to be received by an individual exceed the designated level. PAGs are used to assist governmental authorities in deciding how much of a radiation hazard in the environment constitutes a basis for initiating emergency protective actions.

The PAGs represent radiation doses to be used as a decision aid to response situations. They are not intended to represent "acceptable" or "safe" radiation dose levels.

The established PAGs for deposited radioactive materials are expressed in terms of the projected dose, over a one-year period of time. The PAGs should be considered mandatory only for planning purposes. Application of the PAGs should be considered flexible based on the incident.

PAGs for the ingestion phase are applied independently of PAGs for the plume phase. In addition, PAGs for relocation, food ingestion and drinking water are applied independently of each other.
F. Risk Assessment

Nuclear Facility Conditions

Upon detection of an initiating condition for any of the four ECL's, the NFO will immediately notify the State and counties within the plume exposure EPZ utilizing the Emergency Response Procedures.

The initial notification message from the NFO will contain pertinent information such as:

- Date/time of incident
- Name and location of the facility, or location of incident
- Emergency Classification Level (ECL), date and time
- Release of radioactive material information
- Reactor operating or shutdown status
- Whether a release is taking place or not
- Potentially affected population
- Protective action recommendation
- Brief event description
- Weather conditions, wind speed and direction

The NFO will provide updated information to the State and impacted counties such as:

- Estimate of quantity of radioactive material released or being released.
- General Release Information.
- Meteorological Data
- Atmospheric Release Information (ground, iodine, noble gas, release rate)
- Waterborne Release Information (volume, concentration, radionuclides)
- Actual, projected, or integrated dose rates at site boundary.
- Projected dose rates at site boundaries 2, 5, and 10 miles.
- Emergency Response Planning Areas/Protective Action Areas (ERPAs/PAAs) affected.
- Estimate of any surface radioactive contamination onsite or offsite.
- Field measurements of dose rates and contamination.
- Prognosis for worsening or termination of event based on plant information.

Radiological Dose Modeling

Within the Emergency Support Function (ESF) #5 Information and Planning, the REP Assessment and Evaluation (A&E) function, has access to various dose/plume modeling procedures and computer models. To effectively use these models, A&E has four primary sources of information:

- Previously developed accident analysis data and information.
- Relayed data on the prevailing radiological release rates and on-site meteorological conditions and real-time plant parameters.
- Radiological laboratory analysis.
- On-going assessments from nuclear specialists from the NFO, NRC, and State.
Environmental Assessment

Relayed data from meteorological monitors at the reactor sites will be available to A&E. This information, when integrated with data from the National Weather Service, can be used to determine the actual and projected meteorological conditions for the area of concern.

The State will receive relayed data from numerous fixed radiation monitors in and/or around the plant. The State will also receive relayed real-time data derived from the NFO plant computer which will enable the State to make an independent, but parallel, evaluation of the status of the nuclear plant.

Mobile radiation monitoring teams will be deployed by the NFO and the at-risk counties. Initial Federal support will be obtained through Radiological Assistance Program (RAP) administered by the Brookhaven Area Office of the U.S. Department of Energy. Additional radiation surveillance resources of the State and local agencies will work cooperatively with the NFO and Federal field assessment teams to determine and verify off-site consequences. All data will initially be transmitted to the State EOC ESF #5, (A&E) in Albany, and later consolidated within the Federal Radiological Monitoring and Assessment Center (FRMAC). NFOs have mutual agreements of monitoring assistance afforded to each other in the event of an incident.

Plume Exposure Pathway Protective Measures

Plume exposure protective actions are recommended by the NFO. Protective action decisions are made by the at-risk county. The A&E section will review and evaluate the assessment data for concurrence with decisions made by the at-risk county, however the at-risk county will make the final protective action decisions.

The following plume exposure protective action decision options are described:

- Shelter-In-Place.
- Evacuation.
- Thyroid Blocking Agents (emergency workers and general population).

Ground Deposition Assessment

External gamma radiation exposure from deposited radioactive materials (ground shine) is a potential exposure pathway for the general public following a nuclear accident. Furthermore, internal radioactive exposure from inhalation of re-suspended radioactive materials is an additional potential pathway in the Intermediate Phase of an accident.

Ingestion Pathway/Relocation Protective Measures

If an incident progresses from the plume/early phase to the intermediate/ingestion phase, responsibility for determining appropriate protective actions transfers from the county to the State. The Ingestion Pathway Protective Action Options enable the State Commissioner of Health to recommend effective actions to ensure that the potential for the general population to receive a radiation dose is minimized. These options may involve restricting public consumption of contaminated drinking water, agricultural products and relocation of additional populations. Routine operations would be resumed in those areas cleared for unrestricted use.
G. Concept of Operations


The National Response Framework (NRF) along with NIMS/ICS principles have been incorporated into emergency response plans in New York State. New York State has adopted an overall emergency preparedness system which includes four interrelated critical phases.

Comprehensive Emergency Management

These four phases are parts of an on-going cycle in which one phase leads into another:

**Preparedness**: This is the initial phase of activities that is aimed at eliminating or reducing the probability of the occurrence of a radiological incident, and at minimizing the impact of a radiological incident on public health and property. These activities include the development of legislation, preparedness plans, and training programs.

**Response**: This phase follows the identification or notification of an incident. Response activities minimize the adverse impact on public health and to protect property, to the extent possible, through emergency assistance. These activities include accident assessment and evaluation, radiological exposure control, and protective action orders and recommendations.

**Recovery**: The Recovery phase begins when the incident has been brought under control and there is no further threat to the public. Recovery activities continue until the community life of the affected area returns to its previous level or better.

**Mitigation**: The Mitigation phase is an ongoing course of action or set of procedures used to reduce or eliminate long-term risk to people and property from hazards and their effects. New York State relies on the nuclear facilities to ensure that protective barriers are in place to prevent a release of radioactive material to the atmosphere.

H. Authorities and Supporting Plans

The authorities to develop this Annex and implement specific response actions to effectively respond to a radiological incident involving fixed nuclear facilities can be found in a variety of New York State and Federal laws, regulations, and guidance documents.

Under the provisions of Article 2-B, local governments have developed radiological emergency plans consistent with this Annex. This State planning effort is designed to cope with a variety of potential radiological emergencies at a nuclear facility that could have a public health impact. In addition to the State and local radiological plans, nuclear facility licensees have developed and maintain site emergency preparedness plans.

