 IPEC EMERGENCY PLAN	NON-QUALITY RELATED DOCUMENT	IPEC-EP	Rev. 11-00
	INFORMATION USE		

Indian Point Energy Center

Emergency Plan

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Effective Date: September 14, 2011

Indian Point Energy Center Emergency Plan

LIST OF EFFECTIVE PAGES

<u>Page</u>	<u>Revision</u>
Table of Contents.....	11-00
Part I.....	11-00
Part 2, Section A.....	11-00
Part 2, Section B.....	11-00
Part 2, Section C.....	11-00
Part 2, Section D.....	11-00
Part 2, Section E.....	11-00
Part 2, Section F.....	11-00
Part 2, Section G.....	11-00
Part 2, Section H.....	11-00
Part 2, Section I.....	11-00
Part 2, Section J.....	11-00
Part 2, Section K.....	11-00
Part 2, Section L.....	11-00
Part 2, Section M.....	11-00
Part 2, Section N.....	11-00
Part 2, Section O.....	11-00
Part 2, Section P.....	11-00
Appendix 1.....	11-00
Appendix 2.....	11-00
Appendix 3.....	11-00
Appendix 4.....	11-00
Appendix 5.....	11-00

Indian Point Energy Center Emergency Plan

Table of Contents

	<u>Page</u>
Part 1: INTRODUCTION	
Section A: Purpose.....	1
Section B: Background.....	1
Section C: Scope.....	3
Section D: Planning Basis	4
Section E: Governmental Emergency Planning	5
Section F: Emergency Plan Guidance and Criteria.....	5
Section G: Assistance to Non-Entergy Planning Efforts	5
Section H: Response Organization.....	6
Section I: Federal Responses.....	6
Section J: Form and Content of Plan	6
Part 2: PLANNING STANDARDS AND CRITERIA	
<u>Section A: Assignment of Responsibility</u>	
1. Organizations.....	A-1
2. State and Local Functions and Responsibilities.....	A-3
3. Agreements in Planning Effort.....	A-4
4. Continuous Coverage	A-4
<u>Section B: Station Emergency Response Organization</u>	
1. Emergency Response Organization Assignments.....	B-1
2. Authority Over Indian Point Emergency Response Organization.....	B-3
3. Succession to Emergency Director.....	B-4
4. Emergency Director Responsibilities	B-4
5. Key Position Responsibilities and Emergency Functions	B-5
6. Indian Point Emergency Response Organization Block Diagram	B-9
7. Entergy Corporate Emergency Response	B-9
8. Private Industry Support	B-9
9. Offsite Emergency Assistance	B-10
<u>Section C: Emergency Response Support and Resources</u>	
1. Federal Response Support and Resources.....	C-1
2. Liaisons	C-1
3. Radiological Laboratories	C-2

Indian Point Energy Center Emergency Plan

Table of Contents (Cont.)

	<u>Page</u>
4. Other Assistance	C-2
<u>Section D: Emergency Classification System</u>	
1. Emergency Classification	D-1
2. Emergency Action Levels	D-7
3. Offsite Classification Systems.....	D-8
4. Offsite Emergency Procedures	D-8
<u>Section E: Notification Methods and Procedures</u>	
1. Response Organization Notification.....	E-1
2. Notification and Mobilization of Emergency Response Personnel.....	E-4
3. Initial Notification.....	E-5
4. Follow-up Messages.....	E-6
5. State and Local Information Dissemination	E-6
6. Notification of the Public	E-7
7. Messages to the Public.....	E-8
<u>Section F: Emergency Communications</u>	
1. Description of Primary Communications Systems	F-1
<u>Section G: Public Education and Information</u>	
1. Public Information Publication.....	G-1
2. Public Education Materials.....	G-1
3. Joint Information Center	G-2
4. Coordination of Public Information.....	G-2
5. Media Orientation	G-3
<u>Section H: Emergency Facilities and Equipment</u>	
1. In-Plant Emergency Response Facilities	H-1
2. Emergency Operations Facilities	H-3
3. Joint Information Center	H-4
4. Offsite Emergency Operations Centers	H-4
5. Activation and Staffing of Emergency Response Facilities	H-5
6. Emergency Onsite Monitoring Systems	H-5
7. Offsite Emergency Data Acquisition	H-7
8. Facilities and Equipment for Offsite Monitoring.....	H-7

Indian Point Energy Center Emergency Plan

Table of Contents (Cont.)

	<u>Page</u>
9. Meteorological Monitoring.....	H-8
10. Facility and Equipment Readiness.....	H-9
11. Identification of Emergency Equipment and Supplies.....	H-9
12. Collection and Analysis of Field Monitoring Data.....	H-9
 <u>Section I: Accident Assessment</u>	
1. Plant Parameters and Corresponding Emergency Classification.....	I-3
2. Onsite Accident Assessment Capabilities.....	I-4
3. Release Source Term Determination.....	I-4
4. Effluent Monitor Data and Dose Assessment	I-5
5. Meteorological Information.....	I-5
6. Unmonitored Release	I-5
7. Field Monitoring	I-6
8. Offsite Monitoring Teams.....	I-6
9. Iodine Monitoring	I-7
10. Dose Estimates.....	I-7
11. State Monitoring Capabilities	I-7
 <u>Section J: Protective Response</u>	
1. Notification of Onsite Personnel.....	J-1
2. Evacuation Locations.....	J-1
3. Radiological Monitoring	J-2
4. Assembly & Evacuation	J-2
5. Accountability.....	J-2
6. Provisions for Onsite Personnel.....	J-3
7. Protective Action Recommendations for the General Public	J-3
8. Evacuation Time Estimates	J-4
9. Protective Measures Implementation.....	J-4
10. Factors Affecting Protective Measures Implementation.....	J-4
11. Ingestion Pathway Protective Measures.....	J-6
12. Monitoring of Evacuees	J-6

Indian Point Energy Center Emergency Plan

Table of Contents (Cont.)

	<u>Page</u>
<u>Section K: Radiological Exposure Control</u>	
1. Emergency Exposure Guidelines.....	K-1
2. Emergency Radiation Protection Program.....	K-2
3. Personnel Monitoring.....	K-3
4. Non-Entergy Personnel Exposure Authorization.....	K-3
5. Decontamination and First Aid.....	K-3
6. Contamination Control Measures	K-4
7. Decontamination of Relocated Personnel.....	K-4
<u>Section L: Medical and Public Health Support</u>	
1. Hospital Services	L-1
2. Onsite First Aid Capability.....	L-1
3. Medical Service Facilities	L-2
4. Medical Transportation	L-2
<u>Section M: Re-entry and Recovery Planning</u>	
1. Re-entry and Recovery	M-1
2. Recovery Organization	M-3
3. Recovery Phase Notifications	M-6
4. Total Population Exposure.....	M-6
<u>Section N: Drill and Exercise Program</u>	
1. Exercises	N-1
2. Drills.....	N-2
3. Conduct of Drills and Exercises	N-3
4. Criteria and Evaluation	N-4
5. Resolution of Drill and Exercise Findings	N-4
<u>Section O: Emergency Response Training</u>	
1. Assurance of Training.....	O-1
2. Methods of Training	O-2
3. First Aid Response	O-2
4. Indian Point ERO Training Program	O-2
5. General, Initial and Annual Training Program Maintenance	O-6

Indian Point Energy Center Emergency Plan

Table of Contents (Cont.)

	<u>Page</u>
<u>Section P: Responsibility for the Maintenance of the Planning Effort</u>	
1. Emergency Planning Staff Training	P-1
2. Authority for Emergency Preparedness Effort.....	P-1
3. Emergency Planning Manager.....	P-1
4. Indian Point Emergency Plan Revisions	P-3
5. Emergency Plan Distribution.....	P-3
6. Supporting Emergency Response Plans	P-4
7. Implementing and Supporting Procedures.....	P-4
8. Cross Reference to Planning Criteria	P-4
9. Review of Indian Point Emergency Preparedness Program.....	P-4
10. Maintenance of the Emergency Telephone List and Letters of Agreement .	P-5

APPENDIXES

Appendix 1: References.....	Appendix-1-1
Appendix 2: Letters of Agreements.....	Appendix-2-1
Appendix 3: Procedure Cross-Reference to Sections of the Plan.....	Appendix-3-1
Appendix 4: Abbreviations, Acronyms and Definitions.....	Appendix-4-1
Appendix 5: Evacuation Plans	Appendix-5-1

Indian Point Energy Center Emergency Plan

Part 1: INTRODUCTION

Section A: Purpose

As required by the licensing conditions set forth by the Nuclear Regulatory Commission (NRC) this document describes the emergency preparedness program for the Entergy Indian Point Units 1, 2 and 3 Generating Stations (Indian Point Energy Center). The philosophy that guides the development and maintenance of this program is the protection of the health and safety of the general public in the communities around the Indian Point units and the personnel who work at the plant.

The Emergency Plan for Indian Point (Plan) outlines the basis for response actions that would be implemented in an emergency. This document is not intended to be used as a procedure. Detailed Emergency Plan implementing procedures are maintained separately and used to guide those responsible for implementing emergency actions.

This Plan documents the methods by which Entergy's Emergency Preparedness Programs meet the criteria set forth in Title 10 of the Code of Federal Regulations (CFR), Part 50, Section 47(b) and Appendix E.

The Emergency Plan for Indian Point is applicable to plant conditions that may cause or may threaten to cause radiological hazards at Units 1, 2 or 3 affecting the health and safety of workers or the public or resulting in damage to property. Unit 1 is defueled and only those areas of Unit 1 that either store or process radioactive materials (the Fuel Handling Building and waste storage/process areas in the Chemical Systems Building and the Integrated Liquid Radwaste Systems Building) were considered in evaluating radiological hazards.

This Emergency Plan is solely dedicated to Indian Point and includes details of how Entergy utilizes its resources to assist the plant operating staff during an emergency situation.

Section B: Background

Description of the Indian Point Energy Center

Indian Point Energy Center (IPEC) is located on the east bank of the Hudson River about 24 miles north of the New York City boundary line, at Indian Point, Village of Buchanan, in upper Westchester County, New York State. The IPEC Site is about 2.5 miles southwest of the City of Peekskill; 8.3 miles south of West Point; 1.5 miles northeast of the Lovett generating station site; 4.6 miles north of the Bowline Point generating station site; and 2.3 miles north of Montrose Point. The Site is approximately 239 acres and contains three pressurized water reactors owned by Entergy. Figures 1.B-1 and 1.B-2 are maps that show the general location of the Site and its environs within a 10-mile and 50-mile radius, respectively.

Exclusion Area

Entergy has the authority within the site boundary, called the Exclusion Area, to determine all activities including the exclusion or removal of personnel and property (see Figure 1.B-3).

Indian Point Energy Center Emergency Plan

There are no residences within the exclusion area nor are there any public highways or public railroads traversing the exclusion area.

One main and one alternate access roads service the exclusion area. Several other roads interconnect with these two roads. In the event of an evacuation, all vehicular traffic will be directed to the appropriate access road depending on the wind direction, and traffic would exit the site onto Broadway in Buchanan.

Protected Area

A Security fence marks the perimeter of the Protected Area of the site. Access beyond the fence is restricted to badged employees or escorted visitors. Metal and bomb detectors are located at the Protected Area entrance. All buildings related to plant functions are within the Protected Area security fence.

The independent spent fuel storage installation (ISFSI) is located within the Protected Area boundary for interim dry storage of spent fuel. The HOLTEC spent fuel storage casks are designed to ensure protection of public health and safety through use of physical barriers to guard against the uncontrolled release of radioactivity and through the use of shielding to minimize radiation dose to the public from both normal and off-normal conditions of operation. The analyses summarized in the HOLTEC Cask UFSAR demonstrate that under assumed accident conditions, the consequences of accidents challenging the integrity of the barriers will not exceed limits established in 10 CFR 72.106.

Population Distribution

Approximately 13,000 people live within a two mile radius, approximately 84,000 people live within a five-mile radius and approximately 300,000 within a ten-mile radius of the site based on the 2000 US Census population. A more detailed summary of population distribution can be found in Appendix 5 and the station's Evacuation Time Estimate Study.

Site Topography

The Indian Point Energy Center is surrounded on almost all sides by high ground with elevations ranging from 600 to 1000 feet above sea level. The general orientation of this mass of high ground is northeast to southwest. The Hudson River runs northeast to southwest at the Indian Point location but turns sharply northwest approximately two miles north of the plant.

Steep, heavily wooded slopes flank the west bank of the Hudson: the Dunderberg and West Mountains to the northwest (elevation 1086 feet and 1257 feet, respectively) and Buckberg Mountain to the west southwest (elevation 793 feet). Further west are slightly higher peaks.

To the east of the site, peaks are generally lower: Spitzenberg and Blue Mountains average about 600 feet in elevation, and a weak, poorly defined series of ridges run in a north-northeast direction. The River south of the plant makes another sharp bend to the southeast and then widens as it flows past the towns of Croton and Haverstraw.

Indian Point Energy Center Emergency Plan

Plant

Unit 1 (615 MWt, defueled), Unit 2 (3216 Mwt) and Unit 3 (3189 Mwt). Figure 1.B-3 shows a general layout of the Site.

In a nuclear reactor system, containment is defined as the means of restricting, to sharply defined volumes, the distribution of radioactive materials that are in the process of nuclear fission. The IP-2 and IP-3 units have three containment barriers that exemplify the "Defense in Depth" philosophy.

The first or innermost of the barriers is the fuel rod. This encapsulates the fuel pellets that generate the heat energy and is designed to maintain its integrity for the anticipated core life.

The second containment barrier is the reactor pressure vessel. This pressure vessel contains the fuel rods, grouped into fuel assemblies, and the attached reactor coolant system which is comprised of four steam generators, four cooling pumps, pressurizer, and piping.

The third barrier, called the reactor containment structure, surrounds the reactor coolant system. The reactor containment is a steel-lined reinforced concrete cylinder with a hemispherical dome and a flat base. This outer containment is designed to withstand the internal pressure that accompanies a loss of coolant accident. The structure provides radiation shielding for both normal operations and accident conditions.

Section C: Scope

The primary hazard consideration at the Indian Point Energy Center is the potential unplanned release of radioactive material resulting from an accident at the site. The probability of such a release is considered very low due to plant design and strict operational guidelines enforced by the Nuclear Regulatory Commission (NRC). However, Federal regulations and common sense require that an emergency preparedness program exist for each commercial nuclear power station.

This Plan describes the response of Entergy personnel at the Indian Point Site during emergencies. It identifies an Emergency Response Organization(s), describes facilities and equipment, assigns responsibilities and authorities and identifies procedures for responding to emergencies from minor injury to personnel to conditions having offsite radiological consequences. Emergency Plan implementing procedures have been developed to implement this Plan. These procedures identify the elements of the Emergency Response Organization (ERO) and the interface with supporting offsite organizations. In addition to the implementing procedures, Emergency plan administrative directives have been developed to ensure proper maintenance of the program. A listing of procedures, cross-referenced to sections of this plan, is contained in Appendix 3. Complete copies of the Emergency Plan implementing procedures are maintained in the Control Rooms, Technical Support Center, Emergency Operations Facility and Alternate Emergency Operations Facility. Additional copies of individual procedures are distributed as needed to support the ERO.

Indian Point Energy Center Emergency Plan

Plant operating, radiological control and security procedures were considered in the development of this Plan. Reference to these procedures is made where necessary. Plant operating and emergency procedures are available in the Control Rooms for use by the operating staff. Radiological control procedures are available for use by the Watch Radiation Protection personnel. Procedures that address security requirements during emergencies for the security force are contained in the Security Procedures and Safeguards Documents.

This Plan includes agreements made with offsite organizations that furnish support during emergencies. Copies of these agreements are contained in Appendix 2. Specific notification and direction instructions are incorporated into the implementing procedures where necessary.

Elements of the offsite emergency response are specified in the Emergency Plans of New York State, Westchester, Rockland, Putnam and Orange counties.

Section D: Planning Basis

The IPEC Emergency Plan, in conjunction with the implementing and administrative procedures, documents the methods by which the Entergy Emergency Preparedness Program meets the planning standards set forth in 10-CFR-50.47 (b) and the requirements of 10-CFR-50 Appendix E. Other applicable regulations, publications, and guidance were used (see Appendix 1, "References") along with site-specific documents to ensure consistency in the planning effort.

This plan was developed in coordination with the New York State Office of Emergency Management and local county Offices of Emergency Management. These organizations have complementary emergency response plans.

Indian Point Units 1&2 previously owned by Consolidated Edison and Indian Point Unit 3 previously owned by the New York Power Authority, were consolidated under one owner, Entergy Corp. in 2001. Much of the planning efforts prior to the consolidation were carried on as a joint venture between the previous owners. In order to further streamline processes, planning efforts and establish standard responses, this single Plan was developed.

This Plan was developed to respond to and minimize the onsite and offsite impact of an accident at Indian Point. The interrelationship between the Site, Corporate, Federal, State and local government organizations is discussed. Protective measures within the exclusion area (onsite) are the responsibility of Entergy. Protective measures outside the exclusion area (offsite) are the responsibility of state and local government authorities. The Onsite and Offsite Emergency Organizations can respond to any incident or accident 24-hours every day. These emergency organizations consist of many subgroups. The responsibilities, authorities and interactions between the subgroups are discussed in Part 2, Section B of this Plan.

This Plan incorporates a classification system for emergencies and prescribes the recommended actions which are recommended to Offsite to be taken to protect the safety of the public, plant personnel and property both onsite and offsite. These actions are

Indian Point Energy Center Emergency Plan

contained in the Indian Point Emergency Planning Implementing Procedures. The Plan addresses the responsibilities of personnel and the available resources.

The State and local government responses to plant-related emergencies outside the exclusion area are coordinated between the New York State Office of Emergency Management and the County Offices of Emergency Management as described in their respective Emergency Plans.

The response to an emergency occurs in three phases.

1. The first phase (initial) includes immediate operator actions to maintain or bring the plant to a safe shutdown condition, initiate action to protect onsite personnel, classify the emergency and notify plant personnel and the appropriate offsite authorities. This phase is conducted by watch personnel (staffing level I, refer to Part 2 section B) with the assistance of other in-house personnel as needed.
2. The second phase (activation) includes actions to terminate the incident, monitor both onsite and offsite monitoring areas, assess the extent of any release of radioactivity, and disseminate the assessment (estimated exposure information) to offsite authorities. The second phase is performed under the direction of the Emergency Director at the EOF/AEOF. This phase includes augmenting the Onsite Emergency Organization with support from offsite.
3. The third phase (recovery) begins once the emergency is terminated and includes planned actions for re-entry by workers to restore the station to normal operation, assisting offsite authorities return the public evacuated from around the Site, and implementing post accident environmental sampling as needed. This phase is the responsibility of the Site Recovery Director.

Section E: Governmental Emergency Planning

Entergy works with Federal, State and Local government agencies to insure an integrated emergency response within the Emergency Planning Zones (Figures 1.B-1 and 1.B-2) located around the Indian Point Energy Center.

Section F: Emergency Plan Guidance and Criteria

The Indian Point Emergency Plan and related implementing procedures integrates guidance from several governmental and industry standards to provide the best protection of the health and safety of the public. See Appendix 1, References, for a list of documents used in development of this plan.

Section G: Assistance to Non-Entergy Planning Efforts

Entergy provides technical assistance and other assistance as required to State and Local Agencies who are involved in the emergency planning effort for Indian Point.

Indian Point Energy Center Emergency Plan

Section H: Response Organization

This Plan and its associated implementing procedures outline Entergy's responsibilities for the protection of onsite persons. Specific responsibilities, organizations and program implementation are outlined in other sections of this plan, its associated implementing procedures and supporting administrative directives.

Section I: Federal Response

The Federal Government has an integrated response plan in the event of a radiological emergency at any facility. Provisions are made within this plan for the integration of appropriate elements of the federal assistance activities. Arrangements have been made to accommodate a federal response organization presence in the Entergy emergency response facilities as well as support communications between utility and federal emergency facilities. NRC response as described in NUREG-1472, "Concept of Operations: NRC Incident Response", was used in the development of the E-Plan as guidance to ensure coordination between Entergy and NRC EROs.

Section J: Form and Content of Plan

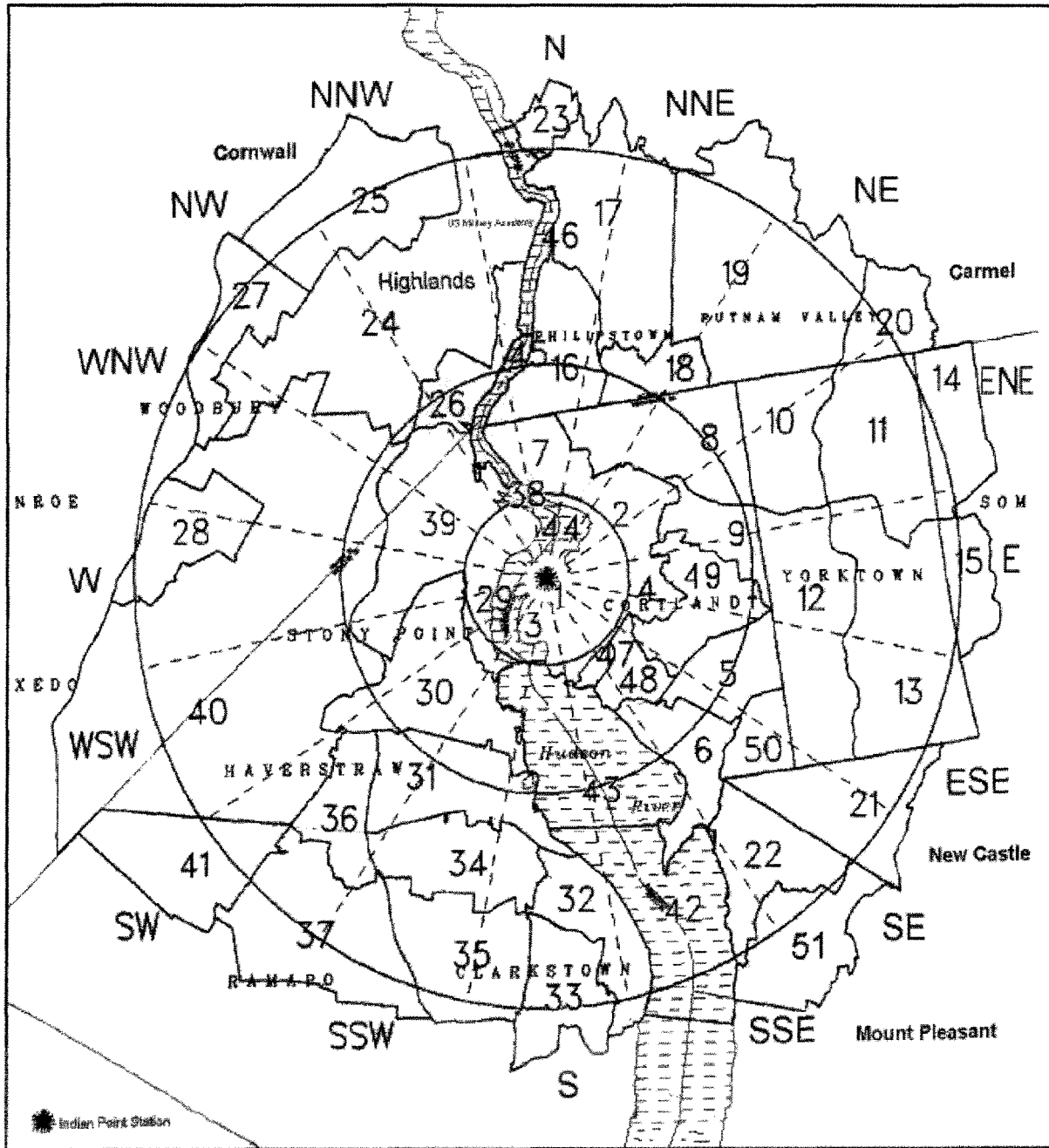
This Plan has been formatted similar to NUREG-0654, FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", Revision 1.

Because this Plan is formatted in the same manner as the guidance document, no section cross-reference is needed.

An appendix is provided to cross reference Implementing Procedures and Administrative Procedures to sections of the Emergency Plan.

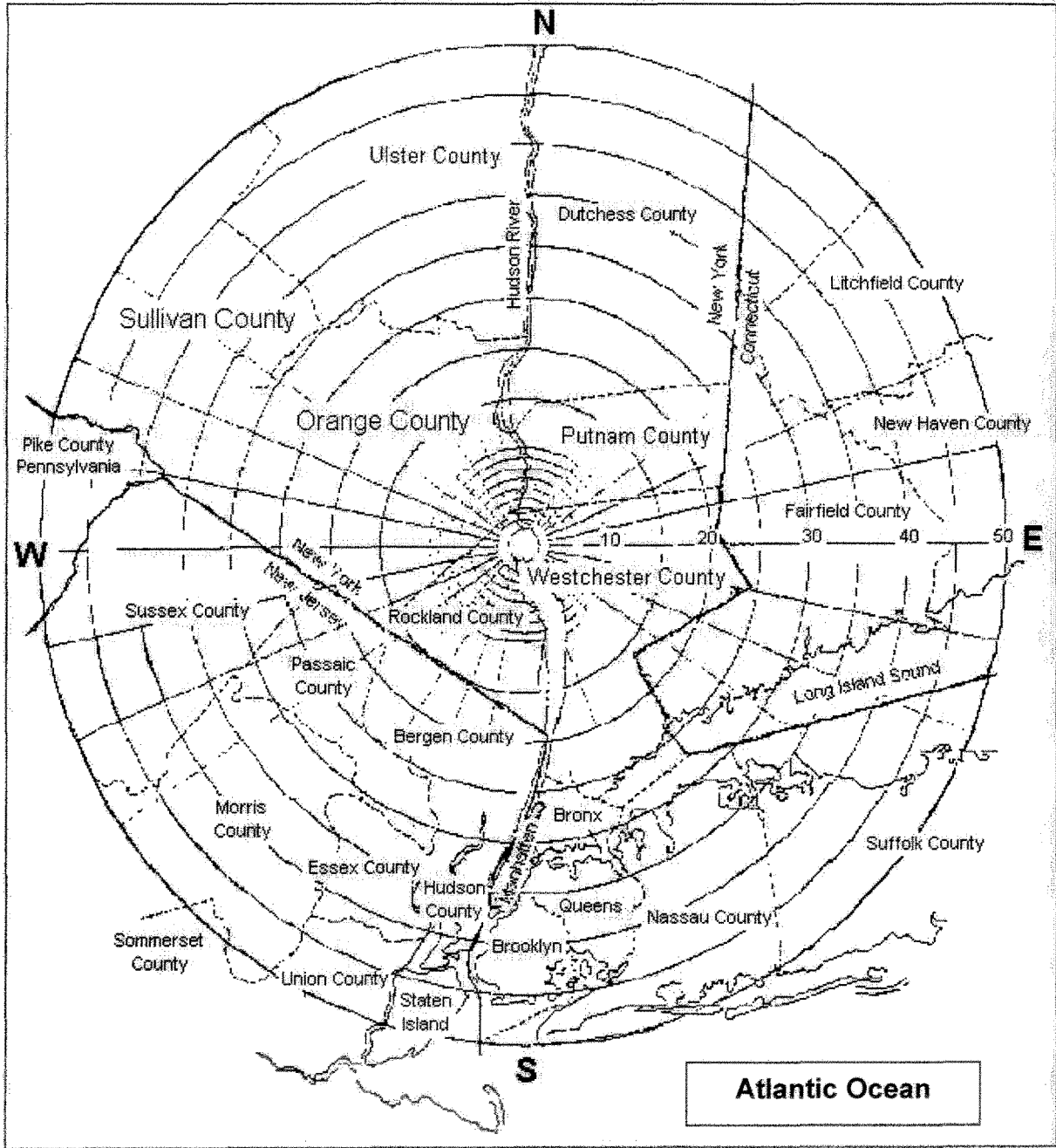
Indian Point Energy Center Emergency Plan