The Nuclear Regulatory Commission (NRC), grants licenses for fixed nuclear facilities if the health and safety of the public is adequately protected. The NRC requires consideration of overall emergency preparedness as part of the licensing process and requires adequate on and off-site emergency plans for the continuance of a license.
The NRC regulates on-site planning and procedures. FEMA has the lead responsibility for review and approval of all off-site nuclear emergency planning.

**New York State Executive Law – Sections 20 – 29 (Article 2-B):** Provides State and Local natural and man-made disaster preparedness. Establishes the existence of the DPC and its powers and responsibilities. Provides the duties and responsibility of local Chief Executives.

**New York State Public Health Law Section 201:** Provides the Commissioner of Health the responsibility for public health aspects in the use of ionizing radiation.

**New York State Public Health Law Section 206:** Provides the Commissioner of Health broad authority for protecting the health and life of the people of New York State.

**New York State Sanitary Code Part 16:** Implements the Public Health Law. Requires actions to be instituted to correct and prevent unnecessary radiation exposure due to the release activities at any radiation installation or radioactive materials licensee.

**New York State Defense Emergency Act as enacted by Chapter 784 of the Laws of 1951:** Provides for construction and utility of the EOC, development of communication and warning systems and the involvement of volunteer CD workers.

**Agriculture and Markets Law Article 17, Section 199-1:** Provides the Commissioner of Agriculture and Markets the ability to test food or foodstuffs for contaminants.

**Environmental Conservation Title 6, Chapter IV, Subchapter C, Radiation Part 380:** Provides for the prevention and control of environmental pollution by radioactive materials.

**State Civil Defense Emergency Act, Article 6, Section 9160 Closing or Restricting Use of Highways:** Provides the Commissioner of Transportation the authority to open or close highways, waterways, railroads, etc.

**The New York State Comprehensive Emergency Management Plan:** This plan establishes the methods and procedures to cope with the effects of a disaster by comprehensive management of all private and public resources available in New York State.

**NYS/NRC Letter of Agreement 10/62:** Delegates NRC responsibilities for licensing and inspection of facilities using radioactive materials to various agencies within NYS. (Signatories: Gov. Rockefeller and the Atomic Energy Commission)

**Executive Order # 26.1 of 2006, as amended:** NYS Adoption of the Incident Command System.

**Emergency Management Assistance Compact (EMAC):** EMAC is the Governor’s interstate mutual aid compact that facilitates the sharing of resources, personnel and equipment across state lines during times of disaster and emergency. EMAC is formalized into law by member states. EMAC was adopted by NYS in September 2001.

**Atomic Energy Act of 1954:** Requires that the NRC grant licenses only if the health and safety of the public is adequately protected.
Title 10 Code of Federal Regulations Part 50: Provides requirements for licensee emergency plans for onsite and offsite emergency preparedness measures for nuclear reactors, fuel cycle facilities and certain other fuel cycle and materials licensees.

NUREG-0654 - FEMA - REP-2: Associated Evaluation Criteria that further define the Planning Standards.


Title 44 Code of Federal Regulations Part 350: Policy and procedures for the review/approval of State/local plans for offsite effects of radiological emergencies at commercial nuclear power reactors by the FEMA.

Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 100-707, as amended): Constitutes the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA.

EPA 400-R-92-001 Manual of Protective Action Guides and Protective Actions for Nuclear Incidents and EPA-400/R-17/001 PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents: Provides Protective Action Guides for the early (plume) and the intermediate (ingestion and relocation) phases of an incident. In addition to the PAGs, EPA established separate guidance on dose limits for emergency workers.

FDA Guidance on Use of Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies, December 11, 2001: Established guidance for the use of potassium iodide (KI).

National Response Framework: A guide on how the Nation conducts all-hazards response. It is built upon scalable, flexible, and adaptable coordinating structures to align key roles and responsibilities across the Nation.

Supporting Plans:
- New York State Comprehensive Emergency Management Plan
- Monroe County Radiological Emergency Preparedness Plan
- Oswego County Radiological Emergency Preparedness Plan
- Orange County Radiological Emergency Preparedness Plan
- Putnam County Radiological Emergency Preparedness Plan
- Westchester County Radiological Emergency Preparedness Plan
- Rockland County Radiological Emergency Preparedness Plan
- Wayne County Radiological Emergency Preparedness Plan
- Onondaga County Radiological Emergency Response Host Plan
- Holtec, Emergency Plan for Indian Point
- Constellation Nuclear, Nine Mile Point Nuclear Station Units 1 and 2 Emergency Plan
- Constellation Nuclear, Ginna Nuclear Emergency Plan
- Constellation Nuclear, James A. Fitzpatrick Site Emergency Plan
- Dominion Generation, Millstone Nuclear Radiological Emergency Response Plan
- Department of Energy, Knolls Atomic Power Laboratory Interface Plan with NY State and Localities for a Radiological Event
I. Annex Administration/ Maintenance

Planning is an ongoing process, resulting in an ever-constant evolution and refinement of emergency plans. As such, this Annex to the CEMP will be routinely updated and supplemented as Federal, State, and local plans and procedures evolve. Plan changes may be based upon experiences and lessons-learned from exercises, or from real-world events. Ongoing planning efforts will focus on ensuring that the necessary and appropriate contacts with local, State, and Federal officials have coordinated their response.

The State OEM will be the lead agency responsible for coordinating the update and distribution of this document. The State OEM will conduct the review/revision process annually. Based on the FEMA P-1028 Radiological Emergency Preparedness Program Manual, the REP Annex is required to be updated 90 days prior to a Federally Evaluated Exercise.
Radiological Hazards Annex for Fixed Nuclear Facilities

Section II: Preparedness

A. Radiological Preparedness Planning

Preparedness is the first phase of emergency management. Its primary purpose is to eliminate, or reduce, the effects of radiological emergencies. As required by the Homeland Security Grant Program (HSGP), the State must complete an annual Threat Hazard Identification Risk Assessment (THIRA) to better understand the risks, threats and potential radiological hazards facing the State. Preparedness activities are derived from the outcome of the THIRA. Radiological preparedness activities include mitigation activities, plans, policies, public education, logistical assistance, technical assistance, and off-site monitoring of potential radiological emergencies. The State also utilizes testing, training, and exercising as key components of the preparedness process. These and similar activities, are essential to the protection of public health and the environment from radiological exposure.

Administration - Annual Letter of Certification (ALC) is provided by the State and radiological counties annually to FEMA. The ALC addresses all fixed nuclear facilities in the State. The ALC provides FEMA with reasonable assurance that the State has taken all planning and preparedness activities required.

Logistical Assistance - The timely mobilization and efficient management of resources available for response operations is of the utmost importance in determining the effectiveness of dealing with a radiological incident. Three key activities are the identification, acquisition, and the maintenance of an up-to-date inventory of potentially useful emergency response resources that can be marshaled in the event of an emergency.

State government, in cooperation with other levels of government, as well as the public, determines what resources are needed to mitigate the effects of an emergency. Federal, State, and local level agencies combine their resources with those of the private sector to produce an efficiently functioning Preparedness Program. The Preparedness Program is based on NIMS and is a standard approach that is scalable and flexible. The goal is to enhance cooperation and interoperability for efficient resource coordination among agencies, jurisdictions, and organizations.

Technical Assistance - Technical assistance to communities will be provided. Many State agencies have specialized capabilities (i.e., engineering and scientific expertise) and personnel to support local communities faced with potential radiological emergencies. Due to the cost of such services, local governments cannot always provide them independently. This assistance includes providing for the testing of radiological instruments, equipment, warning systems, and communication systems.

Plans and Procedures - Preparing plans and procedures is vital to the preparedness phase of emergency management. Plans and procedures for all levels of governments must be coordinated and cohesive to ensure effective and unified activities are achieved.

Public Education - A key activity is the implementation of a public education program. A coordinated effort designed to provide information about radiological emergency planning. Included in this program is the preparation and distribution of pamphlets intended to inform the public of the steps needed to take in a radiological incident.
Public understanding of potential hazards and the Preparedness activities available to minimize the potential of an emergency is basic to the whole process of Public Education.

Additionally, a news media education program is conducted at each site to acquaint the news media with relevant radiological emergency plans, radiation information and public protective measures.

**Tests, Training, and Exercises** – Scheduled testing of primary and backup systems are conducted to identify any potential concerns for correction. The State and Stakeholders develop and deliver a variety of REP specialized training. The State utilizes an exercise component as part of the planning process to test the effectiveness of the REP Annex.

The State has incorporated guidance from the Homeland Security Exercise and Evaluation Program (HSEEP). HSEEP consists of doctrine and policy for developing, conducting and evaluating exercises and is a threat-based exercise program.

Radiological emergency preparedness requires trained personnel to implement the plans. Annual training and retraining of all stakeholders is essential. Biennial Federally evaluated exercises will be conducted at each nuclear plant site which will include emergency response agencies from the State and local level in conjunction with the Nuclear Facility Operators.

**Monitoring Radiation Exposure Levels** – It is vital to monitor the radiation exposure levels of emergency workers in the field. Guidelines and parameters are set for acceptable radiation doses. Personal Monitoring kits are provided to all emergency workers to detect and record radiation levels. Decontamination facilities are required for emergency workers, vehicles and equipment.

**B. Roles and Resources**

All levels of government and the private sector have key roles and responsibilities in the preparedness phase of the radiological emergency program. The State, local and Federal government work together in all aspects of emergency management.

**Federal**

The Federal Government’s primary role in Preparedness is to enact laws or rules that will ensure the safest possible operation of a nuclear power plant. Within the Federal government, FEMA and the NRC are the primary agencies responsible for radiological emergency preparedness activities. FEMA is responsible for assisting in and overseeing off-site emergency planning in accordance with Federal regulations. The NRC is responsible for the granting of nuclear facilities licenses and on-site emergency plans.

Federal agencies provide radiological emergency planning, guidance, and related training to State and local governments. These agencies support the State and nuclear facility operators in developing emergency plans for the public protection and assist in developing agreements with government agencies, to provide early public warning and implementation of protective actions.

The Radiological Assistance Program (RAP) and the Federal Radiological Monitoring and Assessment Center (FRMAC) provide for preplanned emergency operations to assist State and local governments in assessing potential consequences of radiological emergencies of any kind. The National Response Framework (NRF) and the Nuclear-Radiological Incident Annex describe available Federal capabilities for radiological monitoring and assessment.
Local
All emergency events begin and end at the local level. Local government is responsible for creating and maintaining local Radiological plans and procedures. Working with all aspects of its jurisdiction (i.e.: schools, day cares, hospitals) to ensure all are trained on the plan procedures. The specific training courses and audience are specified in the training procedures in each respective County Radiological Emergency Preparedness Plan. Local jurisdictions participate in plan/procedure exercises annually. Local jurisdictions are responsible to ensure the public is informed and educated of steps needed to be taken should an incident occur. Each county conducts public education and information activities.

Private Sector
The Nuclear facility provides resources, such as specialized technical studies, reports and other facility information, specialized material and equipment, and personnel to reduce the probability and effects of a radiological incident. Population censuses, evacuation time estimate (ETE) studies, traffic management plans and public alerting/notification systems are maintained for each NFO in accordance with NRC regulatory requirements. NFOs continually upgrade facility safety systems, radiological barriers and personnel training to address industry operating experience and lessons learned.

The NFO provides periodic training and retraining for local emergency services personnel located in the vicinity of the facility. Training and/or drills are typically provided on an annual basis for fire, hospital and ambulance personnel. The nuclear facilities provide instructors at various training sessions and provide staff to assist in preparation of scenarios used in drills. Each NFO conducts various public education and information activities.

State
State preparedness activities are carried out before the incident and are directed by the DPC to minimize any adverse impact on public health. State agencies work together to coordinate resources and responsibilities. The State is responsible for assisting in and overseeing off-site emergency planning in accordance with Federal regulations. The State is responsible for overall development of the REP Annex, policies, programs and maintains a cache of radiological instruments and supplies for plume and ingestions activities. The State takes a primary role in the development, organization and conduct of drills and exercises. The State conducts specialized training in handling hazardous materials. The State maintains a stockpile of equipment available for loan during emergencies.