Figure 1.B-1
10-Mile Emergency Planning Zone



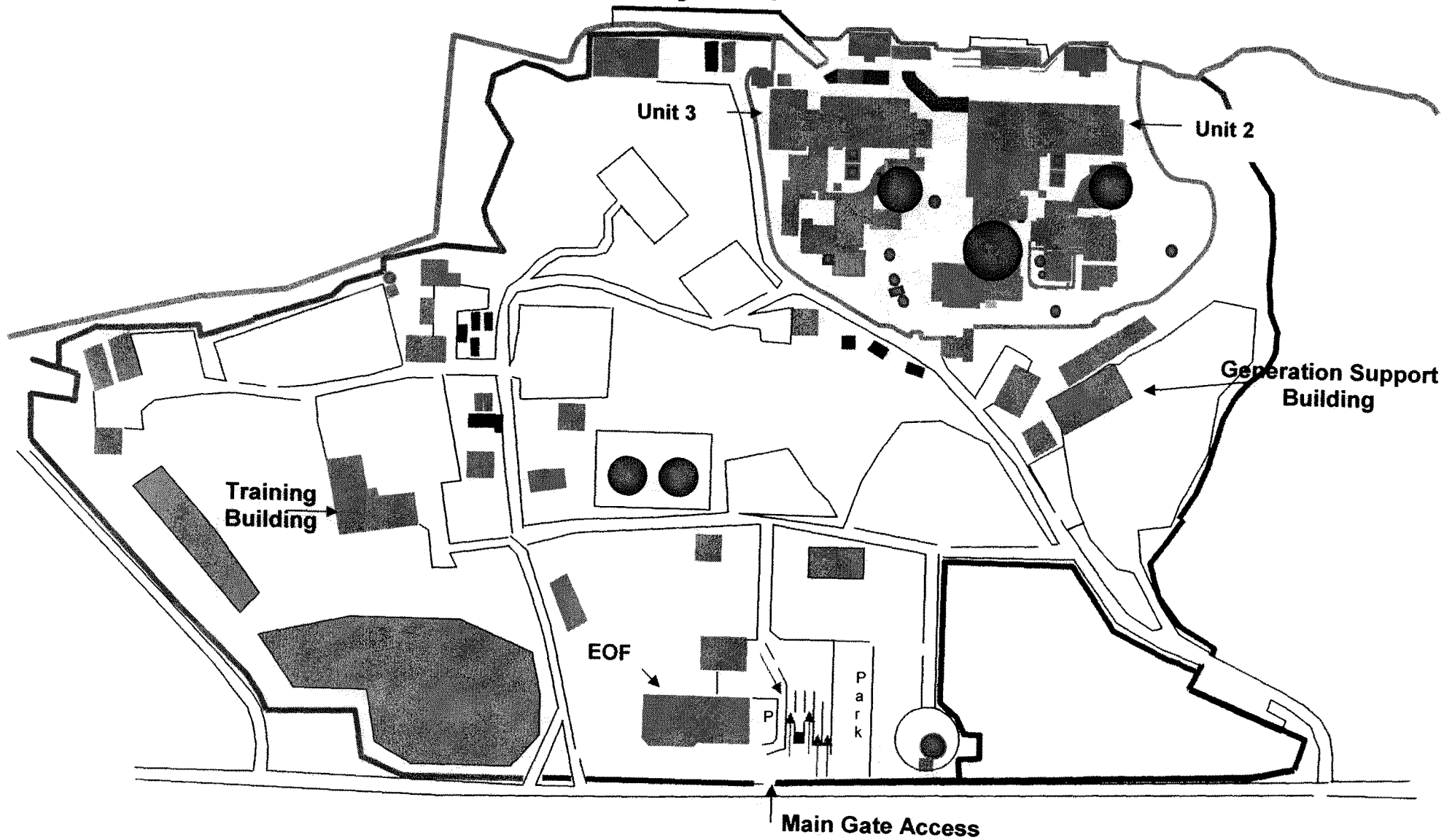
Indian Point Energy Center Emergency Plan

**Figure 1.B-2
50 Mile Emergency Planning Zone**



Indian Point Energy Center Emergency Plan
INDIAN POINT ENERGY CENTER SITE MAP

Figure 1.B-3



Part 2: PLANNING STANDARDS AND CRITERIA

Section A: Assignment of Responsibility

This section describes the primary responsibilities for emergency response by Entergy Nuclear Northeast, Federal, State, and local organizations within the Indian Point Plume Exposure Pathway and the Ingestion Pathway Emergency Planning Zones (EPZs). Various supporting organizations are also described as well as staffing for initial and continuous response.

In the event of an emergency, as defined in Part 2, Section D, various Federal, State, and County organizations will be notified. This section identifies the principal State agency and other government agencies having planning and/or action responsibilities for emergencies, in the Westchester, Orange, Putnam and Rockland County areas of New York State.

1. Organizations

The relationships and the concept of operations for the organizations and agencies supporting a response in the Indian Point Emergency Planning Zones are as follows:

- a. Identified below are Federal, State, local, and private organizations that are involved in a response to an emergency at Indian Point.

Federal Agencies

The Federal Radiological Emergency Response Plan (FRERP) outlines the statutory and regulatory responsibilities. The primary Federal response at Indian Point supporting an emergency include:

- Regulatory Commission (NRC), who act as technical/regulatory advisors to Indian Point during an emergency. They provide Federal communications capabilities, coordination of Federal assistance, and assessment of onsite radiological incidents and potential offsite consequences.
- The U.S. Department of Energy operates a Radiological Assistance Plan from its regional office at Brookhaven, Long Island. The Radiological Assistance Plan, which specializes in radiation safety and medicine, will provide assistance to the Nuclear Facility Operator, the State or the county at their request. This assistance, which includes monitoring of the environment surrounding the site, is available twenty-four (24) hours a day by calling the contact phone number. The expected time of arrival is approximately 3 hours. The Emergency Director is authorized to request this assistance in the event it is necessary. Westchester County Airport, located approximately 30 minutes by automobile from the site, can supply facilities for air transportation.

Indian Point Energy Center Emergency Plan

- Federal Emergency Management Agency (FEMA), who coordinates the overall offsite Federal response and provides Federal resources and assistance to state and local governments. FEMA is a division of the Department of Homeland Security (DHS).
- Environmental Protection Agency (EPA), who assists with field radiological monitoring/sampling and non-plant, related recovery and re-entry guidance.
- During a radiation incident that could have offsite radiological consequences, the U.S. Coast Guard will assist by maintaining traffic control on the Hudson River. Coast Guard assistance is requested by and coordinated through New York State, the appropriate county, or FEMA.
- National Weather Service, who provides meteorological information to Indian Point in the event that the onsite meteorological tower or monitoring instrumentation becomes inoperative.

New York State Agencies

- The agency responsible for emergency planning is the State Office of Emergency Management. The Chairman of the Disaster Preparedness Commission will assume the direction and coordination of the State response activities. The specific tasks and responsibilities assigned to various departments and agencies of the State are delineated in New York State's Radiological Emergency Preparedness Plan. Notification to the State of emergency conditions would be as indicated in Part 2, Section E.
- During an emergency, New York State can utilize the facilities at the Emergency Management Office, Southern District which has an EOC equipped with statewide communications capability.

County Offices of Disaster and Emergency Services/Emergency Management

The four (4) counties that are involved in emergency response activities at the Indian Point Site include:

- Westchester County, in which Indian Point Energy Center is located;
- Rockland County, on the west side of the Hudson River across from Indian Point;
- Orange County, on the west side of the Hudson River, north of the plant. The closest boundaries of Orange County are approximately four (4) miles from Indian Point.
- Putnam County, on the east side of the Hudson River, north of the plant. The closest boundaries of Putnam County are approximately four (4) miles from Indian Point.

Indian Point Energy Center Emergency Plan

Each county has an Office of Disaster and Emergency Services or Emergency Management. The Director of each of these offices, or their designee, will act as the County Emergency Operations Director in the County. Bergen County is a host county that assists Rockland County in the event of an evacuation of the general public. The city of Peekskill takes direction from Westchester County and has its own Warning Point and Emergency Operation Center.

Emergency Operations Centers are where county managers direct and coordinate the County's response, under the authority of the Chief Executive of the County, for natural and man-made disasters. Notifications to the Counties of an Unusual Event, Alert, Site Area or General Emergency at Indian Point would be as described in Part 2, Section E.

- b. During an emergency condition at an Alert, Site Area Emergency, or General Emergency level, the Indian Point Emergency Response Organization replaces the normal plant organization. Indian Point concept of operations is to utilize the entire station staff and if needed the entire company (Entergy) resources to protect the health and safety of the public and station personnel during an emergency at the site. Part 2, Section B outlines the organizations established.
- c. Figure A-1 illustrates the interrelationships of the organizations involved with emergency planning for Indian Point.
- d. The Shift Manager (or the Control Room Supervisor in his/her absence) is in charge of the Indian Point emergency response until relieved by another qualified Emergency Director who is then in charge of the entire Entergy emergency response organization.
- e. Continuous Coverage: The Indian Point Emergency Response Organization has sufficient numbers of qualified, trained personnel to provide the capability of continuous (24-hour) operations. Continuously manned communication points have been identified for all agencies involved in the planning effort.

2. State and Local Functions and Responsibilities

The State, the local counties and reception center communities have Emergency Response Plans that specify the responsibilities and functions for the major agencies, departments, and key individuals of their emergency response organizations. This information is located in their respective Plans.

Along with the State of New York, the States of Connecticut, New Jersey and Pennsylvania are within the boundaries of the Emergency Planning Ingestion Pathway 50-mile radius. The specific response of these states is found in their respective Emergency Response Plans.

Indian Point Energy Center Emergency Plan

3. Agreements in Planning Effort

Agreements establishing the concept of operations developed between Entergy and other support organizations having an emergency response role within the Indian Point Emergency Planning Zones (including hospitals and medical transportation) are provided in Appendix 2, "Letters of Agreement." These agreements identify the emergency measures to be provided and the mutually accepted criteria for implementation. Federal, State, and local agencies that have response functions covered by laws, regulations, or executive orders have developed plans to meet these functions. These approved Plans serve as written agreements for agencies response to an incident at Indian Point. A contract/purchase order with a private contractor/business is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