State DOH provides technical support for the assessment and evaluation of radiation incidents in areas such as: health physics expertise, laboratory analysis, environmental surveillance and monitoring, power plant systems and operations, and reactor hazards analysis. The State takes a lead role to provide technical recommendations and advice regarding potential radiological impacts, laboratory assistance and health advisory information on radioactive materials. DOH assists State OEM in conducting radiological training for local public health officials and assists with the preparation and conduct of drills and exercises.

C. After Action Reports
Following an exercise or incident, an After-Action Report is completed by all staff involved. This report identifies areas of excellence as well as areas in need of improvement. The information gathered from these reports will provide vital insight for future planning and refinement of the REP Program.
Radiological Hazards Annex for Fixed Nuclear Facilities

Section III: Response

A. Alert, Notification and Plan Activation

A radiological incident is defined as a series of events at a nuclear power plant which leads to an actual or potential release of radioactive materials into the environment that warrant consideration of protective actions. Protective actions are those actions taken which are intended to minimize radiation dose to the general population.

As stated in 10 CFR Part 50, the licensee must have the capability to notify offsite organizations within fifteen minutes of declaring an incident. The State and radiological counties continuously operate warning points, watch centers, and/or 911 dispatch centers that house emergency notification systems directly from each nuclear facility called the Radiological Emergency Communications System (RECS). This system will notify the State and the county immediately of an incident at a fixed nuclear facility any time of the day, any day of the week. The State and the counties also have systems in place to make or receive additional alerts and notifications to key essential executives and staff.

Upon notification of an incident to the SWC, State OEM will assess the potential needs and demands of the incident and determine the level of activation necessary to effectively manage the response required. Based on the level of activation, capabilities that are needed to support the incident will be identified and agencies are notified to staff the State EOC using the ESF construct. In a radiological incident of ECL Alert or higher, the State EOC typically activates.

Not all incidents require every ESF or the full activation of each ESF, flexibility is key when activating ESF's. Once the determination has been made to activate the State EOC, the appropriate ESF agencies will be notified and requested to send representative to the State EOC. An additional measure of alerting is the use of a Multi-Agency Coordination (MAC) group conference call for situational awareness, updating, and activation.

The Radiological Hazards for Fixed Nuclear Facilities Annex will be implemented based on the radiological incident in progress.

B. State Response Activation

The State EOC implements several activation levels based upon the severity and extent of an incident. Each EOC level has a host of operational functions and mechanisms. As an incident’s severity increases, so will the activation level of the EOC.

The State EOC has four levels of activation that are beyond the day-to-day steady state operations. Within each activation level, there are varying degrees of staffing required. During any activation of the State EOC, consistent assessment and evaluation of the situation occurs, and staffing levels will increase or decrease as warranted.
Level 4 – Enhanced Monitoring:
- Minimal to no ESF support required in the State EOC.
- ESF agencies may be requested to provide status updates.

Level 3 – Partial Activation:
- OEM staff reporting to the State EOC.
- Minimal ESF support required in the State EOC.
- Operational coordination may occur with ESF agencies external to OEM.

Level 2 – Full Activation:
- ESF support required in the State EOC.
- The Director of OEM will determine which ESFs and which agencies from each ESF are required to report to the State EOC.
- The State Command Room will be operational, and a communication hotline will be established.
- A Joint Information Center will be established.
- Staff may be deployed or mobilized.

Level 1 – Full State/Federal Response:
- Activities of the State ESFs will be integrated with those of their Federal counterparts.
- Director of OEM will determine which agencies of each ESF are needed to support the response activities.
- The State Coordinating Officer will work in unison with the Federal Coordinating Officer.

C. Public Warning and Emergency Information

Article 2-B states that local governments are responsible for providing public warning to their populations. The State can support the dissemination of emergency information and may establish a Joint Information Center (JIC). The JIC will serve as the sole source of official public information regarding the incident response.

Effective public warning or alerting may require the use of multiple systems. The REP Counties utilize a siren system as their primary public warning. An internet-based infrastructure is key for issuing a WEA EAS, or NOAA alerts. NY-Alert is a viable system used, which is a mass notification system.

The Wireless Emergency Alert (WEA) delivers emergency messages sent by authorized authorities through mobile carriers onto a cellular device.

The Emergency Alert System (EAS) is a national public warning system that requires broadcasters to provide communications capability to address the public. REP Counties use local radio stations to broadcast important radiological EAS information. EAS stations must maintain a 24-hour capability to interrupt broadcasts to provide official information and emergency instructions to people in the plume exposure pathway. Press releases and press briefings can also be utilized to get vital emergency instructions to the population.

If the initial notification to the State and REP County indicate protective actions are required, the county will activate their public notification system and release a prearranged EAS message to the public prior to coordination with the State. NY-Alert may be utilized for initial notification purposes. In the case of multiple county involvement, a lead county has been selected to activate the EAS system and has authorization and procedures to activate the siren system immediately. Procedures are contained in each county plan.
D. Direction and Control

The State supports the one response organizational structure, which includes all responding stakeholders. State agencies and ESFs will function under the framework of the NIMS ICS as required by NIMS Executive Order 26.1.

The direction and control of a radiological incident at the state level is managed from the State EOC Command Room. The command room is staffed with executive leadership which may include the following personnel (or their representative) based on the severity of the incident: DOH Commissioner, DHSES Commissioner, Executive Deputy Commissioner, Director, Deputy Director, Agency Legal Counsel, Public Information Officer, NYSP liaison, and Governor’s Office liaison.

Direction and control of radiological incident at the county level is managed from the County EOC command room. Their command room is staffed with County Executives, County Chief Elected Official, Emergency Manager, Director, Deputy Director, County DOH Official, Legal Counsel, and Public Information Officer.

Communication between command room personnel is vital for the direction and control of an incident. In radiological incidents, a command executive hotline between State and county command rooms is established and maintained for the duration of the incident.

State command room leaders will begin by obtaining a clear and thorough understanding of the incident and which localities may be affected. Opening an executive hotline will be completed as proper communication with local leaders is crucial. Command room leaders will decide which level of activation is appropriate for the State EOC and will be directing State OEM staff and ESFs with missions and briefings. Command room leaders will also brief their own superiors with the status of the incident. Any decisions will be made by following plans and procedures defined by State, local and nuclear entities. Under the components of direction and control, command room leaders will coordinate briefings, confer with partner agencies, review, and communicate all decisions necessary for public safety, and assist with directing required resources to appropriate locations.

The DHSES Commissioner or the Director of State OEM will report any pertinent information directly to the Governor’s Director of Operations.

State Emergency Operations Center
State response activities will be a coordinated effort from the State EOC located in Building #22 on the State Office Campus in Albany. When activated, response operations are managed by the DHSES Commissioner or the State OEM Director. The State OEM also maintains an alternate State Emergency Operations Center (ASEOC) at the New York State Traffic Management Center (TMC) in Hawthorne, Westchester County.

If warranted, the State OEM will activate the State EOC and notify the appropriate State agency personnel and the State OEM field staff through the State Watch Center (SWC). County warning points will notify the appropriate county officials according to their procedures. For emergencies classified as Alert, Site Area Emergency or General Emergency, FEMA Region II will be notified by the State EOC. If Federal radiological monitoring and assessment assistance is needed, it will be requested by the Commissioner of Health or designee through the Radiological Assistance Program. If specific assistance from EPA is required, the assistance will be requested either directly by the Bureau of Environmental Radiation Protection or through USDOE.
For a Notification of Unusual Event classification, all involved State agencies will utilize their normal working quarters for response activities.

For an Alert, Site Area Emergency, and General Emergency classification, the State OEM will, according to its alerting procedures, notify specific pre-designated State agency personnel to report to the State EOC. Also, pre-designated State personnel will report to the NFO's Emergency Operations Facility (EOF), the affected States, Counties, local EOCs and the JIC.

A county may choose to activate limited staff at the NUE or utilize normal working quarters based on the incident circumstances.

For an Alert, Site Area Emergency and General Emergency classification, there may be full activation of County EOCs within the plume exposure EPZ. Host counties may also activate at this ECL and County pre-designated personnel may report to the NFO's EOF.

Upon activation of the State EOC, appropriate County EOC's, and the NFO’s EOF will communicate with each other and confirm that each emergency response facility has been activated and is operational.

**Joint Information Centers**
Each Fixed Nuclear Facility has a physical JIC location but can also be activated virtually. The Licensee owns and/or maintains the physical JIC location.

Activation of the JIC is a joint effort made by all stakeholders. JICs will be accessible to all media sources. The JIC is staffed by pre-designated personnel from the licensee, local, State and Federal governments. State media/press releases are approved by State command room executives, and media briefings are conducted by the NYS Spokesperson. Procedures for the JIC are contained in the NYS JIC Plan.

**E. Response Roles**

The Response phase of a radiological incident deals with the reaction to an emergency which encompasses the Federal, State, local and private sector response roles and how the activities of these organizations will be coordinated. This effort minimizes the impact of the incident on the health and safety of those in the affected areas.

The Response phase to a radiological incident within a nuclear facility begins with the NFO. The NFO has the first line responsibility for assessing the magnitude of a radiological incident and its potential consequences and for taking immediate actions to mitigate or terminate the situation.

FEMA will serve as the primary point of contact for non-technical aspects of the Federal response. At the direction of the State Commissioner of Health or designee, the Department of Energy (DOE), through the Federal Radiological Monitoring and Assessment Center (FRMAC), will coordinate all off-site monitoring, evaluation, assessment as outlined in the FRMAC Operations Plan. Federal radiological emergency response roles and responsibilities are outlined in the Nuclear/Radiological Incident Annex (NRIA) to the NRF.
The NRC and DOE will coordinate their on-site and off-site data and will jointly advise the State Assessment and Evaluation staff on the Federal assessment and evaluation of the incident and the availability of support.

The State Coordinating Officer is the designated State liaison to Federal agencies that have been requested to provide response support to the State.

State EOC response roles are complex and are based on the needs and requirements of each incident. As an incident progresses or begins to stabilize, the response roles will shift to meet the current demands. The State EOC functions with Command and General Staffing as well as ESF staffing.

- Command Staff consists of Executives, Safety, Legal and a Public Information Officer.
- General Staff consists of EOC Manager, Operations, Planning (ESF #5) and Logistics (ESF #7) Section Chiefs.
- In every State EOC activation for a radiological incident, the Assessment and Evaluation and the GIS sections of ESF #5 will be activated.
- All other ESFs and ESF agencies are activated as the incident response activities dictates the need.

The DOH, as the State lead agency for response to radiological incidents, and by order of the Commissioner of Health, under the auspices of the DPC, shall request necessary monitoring and activate assessment and evaluation personnel, equipment, and other resources. Upon evaluation and after consultation with the local Chief Elected Official, the Commissioner will recommend appropriate protective action response options. Protective action decisions are coordinated between the State and affected REP counties via the Executive Hotline. After a State Declaration of Disaster Emergency pursuant to Executive Law, Article 2B, section 28, the Commissioner may order appropriate protective actions. State agencies are responsible for support. The State OEM, as staff arm to the DPC, is the State coordinating agency for State and local operational resources and will perform this function from the State EOC. There will also be an ongoing exchange of information between local and State agencies.

Reception/Congregate Care Centers

The special needs of the evacuated population will be assessed and addressed. These needs include monitoring, decontamination, reception/registration, lodging, feeding and clothing.

Activities to register and monitor evacuees at Reception Centers and to house, feed and clothe them at Congregate Care Centers will be implemented by local agencies and the American Red Cross. These agencies share the primary responsibility for this response activity.

At the request of local government, the Emergency Support Function (ESF) 6 may be requested to provide assistance with the registration of evacuees at the reception centers. This support will be coordinated by ESF #6 based on the Disaster Assistance Center plan. Mass Care support will provide services in accordance with the Mass Care Support plan. Mental Health support will be available reception centers and may facilitate the Emergency Assistance core function. Provisions will be made for the needs of those affected by the incident, including individuals with disabilities or other access and functional needs. Other services which will be available are crisis counseling, psychiatric counseling, information, legal, and referral service casework services, and other welfare services.
In the event of a presidential disaster declaration the Federal government may provide mass shelters, emergency supplies and potable water, sell government-owned feed grains to livestock owners at reduced prices, assign personnel to screen contaminated food, and provide emergency clothing.