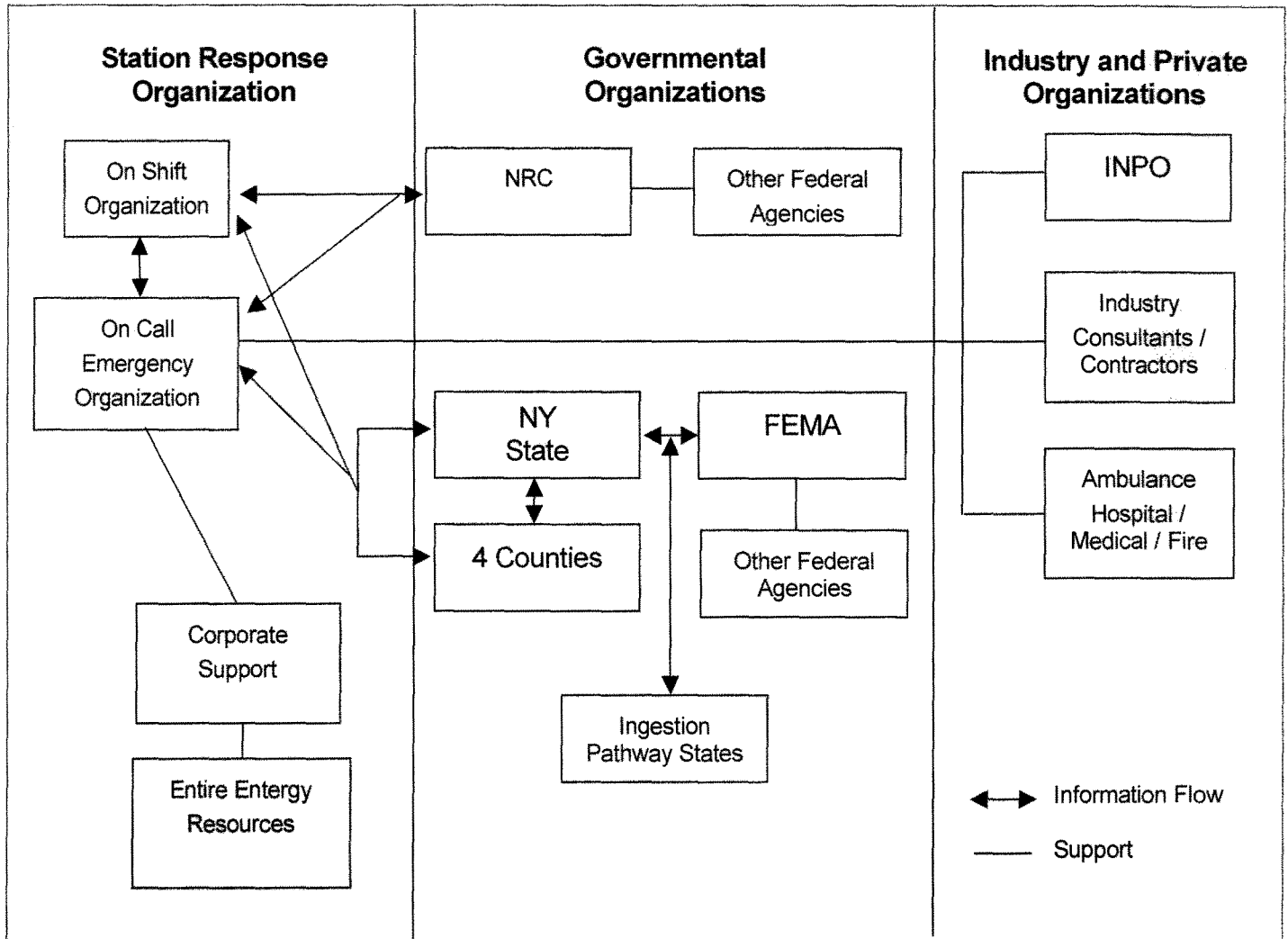
4. Continuous Coverage

The Indian Point Emergency Response Organization has sufficient numbers of qualified, trained personnel to provide the capability of continuous (24-hour) operations. The Emergency Planning Department Manager administers programs to ensure availability of resources in the event of an emergency. The Emergency Director has the authority and is responsible for assuring continuity of resources (technical, administrative, and material) in the event of the activation of the Indian Point Emergency Response Organization.

Indian Point Energy Center Emergency Plan

Figure A-1

Emergency Response Organizations Interrelationships



Notes:

1. Until the On-Call Emergency Response Organization is in place the Shift Manager (or Control Room Supervisor if Shift Manager is unavailable) has the responsibility and duty to notify Federal, State and Local governmental authorities and request any assistance needed to protect the public and station personnel.
2. Once the On Call ERO is in place, the Emergency Director, located in the EOF, has overall responsibility and authority to direct the Entergy emergency response and request outside assistance as needed.

Part 2: PLANNING STANDARDS AND CRITERIA

Section B: Station Emergency Response Organization

This section describes the Indian Point Energy Center Emergency Response Organizations, their key positions and associated responsibilities. It outlines the staffing requirements, which provide initial emergency response actions and provisions for timely augmentation of on-shift personnel when required. It also describes interfaces among Indian Point response personnel and specifies offsite support available to respond to the site.

Table B-1, outlines the minimum staffing for emergency response required to be onshift and other key responders capable of responding within 60 minutes of a call to support the onshift organization.

1. Indian Point Emergency Response Organization Assignments:

Figure B-1.1 illustrates the staffing for the normal on-shift complement. Members of the on-shift organization are trained on their responsibilities and duties in the event of an emergency, and are capable of performing initial emergency response actions. Figures B-1.2a-d illustrate the full Emergency Response Organization (ERO). The full ERO will be activated at an Alert, Site Area Emergency or General Emergency.

a. Normal Plant Organization

The normal Indian Point staff and operational organization is detailed in Site Administrative Procedures. Figure B-1.3 shows an overview of the normal station organization at Indian Point.

Each Unit's normal watch organization (Figure B-1.1) functions twenty-four (24) hours per day, seven (7) days per week and consists of the following qualified individuals:

One (1) Shift Manager, who holds a Senior Reactor Operator's license and is in charge of operating personnel during his/her shift and is responsible for assuring that all operations are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;

One (1) Control Room Supervisor, who holds a Senior Reactor Operator's license and is responsible for safe operation of the unit within the requirements of the Technical Specifications.

Two (2) Control Room Operators, who hold a Reactor Operator's license, are responsible for manipulating controls in the Control Room including taking the immediate operator action required as stipulated by written procedures necessary to maintain or bring the plant to a safe condition during abnormal and/or emergency conditions;

One (1) Field Support Supervisor or Shift Technical Advisor performs in an advisory capacity to the Shift Manager. This position is not required during cold shutdown;

Indian Point Energy Center Emergency Plan

Three (3) Nuclear Plant Operators who perform plant operations, minor maintenance and monitoring under the direction of the Control Room Supervisor.

One (1) Radiation Protection Technician and one (1) Chemistry Technician perform radiation monitoring, surveillance, decontamination, and water chemistry as necessary. The Radiation Protection Technician can perform emergency duties at Unit 2 and/or Unit 3 during emergencies.

The watch organization is augmented during normal working hours Monday through Friday by the Indian Point Management and Operations Staff (shown in Figure B.1-3) which is organized to lend expertise to the watch force.

The Security organization maintains site security and guards access to the plant and controlled areas at all times working under the direction of the Shift Manager and the Security Shift Supervisor.

The Shift Manager (Control Room Supervisor in the absence of the Shift Manager) has the responsibility and authority to declare an emergency, initiate the appropriate immediate action in accordance with written procedures, mitigate the consequences of the emergency, activate the full Emergency Response Organization and notify offsite support and government agencies.

b. Oncall Emergency Response Organization

The Emergency Response Organization (ERO) is established to assure that a sufficient number of appropriately qualified personnel are available each day, 24 hours a day to deal with any emergency situation.

During an event or emergency at Indian Point, the initial phase of the response is conducted by the normal shift complement onsite. The Watch Force, depicted in Figure B-1.1, satisfies the NUREG-0654 requirements for on-shift personnel.

Table B-1 presents, in tabular form, the minimum staffing requirements of NUREG-0654 on-shift personnel and the additional personnel capable of augmenting the onshift organization within 60 minutes.

Those personnel identified to augment the Watch Force within 60 minutes of the declaration of an Alert are part of the on-call ERO. These personnel are immediately available during normal working hours or are contacted by a pager / phone callout system during non-working hours. The pager system is backed up with an automated telephone notification system.

For security events that would prevent emergency responders from reaching the site, EOF Staff would be sent to activate the Alternate EOF. TSC, OSC and CR Staffs will be notified to report to a designated offsite location. TSC/OSC/CR staffs will provide any possible assistance from this offsite staging area until such time as site access is restored.

Indian Point Energy Center Emergency Plan

The activation phase consists of Emergency Response Organization (ERO) activation. This includes the normal watch and personnel needed to staff the Emergency Operations Facility (EOF), the Technical Support Center (TSC), the Operations Support Center (OSC) and the Joint Information Center (JIC). This occurs at an Alert classification or higher. A partial or complete ERO activation may be implemented at a NUE classification.

The ERO is capable of performing those activities necessary to:

- (1) Maintain control of the plant and mitigate the consequences of the emergency,
- (2) Conduct accident assessment and analysis to determine the full scope and impact of the situation,
- (3) Establish and maintain communications with authorities responsible for implementing offsite emergency measures,
- (4) Conduct a coordinated emergency public information program, and
- (5) Conduct long-term emergency response activities.

Activation of the ERO gives the Emergency Director full access to the resources of Entergy. In addition to the above listed facilities, corporate resources are made available as needed to support the onsite ERO.

Figures B-1.2a-d illustrates the Indian Point ERO. Personnel who will fill the positions identified are listed in an Emergency Telephone Directory.

2. Authority Over Indian Point Emergency Response Organization:

The Shift Manager (or the Control Room Supervisor in the event that the Shift Manager is unavailable), acting as the Emergency Director, has the authority to declare an emergency, immediately takes charge of the emergency response effort and is responsible for offsite dose assessment until relieved by another qualified Emergency Director. He/she activates the Emergency Response Organization (ERO) as necessary and continues to direct the emergency response until relieved by another qualified Emergency Director.

The relieving Emergency Director takes charge of the overall emergency response, thus freeing the Shift Manager to direct his/her attention towards the mitigation of the accident using the emergency operating procedures. The Plant Operations Manager holds this position until the on-call Emergency Director arrives. Overall control of the Onsite Emergency Response Organization is maintained by the Emergency Plant Manager in the TSC. After command and control is transferred to the Emergency Director in the EOF/AEOF, it remains there until the event is terminated.

Although the ERO described in this section of the Emergency Plan fulfills the regulatory requirements for emergency response, it may be altered by the Emergency Director. This alteration would be based on the needs within the ERO during an actual event.

Indian Point Energy Center Emergency Plan

3. Succession to Emergency Director:

The duties and responsibilities of the Emergency Director (ED) are initially assumed by the Shift Manager (CR Supervisor in his/her absence). When the EOF becomes operational, the on-call ED relieves the Shift Manager of ED responsibilities, and overall command and control of the emergency is transferred to the EOF. The Plant Operations Manager (POM) relieves the on-shift ED until such time as the EOF is operational. The POM must remain in the Control Room.

The position of on-call Emergency Director is normally staffed by high level station management personnel.

4. Emergency Director Responsibilities:

The Emergency Director is responsible for directing and coordinating the integrated emergency response effort of all Company activities during the emergency including those which originate from Corporate Headquarters. Personnel trained in accordance with this plan and qualified as Emergency Directors are designated in an Emergency Telephone Directory. The Emergency Director is stationed in the Emergency Operations Facility during an Alert, Site Area Emergency or General Emergency and is the interface between the onsite and offsite authorities. He/she has the responsibility and authority to provide Protective Action Recommendations (PARs) to the authorities responsible for implementing offsite emergency measures.

Specific responsibilities of the Emergency Director include:

- Declares and upgrades the emergency as warranted and initiates recovery phase when appropriate (non-delegable);
- Reviews and approves notifications to the State and Local authorities (non-delegable);
- Recommend protective actions for the general public to offsite authorities (non-delegable);
- Authorization of Emergency Exposures and issuance of KI to Entergy personnel outside the Protected Area;
- Establish communications with the emergency response facilities and obtain information on the diagnosis and prognosis of the accident condition;
- Review all radiological, meteorological and operational data and update the offsite authorities and the Joint Information Center (JIC);
- Receive designated responding representatives from offsite emergency agencies and assist in their information and communication needs;
- Arrange for and dispatch any special assistance or service requested (e.g., radiological measurement or protection equipment, onsite medical treatment);
- Coordinate offsite radiological evaluations with the State and Counties;
- Relate all of these actions to the remainder of the emergency response organizations;

Indian Point Energy Center Emergency Plan

- Release of non-essential personnel from the site; and
- Approves information to the public prior to the JIC activation.

The Emergency Director is assisted in these activities by the entire ERO. Although the Emergency Director may delegate some of these responsibilities, he/she may not delegate the responsibility to classify events or for the decision to notify authorities and recommend offsite protective actions.

5. Key Position Responsibilities and Emergency Functions

In addition to the key positions and functions listed below, Table B-5, Emergency Response Organization Functions, gives an overview of the ERO position functions.

a. Emergency Plant Manager (EPM)

The EPM reports directly to the Emergency Director. He/she directs and coordinates the operational aspects of the In-Plant Emergency Organization. He/she assures proper coordination and direction of the efforts of each element of the In-Plant Emergency Organization in returning the plant to and maintaining it in a safe and stable condition. The EPM is located in the Technical Support Center. Specific responsibilities include:

- Directing actions to mitigate the accident;
- Directing the in-plant radiological monitoring;
- Authorization of emergency exposure limits and issuance of KI to Entergy personnel inside the Protected Area;
- Authorizing the mobilization of search and rescue teams;
- Directing and maintaining accountability within the protected area fence; and
- Assuring that all emergency personnel within the protected area fence take adequate protective measures.

b. Emergency Operations Facility (EOF) Manager

The EOF Manager reports directly to the Emergency Director. Specific Responsibilities of the EOF Manager include:

- Coordination of Entergy's emergency response efforts outside the Protected Area Fence,
- Assist the Emergency Director in the interpretation of offsite radiological assessments for emergency classifications and Protective Action Recommendations in terms of both real-time measurements and projected radiological exposures;
- Ensure proper communications between the Indian Point ERO and offsite response organizations, and
- Assist offsite authorities responding to Entergy facilities.

Indian Point Energy Center Emergency Plan

c. Company Spokesperson

The Company Spokesperson reports directly to the Emergency Director. Specific Responsibilities of the Company Spokesperson include:

- With assistance from the JIC Manager, coordination of Entergy's public information response efforts,
- Act as the official Entergy representative to the media, and
- Interface with other response agencies' Public Information Officers.

d. Summary of ERO Functions

In addition to the direction and coordination of the emergency response effort just discussed, other major functional areas of responsibility are identified as necessary to deal with emergency situations. Assignments made for these functional areas are discussed below.