**Emergency Worker Personnel Monitoring Center**

Emergency activities may be necessary to protect lives and reduce escalation of the radiological problem. It is possible that involved emergency response personnel may be exposed to radiation and become contaminated while carrying out their duties. The underlying radiation protection principle is to limit their exposure to as low as reasonably achievable, within the whole-body limits prescribed for radiation workers, which is 5 rem total effective dose equivalent per year.

Emergency response personnel include individuals engaged in accident assessment, rescue of endangered or injured personnel, lifesaving activities, evacuation of affected populations, and protection or prevention of property damage or loss within the 10-mile emergency planning zone.

The EWPMC provides emergency response personnel, instructions to wear necessary dosimetry, provides potassium iodide (KI), and provides for monitoring and decontamination of personnel as well as instructions for the persons perfuming the decontamination. The A&E Section of ESF#5 activates the EWPMC.

**F. ESF Roles**

ESFs that are activated in support of a State response to a radiological incident will utilize any resources available that are pertinent to the response required.

ESF coordinating agencies will manage actions within the group to effectively respond to the demands of the incident.

Not all ESFs will be activated, and not every agency in an ESF will be activated. As the magnitude of an incident expands or decreases, the ESF support will also expand or decrease.

In an incident requiring federal assistance, the State ESFs will interoperate and coordinate with their federal ESF counterparts. This allows for a unified and efficient management and reporting construct for response activities.

ESF scope of support is specialized to each hazard in which the response activities are focused on. Below is a brief description of the broad responsibilities of each ESF. Beyond the brief descriptions, are matrix sheet for each ESF specifically related to a radiological incident.

- **ESF #1 – Transportation**
  DOT is the coordinating agency for ESF #1. This ESF is responsible for all modes of transportation response, information, planning, restoration, and debris clearance. This ESF includes the Air Operations Group.

- **ESF #2 – Communications**
  OIEC is the coordinating agency for ESF #2. This ESF is responsible for establishing, coordinating, and stabilizing emergency communications between all vital stakeholders for response activities.
• ESF #3 – Public Works and Engineering
DEC is the coordinating agency for ESF #3. This ESF is responsible for technical and engineering expertise, as well as debris and construction management for critical infrastructure.

• ESF #4 – Firefighting
OFP&C is the coordinating agency for ESF #4. This ESF is responsible for fire-based assets for response to Radiological, Nuclear, Chemical, and biological incidents.

• ESF #5 – Information and Planning
State OEM is the coordinating agency for ESF #5. This ESF is responsible for coordinate multi-agency planning for the State EOC once activated. This ESF includes Assessment and Evaluation (A&E), which is vital to a radiological incident. A&E is responsible for monitoring radiation levels, communicating with the Licensee, relaying information to command, and obtaining radiological and meteorological data and the use of such data to determine the actual or potential impact on public health in order to recommend the appropriate protective action.

The A&E Section within ESF #5, also obtains real-time data from each NFO which permits independent, parallel, evaluation of potential problems. After the initial notification, technical personnel from the NFO will remain in continual contact with technical personnel from the State A&E staff for consultation and continued assessment and evaluations of the accident consequences.

• ESF #6 – Mass Care, Emergency Assistance, Housing and Human Services
DHSES-IA and State OEM are the coordinating agencies for ESF #6. In general, this ESF is responsible for the coordination of vital mass care, emergency assistance, housing and human services to minimize the impact on populations. In a Radiological incident, this ESF is responsible for emergency assistance at Reception Centers, activate and support shelter sites or congregate care centers, provide logistical support for family reunification, identify need for pet sheltering, and provide mental health assistance.

• ESF #7 – Logistics
State OEM is the coordinating agency for ESF #7. This ESF is responsible for locating, procuring, issuing and transporting requested resources.

• ESF #8 – Public Health and Medical Services
State DOH is the coordinating agency for ESF #8. In general, this ESF is responsible for public health emergencies, emergency medical services, fatality management, disease surveillance, and radiation monitoring. In a radiological incident, this ESF is responsible for coordination of protective actions, coordination of medical resources, provide public health needs for impacted population, coordinate support for emergency worker monitoring, provide environmental and water quality testing, provide food and livestock monitoring and safety, and support the reception centers.

• ESF #9 – Search and Rescue
DHSES OFP&C is the coordinating agency for ESF #9. This ESF is responsible for the deployment of search and rescue resources to provide lifesaving assistance.

• ESF #10 – Oil and Hazardous Materials Response
DEC is the coordinating agency for ESF #10. This ESF is responsible for supporting discharge of hazardous materials, as well as support of CBRNE and decontamination. This ESF supports storage, treatments and disposal of hazardous materials to include contaminated debris.
• ESF #11 – Agriculture and Natural Resources
DAM is the coordinating agency for ESF #11. In general, this ESF is responsible for protecting the State's food supply, and the well-being of agricultural animals. In a radiological incident, this ESF is responsible for determining the level of contamination to agriculture, coordinate closure of state parks, obtain radiation protection measures for animals and other natural resources, provide access to food storage, handling and disposal and support the implementation of programs to reduce radiological contamination.

• ESF #12 – Energy
DPS is the coordinating agency for ESF #12. This ESF is responsible for the restoration of damaged energy systems and components.

• ESF #13 – Public Safety and Security
DSP is the coordinating agency for ESF #13. This ESF is responsible to protect citizens throughout the State. This ESF will provide support to traffic and access control points and provide evacuation assistance.

• ESF #15 – External Affairs
DHSES PIO is the coordinating agency for ESF #15. This ESF is responsible to distribute State-level public information, including the establishment, management and support of JIC
Radiological Hazards Annex for Fixed Nuclear Facilities

Section IV: Recovery

A. Overview

The late phase of a fixed nuclear facility incident consists of recovery activities aimed at reducing radiation levels in the environment to permit unrestricted, long-term use of property. This phase of the incident, which may last from months to many years, ends when all recovery activities have been completed.

As an incident begins to transition from the response to the recovery phase, the focus begins to shift to rebuilding the communities and demobilizing State response activities and resources. Although there is no clear delineation of when response activities transition into recovery activities, typically the recovery phase begins when the immediate emergency condition is stabilized and no further significant releases into the environment are anticipated. Significant exposure or contamination to previously unaffected areas is not predicted and all evacuation, sheltering and initial protective action have been accomplished. It is important to note that response and recovery activities may be conducted simultaneously.