1) Technical Support

Technical support is performed in the Technical Support Center under the direction of the Technical Support Center Manager. It is the central facility for the accumulation and re-transmittal of plant parameters;

Specific functions of the Technical Support Center include;

- Analyzing and developing plans and procedures in direct support of Plant Operations personnel;
- Analyzing and resolving core physics, thermodynamic, hydraulic, mechanical, electrical and instrument problems;
- Designing and coordinating short-term modification to plant systems;
- Keeping the Emergency Director apprised of plant conditions; and
- Interfacing with NRC personnel in the Technical Support Center.

Personnel from the plant's engineering departments are assigned to these functions. In addition personnel with operational experience are assigned to perform operational accident assessment activities in support of the watch personnel handling the in-plant accident conditions.

2) Plant Operations and Assessment of Operational Aspects

While overall direction of in-plant operations is the responsibility of the Plant Operations Manager, responsibility for plant systems operations remains with the Control Room Operators and the Nuclear Plant Operators under the direction of the Shift Manager and Control Room Supervisor.

Indian Point Energy Center Emergency Plan

3) Notification/Communication

The Control Room communication links with offsite authorities are available each day 24-hours a day. The initial notification of offsite authorities and emergency response organization personnel is initiated by the Shift Manager and/or Control Room communicator. Communications with offsite authorities are maintained from the Control Room until the Emergency Director takes over the responsibility at the Emergency Operations Facility. A "Communicator" is designated at the Emergency Operations Facility to establish/maintain communication links.

4) Radiological Accident Assessment (In-Plant)

In-plant radiological monitoring and chemical/radiochemical analysis is provided by the Watch Radiation Protection Technician and Chemistry Technician, respectively, under the direction of the Shift Manager and by other responding personnel under the direction of the EPM.

5) Radiological Accident Assessment (Out-of-Plant and Offsite)

The expertise for evaluating the radiological consequence of the accident is provided by the Dose Assessors and the Offsite Team Coordinator who function directly under authority of the Radiological Assessment Coordinator. These individuals ensure that sufficient monitoring activities are instituted, evaluate and assess the results, and apprise the Radiological Assessment Coordinator of all activities, results and recommendations. Offsite radiological monitoring is provided by responding Radiation Protection Personnel and individuals trained as Offsite Monitoring Team members. These same personnel also provide radiological monitoring outside the Protected Area.

6) Repair and Corrective Actions

The Shift Manager and Nuclear Plant Operators perform emergency repairs if necessary, within the first 60 minutes.

Maintenance mechanics, I&C Technicians and operations personnel (NPOs) who respond to the Operations Support Center perform repair and corrective actions directed by the Operations Support Center Manager.

7) Protective Actions (In-Plant)

The Watch Radiation Protection Technician is normally responsible for radiation protection in-plant. They are immediately available under the direction of the Shift Manager during the first 60 minutes. When the TSC and OSC become operational, Radiation Protection personnel are directed by personnel staffing those facilities.

Indian Point Energy Center Emergency Plan

8) Firefighting

Firefighting is the responsibility of the Fire Brigade as defined in the Indian Point Station Fire Protection Program Plan. The Fire Brigade consists of members who are trained in firefighting techniques and are on duty 24 hours a day. A local fire department may be called if necessary.

9) Rescue Operations and First Aid

Search and rescue jurisdiction during an emergency is divided between the in-plant area (inside the protected area fence), which is handled by the Shift Manager/POM or EPM and the rest of the onsite area which is handled by the Emergency Director. The Shift Manager using available personnel onsite until the other emergency response facilities are activated, if required, would initially direct search and rescue operations.

There is at least one individual on duty 24 hours a day who is trained in first-aid techniques. Additional medical support can be called as necessary.

10) Security Site Access Control and Personnel Accountability

Overall Security response is coordinated in the Incident Command Post (ICP). IPEC Security Management may be assisted by the NY State Police.

Plant security and site access control are the responsibility of the Security Shift Supervisor and the Security Force, with backup assistance available from the Local Law Enforcement Agency (LLEA) as the situation demands.

Personnel accountability during an Alert, Site Area Emergency or a General Emergency is the responsibility of the Lead Accountability Officer. Emergency Plan Implementing Procedures outline the steps that are used to account for all personnel including employees having emergency assignments, visitors and contractors who may be within the Protected Area.

11) Information Dissemination

To assure that only factual and consistent information is released, statements concerning the emergency are the responsibility of Indian Point communications personnel and/or individuals assigned to the Joint Information Center. A communications representative is available on call 24 hours a day and is responsible for interfacing with the news media for release of any public statements prior to the Joint Information Center being activated.

Indian Point Energy Center Emergency Plan

The Joint Information Center Manager is responsible for providing accurate and timely information to the public through the news media and coordinating with Federal, State and local public information officials to assure timely exchange and release of information. Both the Communications Representative and the Joint Information Center Manager have access to all necessary information, either directly available to them or available through the onsite emergency organization. An Information Liaison at the Emergency Operation Facility reports to the plant with the initial augmentation of the watch force to facilitate information flow between the plant personnel and the Indian Point Communications Representative and/or the Joint Information Center Manager. The Emergency Director prior to the activation of the Joint Information Center approves information that is used to notify the public. Once the Joint Information Center is operational, the Company Spokesperson prepares the press release, and once approved by the ED, disseminates the information to the public.

6. Indian Point Emergency Response Organization Block Diagram:

Figures B-1.1, B-1.2a thru B-1.2d illustrate the positions of the Indian Point Emergency Response Organization and supporting positions. Positions are assigned to interface with Federal, State, and local authorities. Sections B.4 & B.5 discuss specific responsibilities and the interrelationships for key positions. Table B-5 gives a brief description of the functions performed by most ERO positions. Implementing procedures provide details on ERO activities and may identify additional assignments. Also, ERO Managers are responsible for ensuring adequate personnel are available to carry out emergency functions.

7. Entergy Corporate Emergency Response:

Company personnel augment, as necessary the onsite staff in the performance of certain functions required to cope with an emergency. The Admin & Logistics Coordinator and/or the Corporate Support Manager coordinates corporate support into the Emergency Response Organization once the on call ERO is activated. With the full activation of Emergency Response Organization, Entergy is capable of continuous (24 hour) operations for a protracted period. The Emergency Director will ensure the continuity of resources (technical, administrative and logistics) to support the emergency response.

8. Private Industry Support:

a. Laboratory Services

The availability of laboratory/analytical services used by Entergy Nuclear has been ensured.

Indian Point Energy Center Emergency Plan

b. Additional Technical Assistance

If the need for additional technical assistance is identified, this may be obtained by the Technical Support Center Manager and the Emergency Director. Assistance of this type could include that from the NSSS Supplier (Westinghouse), architect engineer and consultants. A copy of the letter of agreement with Westinghouse is contained in Appendix 2. Other assistance is also available using existing contracts, i.e.: Radiation Protection support.

Institute of Nuclear Power Operations (INPO): Experience has shown that a utility may need resources beyond in-house capabilities for the recovery from a nuclear plant emergency. One of the roles of the Institute of Nuclear Power Operations (INPO) is to assist affected utilities by quickly applying the resources of the nuclear industry to meet the needs of an emergency. INPO has an emergency response plan that enables it to provide assistance to the affected utility in locating sources of emergency personnel, equipment and operational analysis.

American Nuclear Insurers (ANI): In the event of an extraordinary nuclear occurrence (as defined in the Price-Anderson Law) ANI have plans prepared to provide prompt emergency funding to affected members of the public. ANI emergency assistance arrangements contemplate the mobilization and dispatch of emergency claims teams to directly dispense emergency assistance funds to affected members of the public.

9. Offsite Emergency Assistance:

The availability of local support services to assist the emergency forces has been ascertained and agreement letters from each organization in this section have been solicited. These letters are contained in Appendix 2.

a. Ambulance Service

Twenty-four (24) hour ambulance service is provided by the Verplanck Fire Department Ambulance with mutual aid backup from other ambulance services. Onsite procedures contain instructions that cover the call for assistance and the handling of the ambulance service personnel. Radio communication exists between the ambulance and local hospitals.

b. Medical

Onsite procedures contain instructions, which cover the request for medical assistance and the handling of patients. In the event that a patient should receive a massive radiation exposure, an expert medical consultant on the management of radiation injuries would be available.

A written agreement is contained in Appendix 2.

Indian Point Energy Center Emergency Plan

c. Hospital

The Hudson Valley Hospital Center at Peekskill / Cortlandt has agreed to accept patients from the Indian Point Site who have been injured, contaminated or irradiated. The hospital provides facilities such as an emergency room, a laboratory, a radiology department and a nuclear medicine department.

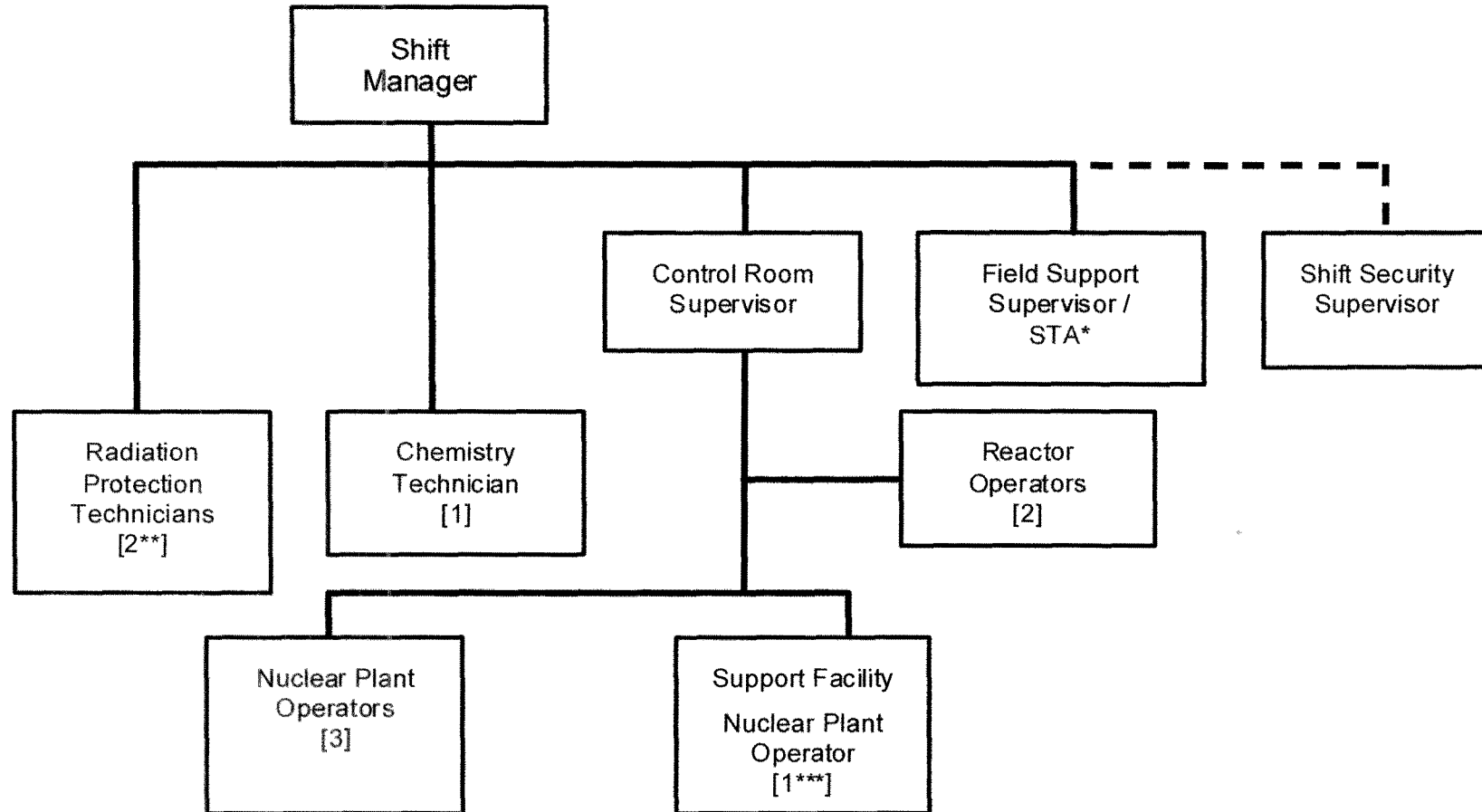
The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital. Written agreements are contained in Appendix 2.

d. Police

When notified that assistance is required, Security will notify the Local Law Enforcement Agency (LLEA). Supporting police departments, in accordance with the Westchester County Critical Incident Response Team (WCCIRT) as the situation demands, will provide timely reinforcement. The handling of security matters for the Indian Point site is covered in the Security Plan and the Safeguards Contingency Plan.