The scope of the State’s involvement will be based on the level and severity of the incident. As the scope of the incident increases, and the financial impact exceeds local abilities, State and federal assistance will also increase.

The recovery process typically includes short-term and long-term recovery activities to restore a community to pre-incident state. Short-term activities include actions that will restore essential services vital to the community. Long-term activities involve rebuilding and restoration of whole communities, including but not limited to infrastructures, public services, business and employment, as well as remediation of the contamination.

Recovery is accomplished through timely restoration, strengthening and revitalization of various types of infrastructure. Specifically, recovery from a radiological incident refers to the process of reducing radiation exposure rates and concentrations of radioactive material in the environment to acceptable levels for the safe return of the general public to an area for unconditional occupancy. The recovery process will require much of the same information, data and resources as in the response activities. In the recovery phase, additional cleanup is targeted to areas that were not a priority or were identified as too contaminated to remediate immediately following the incident. Decontamination and disposal of radioactive waste may be a long process and ongoing throughout the recovery.

Recovery will involve continued and extensive field sampling, damage and impact assessments, remediation of contaminated areas, ongoing management of radioactive wastes generated by those remedial activities, and coordination of federal assistance and nuclear insurance benefits. Radiation protection is not the only concern to be addressed in the management of long-term recovery. Recovery operations will be in accordance with the NYS CEMP with added considerations for radiation protection. The risks from radiation exposure are only one of the many risks to be considered in developing and implementing recovery plans. Cleanup criteria and standards will ultimately be developed for long-term recovery, but they need not be developed prior to taking initial cleanup actions. Decision makers and locally affected stakeholders should approach the site with a “clean slate” and derive cleanup levels through a site-specific optimization process, a unique solution to the specific problem at hand.
Some general steps can be taken to clean contaminated areas to help reduce dose levels. There are also passive actions that will lessen contamination over time, such as decay of radionuclides and weathering. Cleanup actions should be considered iteratively with ongoing monitoring and stakeholder consultation. The cleanup will continue until stakeholders find the monitored dose levels acceptable, meeting the established cleanup criteria set by a process involving local government, federal agencies, and all other stakeholders affected by the incident. Implementation of interim stabilization or removal actions during the development of goals and strategies may be warranted if they pose clear short or long-term benefits and delaying implementation could result in unnecessary delays in recovery or the significant spread of environmental contamination.

**Short-Term Recovery:** Following a radiological incident, the response organization must at some point transition from response to short-term recovery.

- Preliminary remediation activities during the intermediate phase—such as emergency removals, decontamination, resumption of basic infrastructure function and some return to normalcy in accordance with intermediate phase PAGs—should not be delayed for the final site remediation decisions.
- The term “reentry” is temporary access with stay times determined by site specific conditions. These conditions will vary depending on many factors such as: indoors, outdoors, sensitive population and of course, radiation levels. As contamination levels reduce during cleanup, stay times will increase. Reentry is necessary for multiple reasons, emergency workers to perform additional emergency response activities, residents to retrieve needed personal items, farmers to provide essential care for livestock. All reentry is conducted under controlled conditions.
- The term “return” refers to the permanent resettlement in evacuation or relocation areas with no restrictions, based on acceptable environmental and public health conditions. To return, a restricted area must be below determined safe radiation levels. Vital services and infrastructure such as schools, medical, water, and electricity must be restored.
- The term “reoccupancy” refers the return of household and communities to relocation areas during the cleanup process, at radiation levels acceptable to the community. Reoccupancy is possible when interim cleanup can reduce the short-term exposures to acceptable levels, while work continues to reach long term recovery goals.
- The term “relocation” refers to the removal or continued exclusion of household from contaminated areas to avoid chronic radiation exposure. Land use may need to be changed when it is not feasible for pre-incident land use to continue due to health and safety concerns.

**Long-Term Recovery:** In the case of a major radiological accident, the long-term recovery phase will involve continued coordination with federal and local agencies for restoring essential services and functionality to the affected areas.

- Measures the State will take in managing long-term recovery efforts are described in Volume 3 of the State CEMP. State Executive Law, Article 2-B authorizes the Disaster Preparedness Commission to create a disaster Recovery Organization and ensure adequacy of staffing to effectively manage the recovery process. To assist in the recovery efforts, the DPC may assign responsibilities to State agencies that are above and beyond an agency's normal, day to day obligation. The delineation of these activities will be coordinated through the MAC.
- A long-range monitoring plan including important exposure pathways will be developed in conjunction with the affected State, tribal, and local governments, and appropriate Federal agencies.
• The Recovery Organization will be established by the DPC in accordance with the New York State CEMP, Volume 3, Long-Term Recovery Plan.
• Designated participants in the disaster Recovery Organization will be comprised of representatives of the Commission's membership, and such other agencies as the Commission Chairman may designate.
• The Recovery Organization will be responsible for directing State resources and intermediate and late phase activities and for assisting in the total cooperative effort involving any or all of the other organizations having recognized roles in intermediate and late phase operations. During intermediate and late phase operations the Recovery Organization is responsible for developing practical time parameters and activities consistent with this plan and ensuring that there are adequate communications systems and processes for all State activities. The Recovery Organization keeps the DPC apprised of all matters relating to the recovery effort.
• The technical working group provides multi-agency, multi-disciplinary expert input to local governments developing and implementing radiological recovery plans in accordance with the New York State CEMP, Volume 3, Long-Term Recovery. The technical working group would not be a decision-making body.

**B. Assistance**

**State Disaster Emergency:**
Whenever the Governor, on their own initiative or pursuant to a request from one or more chief executive, finds that a disaster has occurred or may be imminent for which local government will be unable to respond adequately, shall declare a State Disaster Emergency by executive order.

Whenever the Governor shall find that a disaster of such severity and magnitude that effective response is beyond the capabilities of the State and the affected jurisdictions, shall make an appropriate request for federal assistance available under Federal law, and may make available our of any funds provided un the governmental emergency fund or such other funds as may be available, sufficient funds to provide the required State share of grants made under any federal program meeting disaster related expenses.