Indian Point Energy Center Emergency Plan

Figure B-1.1 Indian Point Station Watch Organization



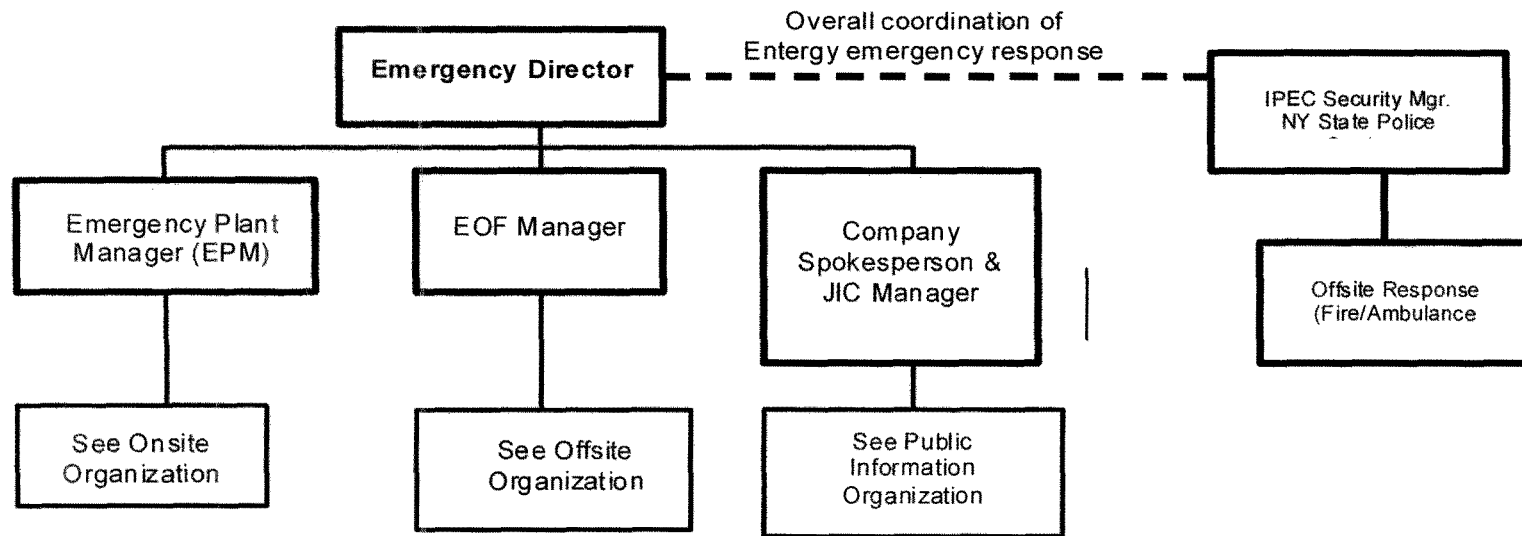
* Consistent with NUREG-0737 and Technical Specifications, the Field Support Supervisor / Shift Technical Advisor is not required on shift during cold shutdown conditions.

** Credit is given for RP Technician from other unit. This RP Technician would assist at affected unit if needed.

***Unit 2 has additional NPO who maintains watch on Unit 1 systems

Indian Point Energy Center Emergency Plan

Figure B-1.2a Emergency Response Organization – Major Areas



- Overall coordination of onsite response
- Safety of onsite personnel
- Advise ED on plant status, radiological conditions and plant related EALs
- Security Interface

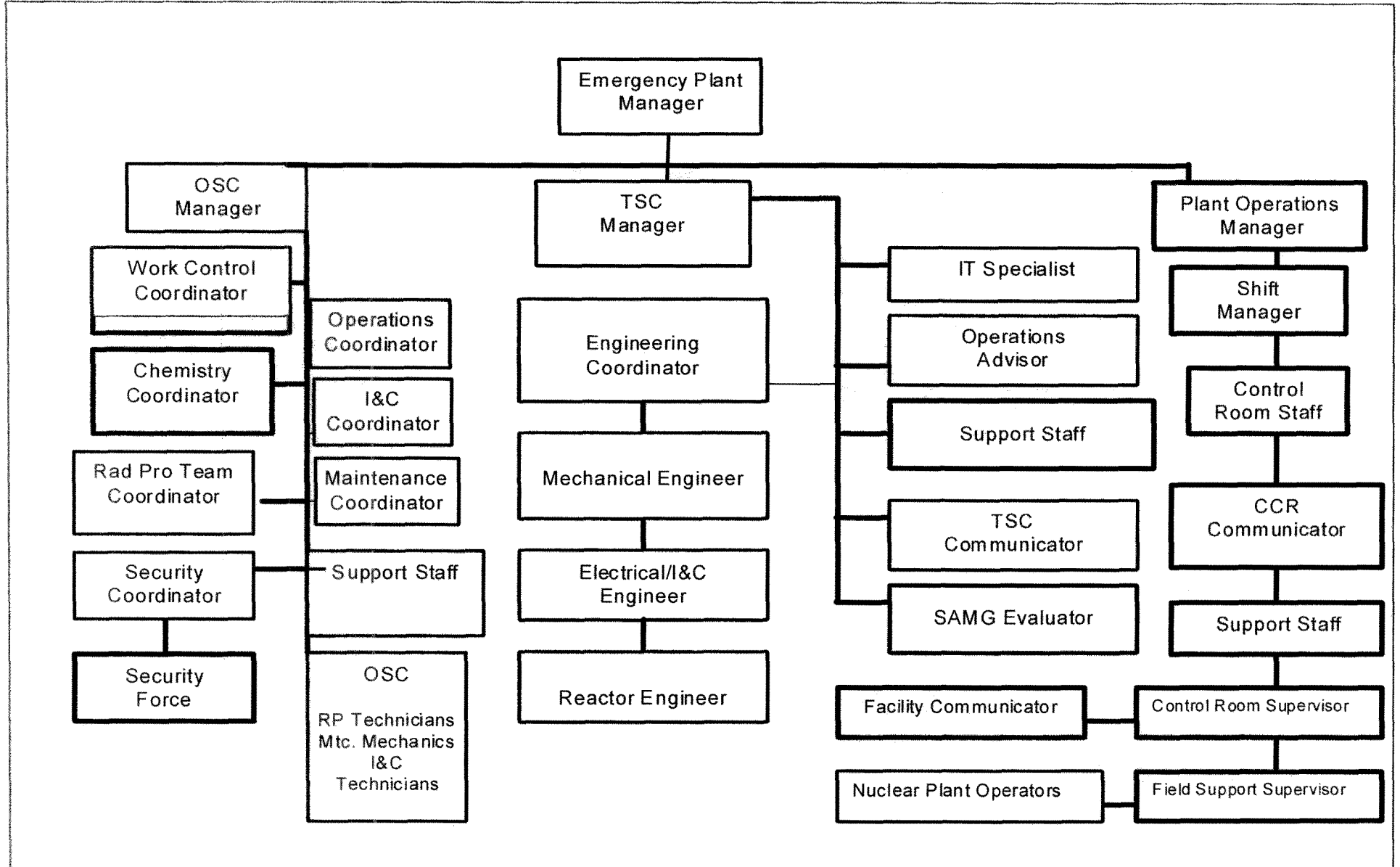
- Coordination of Entergy offsite response
- Safety of offsite Entergy personnel
- Advise ED on offsite radiological conditions and related EALs
- Assist ED in interfacing with offsite authorities

- Overall coordination of Entergy Public Information response
- Act as representative to the media
- Keep ED informed of any Public Information concerns

- Overall coordination of Security response
- Coordinate Offsite responders such as Fire & Ambulance

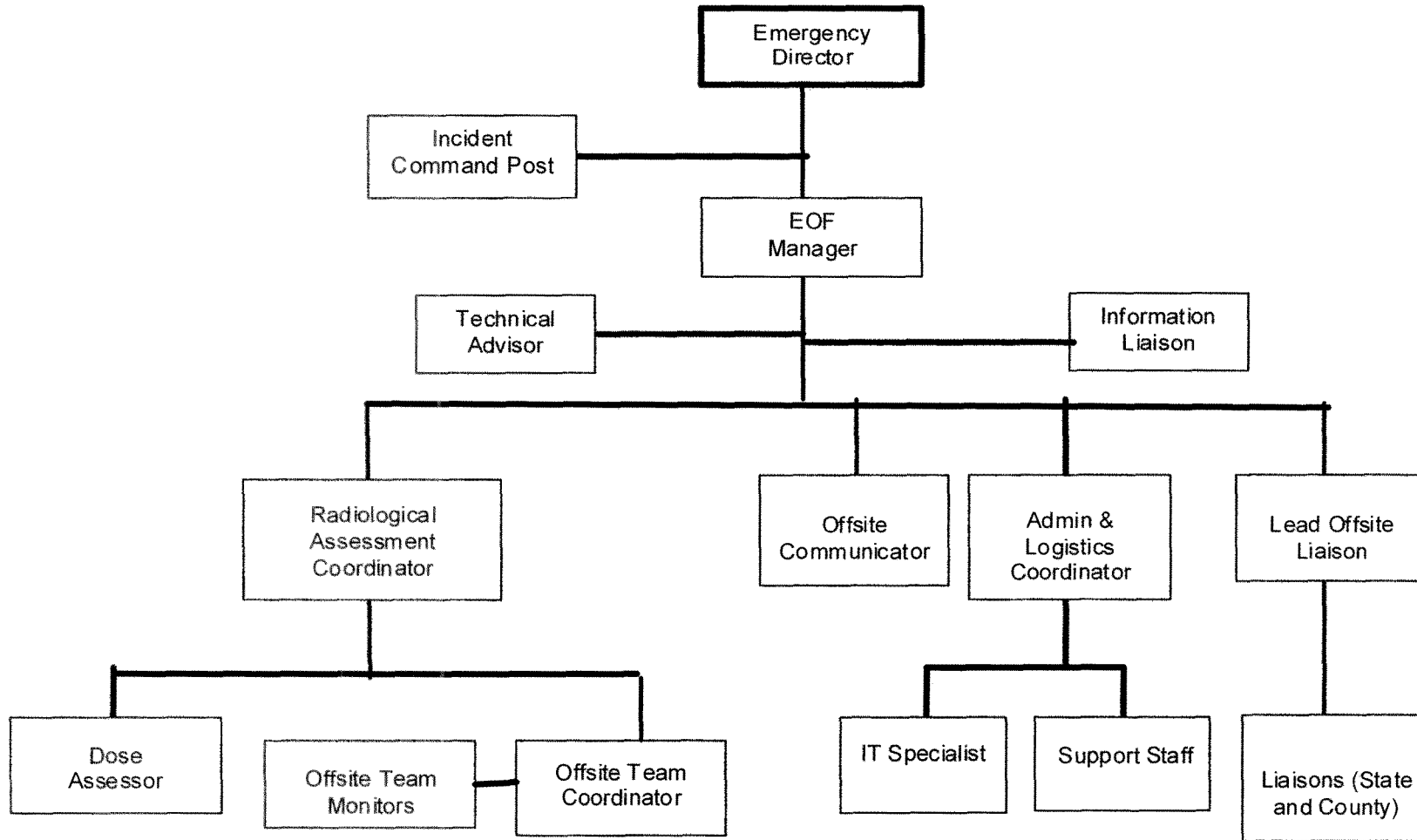
Indian Point Energy Center Emergency Plan

Figure B-1.2b Emergency Response Organization – Onsite



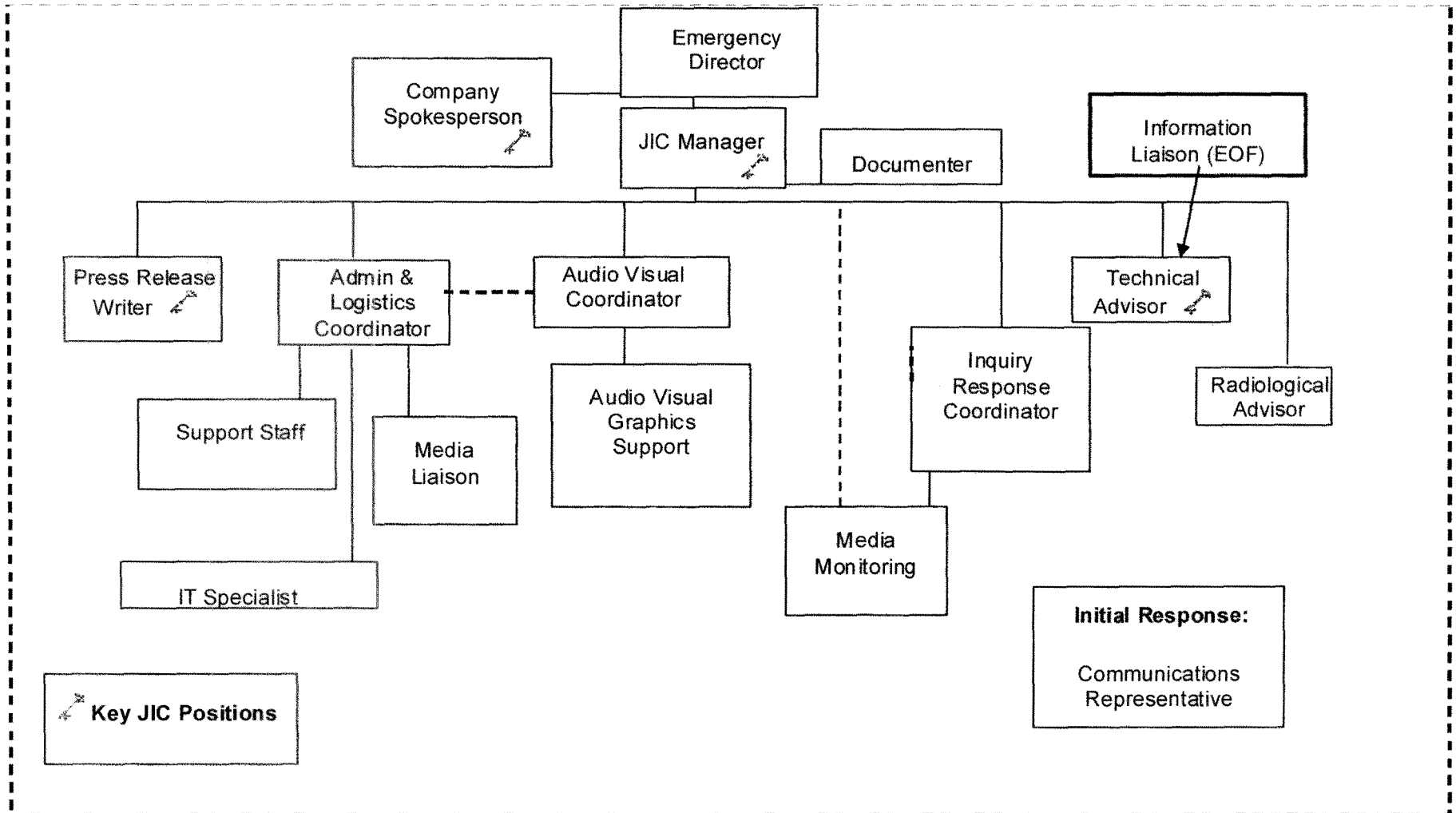
Indian Point Energy Center Emergency Plan