**Federal Disaster Assistance:**
As part of the request for the declaration process, it is necessary to conduct Preliminary Damage Assessment (PDA). A PDA consists of combined State and federal team inspecting damages to develop an estimate of the cost to restore to pre-disaster condition. These PDA figures are then used to demonstrate to FEMA that federal assistance is warranted. If a disaster escalates to the point of a Federal Disaster Declaration, there are a range of federal assistance programs made available to aid in the recovery process. Once an incident escalates to the point of a Federal Disaster Declaration, a wide range of assistance become available.

**C. Roles and Responsibilities**

**State Role**
The New York State Commissioner of Health continues to have the primary responsibility for recommending protective actions i.e. relocation; for modifying, and relaxing protective actions including allowing the reentry of evacuated or restricted areas; and discontinuing protective actions allowing the return of the evacuated population.
Responsibility for cleanup of radioactive material in the environmental falls under the auspices of the Department of Environmental Conservation.

State OEM coordinates State and Federal assistance and programs in support of the local jurisdictions.

During emergency and intermediate phase operations, when public health is a priority, the NYSDOH is the lead technical agency, with support from the NYS DEC. When emergency operations have largely been completed environmental remediation and restoration efforts become the priority, DEC becomes the lead technical agency with support from DOH. Environmental remediation and waste management fall under the purview of DEC. Initial remediation and waste management decisions will start during the emergency phase of the incident.

Federal Role
If requested by New York State, federal support will be provided in accordance with the National Disaster Recovery Framework and appropriate federal agency technical, advisory, and other required assistance.

The U.S Environmental Protection Agency (EPA), Department of Energy (DOE), Army Corps of Engineers and their private contractors have extensive experience in the characterization, demolition, stabilization and decontamination of radioactively contaminated facilities and land area. Their advice and assistance will be requested.

Local Government
Local Chief Elected Officials assess the needs of their affected areas in conjunction with the State OEM. They direct intermediate and late phase operations in their jurisdictions. State directed intermediate and late phase operations and protective actions are coordinated with the respective jurisdictions and the federal government as warranted.

D. Activation of Recovery Support Functions

During a large-scale radiological incident, the State ESFs will activate and support the needs of the incident. As the State EOC activation scales back and the Joint Field Office (JFO) activates, the federal government will transition from ESFs to Recovery Support Functions (RSFs). The RSF structure builds upon the ESF, the mission, skill set, and time frames are different. The NYS CEMP Volume 3, Long-Term Recovery sets the foundation for the RSFs to effectively interopereated with their federal disaster recovery components.
ABBREVIATIONS AND ACRONYMS

ACP - Access Control Points
ALARA – As Low As Reasonably Achievable
A& E – Assessment and Evaluation
ALC – Annual Letter of Certification
ARC - American Red Cross
ASEOC – Alternate State Emergency Operations Center

BERP - Bureau of Environmental Radiation Protection
BWR - Boiling Water Reactor

CDE – Committed Dose Equivalent
CEDE - Committed Effective Dose Equivalent
CEMP – Comprehensive Emergency Management Plan
CFR - Code of Federal Regulations
CPM - Counts Per Minute

DAM - New York State Department of Agriculture and Markets
DEC - New York State Department of Environmental Conservation
DHS- U.S. Department of Homeland Security
DHSES – Division of Homeland Security and Emergency Services
DMNA - New York State Division of Military and Naval Affairs
DOE - United States Department of Energy
DOH - New York State Department of Health
DOT - New York State Department of Transportation
DPC - Disaster Preparedness Commission
DRL – Derived Response Level
DSP - New York State Division of State Police

EAL - Emergency Action Level
EAS - Emergency Alert System
ECL - Emergency Classification Level
EOC - Emergency Operations Center
EOF - Emergency Operations Facility
EPA - United States Environmental Protection Agency
EPZ - Emergency Planning Zone
ERPA - Emergency Response Planning Area
ESF – Emergency Support Function
ETE - Evacuation Time Estimate
EWPMC – Emergency Worker Personnel Monitoring Center

FDA - United States Food and Drug Administration
FEMA - United States Federal Emergency Management Agency
FRMAC - Federal Radiological Monitoring & Assessment Center
FSAR - (Licensee) Final Safety Analysis Report

GE - General Emergency
GIS – Geographic Information System

HSEEP – Homeland Security Exercise and Evaluation Program
HSGP - Homeland Security Grant Program
ICS – Incident Command System
IMAAC - Interagency Modeling and Atmospheric Assessment Center

JFO – Joint Field Office
JIC - Joint Information Center

KI - Potassium Iodide

LOA - Letter of Agreement
LOCA - Loss of Coolant Accident

MAC – Multi-Agency Compact
MOU - Memorandum of Understanding
mR – Milliroentgen

NARAC – National Atmospheric Release Advisory Capability
NAWAS - National Warning System
NFO - Nuclear Facility Operator
NIMS – National Incident Management System
NOAA - National Oceanic Atmospheric Administration
NRIA – Nuclear Radiological Incident Annex
NRC - United States Nuclear Regulatory Commission
NRF – National Response Framework
NYSERDA - New York State Energy Research and Development Authority
NUE - Notification of Unusual Event
NWS – National Weather Service

OCT - New York State Office of Counter Terrorism
OGS - New York State Office of General Services
OSLD- Optically Stimulated Luminescence Dosimeter

PAA- Protective Action Area
PAD – Protective Action Decision
PAG - Protective Action Guide
PAR - Protective Action Recommendation
PDA – Preliminary Damage Assessment
PIO - Public Information Officer
PMC- Personnel Monitoring Center
PSC – Public Service Commission
PWR - Pressurized Water Reactor

R - Roentgen
RAC - Regional Assistance Committee
RACES - Radio Amateur Communications Emergency Service
RAD – Radiation Absorbed Dose
RAP - Radiological Assistance Program
RECS - Radiological Emergency Communications System
REM - Roentgen Equivalent Man
REP - New York State Radiological Emergency Preparedness Plan

SAE - Site Area Emergency
State EOC- State Emergency Operations Center
State OEM –State Office of Emergency Management
State WC –State Watch Center
TEDE - Total Effective Dose Equivalent
THIRA – Threat Hazard Identification Risk Assessment
TCP - Traffic Control Point
TMC – Traffic Management Center
TSC - Technical Support Center

USDA - United States Department of Agriculture
USDOE – United States Department of Energy

WEA – Wireless Emergency Alert