Figure B-1.2c Emergency Response Organization – Offsite



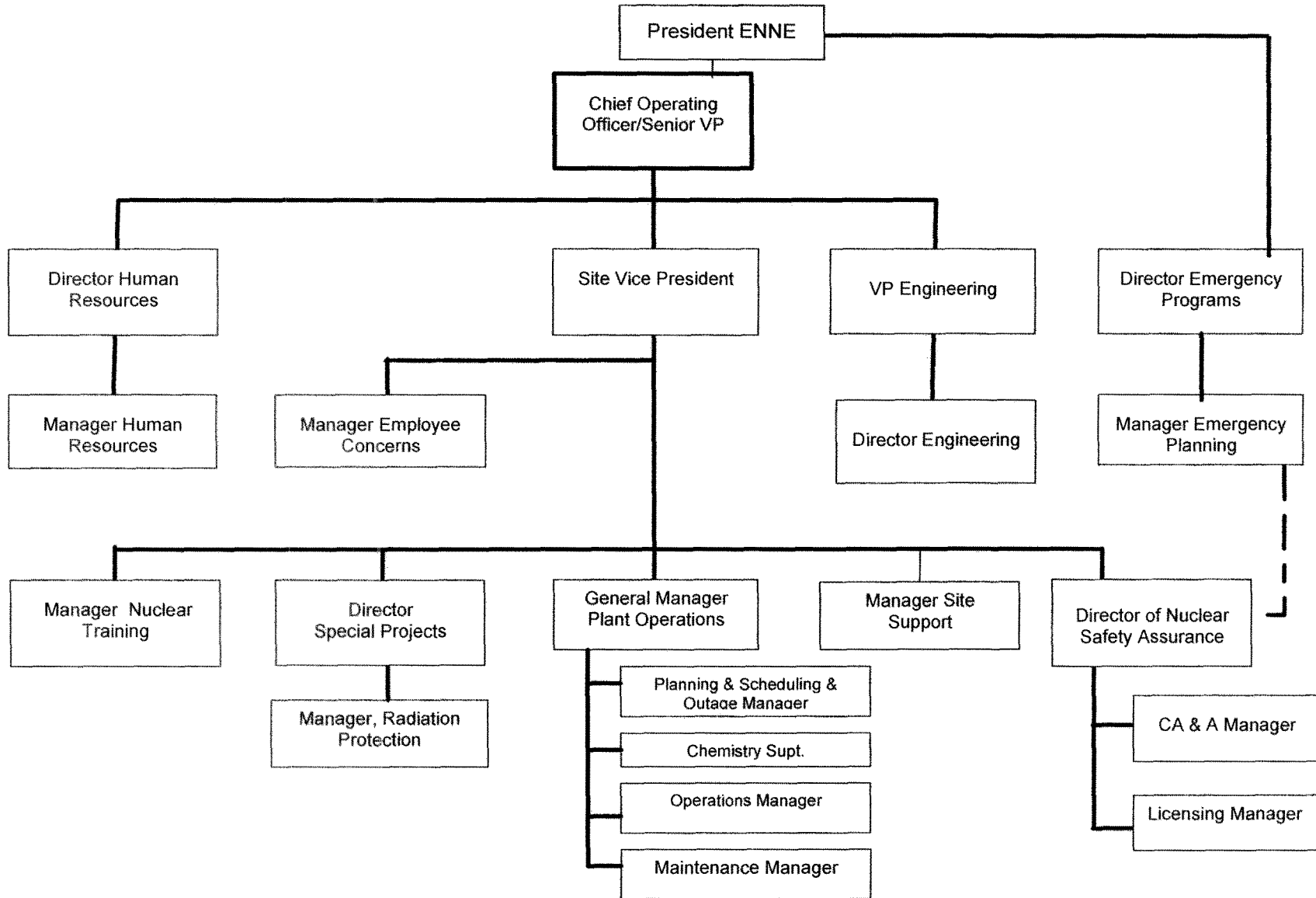
Indian Point Energy Center Emergency Plan

Figure B-1.2d Emergency Response Organization – Public Information



Indian Point Energy Center Emergency Plan

Normal Figure B-1.3 Station Organization



Indian Point Energy Center Emergency Plan
TABLE B – 1
Comparison of NUREG – 0654 to Indian Point Energy Center

NUREG – 0654					Indian Point Energy Center ERO Staffing			Notes
Position No.	Position Title or Expertise / Major Task	On Shift	30 Min.	60 Min.	ERO Position, or Expertise or Job Title	On Shift	60 Min.	Note 1 Note 2
Plant Operations and Assessment								
1	Shift Supervisor (SRO)	1	--	--	Shift Manager	1	--	
2	Shift Foreman (SRO)	1	--	--	Control Room Supervisor	1	--	
3	Control Room Operators	2	--	--	Reactor Operators or Field Support Supervisor	2	--	Note 3
4	Auxiliary Operators	2	--	--	Nuclear Plant Operators	2	--	
Emergency Direction and Control (Emergency Coordinator)					Emergency Director			
5	Shift Technical Advisor, Shift Supervisor or designated facility manager	1	--	--	Shift Manager or Control Room Supervisor	1	--	Note 4 Note 10
Notification / Communication					Communicator			
6	Communicator – notify licensee, State, Local and Federal personnel and maintain communication	1	1	2	Nuclear Plant Operator U2 /U3 Offsite Communicator plus Any two of the following: Field Team Coordinator Direct Line Communicator TSC Communicator	1	-- 1 2	Note 5
Radiological Accident Assessment and Support of Operational Accident Assessment								
7	Senior Manager – EOF Director			1	Emergency Director or EOF Manager	--	1	
8	Senior Health Physics (HP) Expertise – Offsite Dose Assessment	--	1	--	Offsite Radiological Manager	--	1	

Indian Point Energy Center Emergency Plan
TABLE B – 1
Comparison of NUREG – 0654 to Indian Point Energy Center

NUREG – 0654					Indian Point Energy Center			Notes
Position No.	Position Title or Expertise / Major Task	On Shift	30 Min.	60 Min.	ERO Staffing			
					ERO Position, or Expertise or Job Title	On Shift	60 Min.	Note 1 Note 2
9	Offsite Surveys	--	2	2	Two Teams of Field Monitors	--	4	Note 6
10	Onsite (out-of-plant) Surveys	--	1	1	RP Technicians	--	2	
11	HP Technicians	1	1	1	RP Technicians	1	2	Note 11
12	Rad / Chem Technicians	1	--	1	Chemistry Technicians	1	1	
Plant System Engineering, Repair and Corrective Action								
13	Shift Technical Advisor	1	--	--	Field Support Supervisor or Shift Technical Advisor	1	--	
14	Core / Thermal Hydraulics	--	1	--	Reactor Engineer	--	1	
15	Electrical	--	--	1	Electrical Engineer	--	1	
16	Mechanical	--	--	1	Mechanical Engineer	--	1	
17	Mechanical Maintenance / Radwaste Operator	1	--	1	Mechanical Maintenance	1	2	Note 7 Note 10
18	Electrical Maintenance	1	1	1	Electrical Maintenance	1	2	Note 8 Note 10
19	Instrument & Control Technician	--	1	--	Instrument & Control Technician	--	1	
Protective Actions (In-Plant)								
20	HP Technicians	2	2	2	RP Technicians or Trained Individual	2	4	Note 9 Note 10

Indian Point Energy Center Emergency Plan
TABLE B – 1
Comparison of NUREG – 0654 to Indian Point Energy Center

NUREG – 0654					Indian Point Energy Center ERO Staffing			Notes
Position No.	Position Title or Expertise	On Shift	30 Min.	60 Min.	ERO Position, or Expertise or Job Title	On Shift	60 Min.	Note 1 Note 2
Fire Fighting								
21	Fire Brigade	Fire Brigade per TS	Local Support		Fire Brigade	Fire Brigade per TS	Local Support	
Rescue Operations and First Aid								
22	Rescue – First Aid	2	Local Support		Rescue – First Aid	2	Local Support	Note 10
Site Access Control and Personnel Accountability								
23	Security Personnel	Per Security Plan			Security Personnel	Per Security Plan		
Totals		10	11	15		10	26	

(a) Per NUREG-0654, May be provided by shift personnel assigned other functions.

Indian Point Energy Center Emergency Plan
TABLE B – 1
Comparison of NUREG – 0654 to Indian Point Energy Center

- Note:**
- (1) For Emergency Response Organization purposes resources may be shared between units. The unaffected unit in operation must maintain a Control Room Supervisor, one Reactor Operator and one Nuclear Plant Operator. All other shift positions may be shared. Appropriate cross-training is required.
 - (2) NUREG-0654, 30 minute and 60 minute response capabilities are combined into the 60-minute response capability for Indian Point Energy Center, as per originally approved Emergency Plan for both Unit 2 and Unit 3.
 - (3) The assessment function may be performed by the Field Support Supervisor
 - (4) The Emergency Coordinator (Emergency Director) position is initially filled by the Shift Manager or Control Room Supervisor. He is relieved of this duty by the Plant Operations Manager (POM) or the EOF Emergency Director who are one-hour responders.
 - (5) IPEC has a designated Communicator on shift (one Nuclear Plant Operator) and an Offsite Communicator in the EOF as a required one-hour responder. The additional two communicators can be filled by the following: TSC Communicator, Offsite Communicator-CCR or Offsite Team Coordinator – EOF.
 - (6) Offsite survey teams are filled by Offsite Monitoring Teams
 - (7) The repair and corrective action function would initially be performed by nuclear plant operators for minor mechanical maintenance activities. Two additional maintenance mechanics who are one hour responders would troubleshoot and correct equipment malfunctions designated in NUREG-0654 for Mechanical Maintenance / Radwaste Operator.
 - (8) The repair and corrective action function would initially be performed by nuclear plant operators for minor electrical maintenance activities. Two additional electrical maintenance mechanics who are one-hour responders would troubleshoot and correct equipment malfunctions.
 - (9) On shift and other available qualified personnel and the unaffected unit RP Technicians can fulfill the function for basic in-plant radiation protection activities. Four additional RP Technicians or self-monitoring qualified personnel are required as one-hour responders.
 - (10) In accordance with NUREG-0654, this function may be provided by shift personnel assigned other functions.
 - (11) Credit for one RP Technician may be taken for the opposite Unit on-shift RP Technician.

Indian Point Energy Center Emergency Plan
Table B-5 - Emergency Response Organization Functions

Position / Assigned Location	Reports to	Major Functions
Control Room (CR)		
Shift Manager	POM	Acts as ED until relieved.
Control Room Supervisor (CRS)	Shift Manger	Immediate supervision of plant operations
Field Support Supervisor/Shift Technical Advisor	Shift Manager	Provide technical support to operations shift
Reactor Operator (RO)[s]	CRS	Control Room operations / communications
Nuclear Plant Operator (NPO)[s] (unit 1 only)	CRS	Operates Unit 1 and support equipment
Nuclear Plant Operator (NPO)[s] (Nuclear, Conventional, Roving)	CRS	Operates equipment outside the control room
Offsite (CCR) Communicator [assigned]	CRS	Communications with outside organizations
Support Staff	Shift Manager	Provide plant data to TSC
Watch Chemistry Technician (OSC when activated)	Shift Manager	Provide chemistry support as needed
Watch Radiation Protection (RP) Technician (OSC when activated)	Shift Manager	Provide RP support as needed
Facility Communicator	Shift Manager	Provides data to the other emergency response facilities
Plant Operations Manager (POM)	EPM	Manage emergency response operations activities in the Control Room and keep the EPM informed of plant status and response activities. Advises ED on classification issues and other operational concerns.
Command Guard House (CGH)		
Security Shift Supervisor (SSS)	SM / POM	Supervises Security Force and acts as Lead Accountability Officer
Security Guard[s]	SSS	Provide physical control of plant areas, assist in accountability and search and rescue.

Indian Point Energy Center Emergency Plan
Table B-5 - Emergency Response Organization Functions

Emergency Operations Facility (EOF)		
Emergency Director (ED)		Overall Direction of Entergy Emergency Response
EOF Manager	ED	Manages Entergy Offsite response activities
Technical Advisor	EOF Manager	Provide technical advice to ED and track EALs
Radiological Assessment Coordinator	EOF Manager	Directs offsite radiological assessment and control efforts
Dose Assessor	RAC	Leads dose assessment activities
Offsite Team Coordinator	RAC	Coordinates Field Monitoring Team Activities
Offsite Monitoring Teams	Offsite Team Coordinator	Perform Environmental Monitoring and Sampling outside the Protected Area
Admin and Logistics Coordinator	EOF Manager	Coordinate Entergy corporate support to the onsite Emergency Response Organization and provide logistics support to ERO
Support Staff	EOF Manager / Admin & Logistics Coordinator	Provide clerical support to EOF Staff
IT Specialist	EOF Manager / Admin & Logistics Coordinator	Assist EOF Staff in operation of EOF Equipment
Offsite Communicator	EOF Manager	Communicate with offsite emergency organizations
Information Liaison	EOF Manager	Provide information to JIC
Lead Offsite Liaison	EOF Manager	Liaison to Offsite Representatives arriving at the EOF and coordinates information flow to State and County Liaisons located at offsite EOCs
County & State Liaisons (may be located at offsite EOCs)	Lead Offsite Liaison	Assist offsite authorities in coordinating emergency response.
Incident Command Post	ED	Coordinate overall security response; interface with local law enforcement.

Indian Point Energy Center Emergency Plan
Table B-5 - Emergency Response Organization Functions

Operations Support Center (OSC)		
Operations Support Center (OSC) Manager	EPM	Manages repair and assessment activities of team sent into the plant.
Work Control Coordinator	OSC Manager	Assemble, brief, dispatch, track and debrief OSC teams sent out from the OSC
Radiological Protection Coordinator	OSC Manger	Coordinate radiological controls inside the Protected Area and assist in coordination of chemistry sampling
Chemistry Team Coordinator	OSC Manager	Coordinate Chemistry Sampling Analysis activities and assist Radiological Protection Team Leader
Maintenance Coordinator	OSC Manager	Coordinate Maintenance
Instrument & Control Coordinator	OSC Manager	Coordinate I&C activities
Operations Coordinator	OSC Manager	Coordinate Operations support to the CCR
Security Coordinator	OSC Manager	Direct physical security emergency functions.
Radiation Protection Technicians	Radiation Protection Coordinator	Perform radiological surveys, sampling and analysis as needed, provide RP coverage for OSC operations
Chemistry Technician	Chemistry Coordinator	Perform chemistry sampling and analysis as needed, assist in OSC operations
Maintenance Mechanic(s)	Maintenance Coordinator	Perform mechanical repairs and assessment activities as needed
Instrument & Control (I&C) Technician(s)	I&C Coordinator	Perform I&C repairs and assessment activities as needed
OSC Operators	Operations Coordinator	Operate plant systems as directed by Operations Team Leader. Assist OSC teams in repair and assessment activities.
Support Staff	OSC Manager	Coordinate Accountability with Security Coordinator and as necessary verify/set up equipment

Indian Point Energy Center Emergency Plan
Table B-5 - Emergency Response Organization Functions

Technical Support Center (TSC)		
Emergency Plant Manager (EPM)	ED	Manage emergency response activities inside the Protected Area and keep the ED informed of plant status and response activities.
Technical Support Center (TSC) Manager	EPM	Manage technical assessment activities.
Engineering Coordinator	TSC MGR	Coordinate TSC Engineering Assessment Activities
Reactor Engineer	Engineering Coordinator	Perform Core Physics Assessments
Mechanical Engineer	Engineering Coordinator	Perform Mechanical Engineering Assessments
Electrical / I&C Engineer	Engineering Coordinator	Perform Electrical / I&C Engineering Assessments
Operations Advisor	TSC MGR	Perform Operations Engineering Assessments
	TSC MGR	Perform Severe Accident Management evaluations
IT Specialist	TSC MGR	Coordinate data collection for the TSC Staff
Support staff	TSC MGR	Provide Admin Support to TSC Staff. Ensures that drawings, procedures, tech manuals, etc. are available as needed.
TSC Communicator	TSC MGR	Perform TSC communications as needed

Indian Point Energy Center Emergency Plan
Table B-5 - Emergency Response Organization Functions

Position / Assigned Location	Reports to	Major Functions
Joint Information Center (JIC)		
Company Spokesperson	ED	Act as official spokesperson for Entergy, coordinate public information with other Public Information Officers
JIC Manager	ED	Manage operations of the Joint Information Center
Technical Advisor	JIC Manager	Provide technical expertise to JIC Staff
Admin & Logistics Coordinator	JIC Manager	Maintains access control to the JIC. Ensures distribution of press releases.
Documenter	JIC Manager	Maintain facility log on WebEOC. Ensure timeliness of facility briefings.
IT Specialist	Admin & Logistics Coordinator	Assist JIC Staff with computer hardware and software use
AudioVisualCoordinator	JIC Manager	Manages Audio/Video operations
Support Staff	Admin & Logistics Coordinator	Provide Admin support to JIC Personnel
Press Release Writer	JIC Manager	Writes News Releases
Radiological Advisor	JIC Manager	Provides radiological information from the EOF to the JIC staff
Inquiry Response Coordinator	JIC Manager	Interacts with New York State and Counties on information and rumors
Media Monitoring	Inquiry response Coordinator	Monitor media for rumors and items to be addressed in news releases or media briefings
Media Liaison	Admin & Logistics Coordinator	Acts as Entergy's interface for media present at the JIC
Audio Visual Graphics Support	Audio Visual Coordinator	Supports A/V equipment and graphics at the JIC
Communications Representative	JIC Manager	Manage initial communications response, including issuing news release(s) to the media

Part 2: PLANNING STANDARDS AND CRITERIA

Section C: Emergency Response Support and Resources

This section describes the provisions for requesting and effectively utilizing support resources and for accommodating State and local staff at the Indian Point Emergency Operations Facility (EOF).

1. Federal Response Support and Resources

Assistance is available from Federal agencies through the Federal Radiological Emergency Response Plan (FRERP). The primary Federal agencies that provide assistance to the State and Indian Point, respectively, are the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) and the Nuclear Regulatory Commission (NRC). Other Federal agencies, through FRERP, provide assistance to the State and Local Authorities in an emergency.

- a. Sections A and B of this Plan identify the specific ERO Positions by title who are authorized to request Federal assistance.
- b. Federal agencies that may provide assistance in direct support of Indian Point in the event of an accident are identified in Section A of this plan. If needed, Federal resources are made available to Indian Point in an expeditious and timely manner.
- c. Each Indian Point emergency response facility has the equipment and communications capability necessary for a continuous high level of response, interaction and communication among key personnel during emergency conditions. The Technical Support Center (TSC) is able to accommodate NRC representatives. Working areas and an office have been provided for their use. The EOF/AEOF has space to accommodate NRC representatives as well as representatives from DHS/FEMA, State and key local authorities.

In addition to Indian Point facilities and equipment, State and local facilities and equipment are available to support the Federal response.

2. Liaisons

- a. The NRC, DHS/FEMA, State, and Local authorities may dispatch representatives to the EOF/AEOF where accommodations have been provided.
- b. At the Alert level and above, Utility liaisons are dispatched to the State and local government EOCs to act as communications liaisons and to provide clarification of emergency response information.

Indian Point Energy Center Emergency Plan

3. Radiological Laboratories

In addition to Indian Point's radiological assessment facilities, other Entergy power plants in the area may be utilized to analyze inplant and offsite environmental samples. Outside analytical assistance may be requested from State and Federal agencies and other utilities if the offsite radiological monitoring and environmental sampling operation exceeds the capacity of the Indian Point capabilities.

The availability of commercial laboratory/analytical services used by Entergy facilities has been ensured.

4. Other Assistance

Contracted services are available and may be used in support of an emergency response at Indian Point. The availability of services have been ascertained and agreement letters are contained in Appendix 2.

Though not a typical contracted service, the Institute of Nuclear Power Operation (INPO) is able to provide:

- Assistance in locating sources of emergency manpower and equipment;
- An organization of industry experts who could advise the utility on technical matters, and;
- Analysis of operational aspects of the incident.

Additional facilities, organizations and individuals as listed in an emergency phone list, are available and may be used in support of emergency response.

Part 2: PLANNING STANDARDS AND CRITERIA

Section D: Emergency Classification System

This section describes the classification and emergency action level scheme used to determine the minimum response to an abnormal event at the Station. This scheme is based on Indian Point Units 2 & 3 systems, effluent parameters and operating procedures. The initial response of Federal, State and local agencies is dependent upon information provided by the Indian Point Emergency Response Organization. Indian Point emergency planning personnel work closely with State and local agencies to ensure consistency in classification schemes and procedural interfaces.

1. Emergency Classification:

This Plan is based on consideration of conceivable consequences of potential situations ranging from incidents where effects on plant and personnel are negligible to highly unlikely releases of radioactivity, which could affect members of the public. The emergency classification of these conditions, both radiological and non-radiological, indicates the relative severity for immediate implementation of response actions. The four (4) major classifications increase in overall severity from Notification of Unusual Event (least severe), Alert, Site Area Emergency, General Emergency (most severe).

These mutually exclusive classifications cover the postulated spectrum of potential and actual emergencies. Each classification is associated with a particular set of immediate actions. Each classification is characterized by certain initiating symptoms or events called Emergency Action Levels (EALs). These action levels include specific sets of plant parameters (i.e., instrument indications, system status, etc.) or events, that are used to determine the appropriate emergency classification. A brief explanation of the four classification levels follows:

Notification of Unusual Event (NUE)

A Notification of Unusual Event classification is used to denote events that are in process or have occurred, which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

This is the least severe of the four (4) classifications. The purpose of this classification is primarily notification. These notifications provide for (1) assurance that the first step in any response later found to be necessary has been carried out, (2) bringing the operating staff to a state of readiness, and (3) providing systematic handling of unusual events information and decision making. Any radioactive releases to the environment would not cause exposure to the offsite population at levels requiring Environmental Protection Agency (EPA) protective actions to be instituted.

The Shift Manager/Emergency Director will ensure:

- a) Notification of State and local offsite authorities within 15 minutes of classifying the event;

Indian Point Energy Center Emergency Plan

- b) Required Station Management and the NRC are informed of the nature of the unusual condition;
- c) Optional augmentation of on-shift resources as needed, which may include full or partial staffing of the Technical Support Center, Operations Support Center, Emergency Operations Facility and/or the Joint Information Center;
- d) Continued assessment and response as necessary;
- e) Escalation to a more severe class, if appropriate;

OR

- f) Close out with verbal summary to offsite authorities followed by written summary within 24 hours.

State and local offsite authorities would, as directed by their respective Emergency Plans:

- a) Provide fire or security assistance if requested;
- b) Escalate to a more severe class, if appropriate;

OR

- c) Standby until a verbal closeout.

Alert

An Alert classification indicates events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

The purpose of the Alert is to (1) ensure that emergency personnel are readily available to respond if the situation becomes more serious or to perform confirmatory radiation monitoring if required, and (2) provide the offsite authorities with current information. Where radiological releases to the environment have occurred, it is possible that the site boundary doses will exceed 10 mRem Total Effective Dose Equivalent (TEDE) or 10 mRem/hr external exposure rate.

The Shift Manager/Emergency Director will ensure:

- a) Initiation of activation of the Emergency Response Organization which results in the staffing of the Technical Support Center, Operations Support Center, Emergency Operations Facility and the Joint Information Center;
- b) Notification of State and local offsite authorities within 15 minutes of classifying the event;
- c) Prompt notification of the NRC (not to exceed one hour);
- d) Continued assessment and response as necessary;
- e) Dispatch of field monitoring teams and establish associated communications, as necessary;

Indian Point Energy Center Emergency Plan

- f) Periodic plant status updates are provided to offsite authorities (approximately every 30 minutes or period agreed upon with offsite authorities);
- g) Meteorological assessments are provided to offsite authorities and, if any releases are occurring, dose estimates for actual release;
- h) Escalation to a more severe class, if appropriate;

OR

- i) Close out or recommend reduction in emergency class by verbal summary to offsite authorities followed by written summary within eight (8) hours of closeout or class reduction.

State and local offsite authorities would, as directed by their respective Emergency Plans:

- a) Provide fire or security assistance if requested;
- b) Augment resources by activating EOC 's;
- c) Augment resources and bring primary response centers and Emergency Alert System (EAS) to standby status;
- d) Alert key emergency personnel to standby status including monitoring teams and associated communications;
- e) Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed technical specification limits;
- f) Maintain Alert status until verbal closeout or escalation.

Site Area Emergency (SAE)

A Site Emergency indicates events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases are not expected to result in exposure levels that exceed EPA Protective Action Guideline exposure levels except near the site boundary.

The purpose of the Site Area Emergency declaration is to (1) ensure that response centers are manned, (2) ensure that monitoring teams are dispatched, (3) ensure that personnel required for evacuation of near-site areas are at duty stations if the situation becomes more serious, (4) provide current information for and consultation with offsite authorities and public, (5) provide updates for the public through offsite authorities.

Where radiological releases to the environment have occurred, it is possible that the site boundary doses will exceed 100 mRem Total Effective Dose Equivalent (TEDE), 500 mRem CDE Thyroid, 100 mRem/hr external exposure rate, or 500 mRem/hr Thyroid Exposure Rate (for one hour of inhalation).

Indian Point Energy Center Emergency Plan

The Shift Manager/Emergency Director will ensure:

- a) Initiation of activation of the Emergency Response Organization which results in the staffing of the Technical Support Center, Operations Support Center, Emergency Operations Facility and the Joint Information Center;
- b) Notification of State and local offsite authorities within 15 minutes of classifying the event;
- c) Prompt notification of the NRC (not to exceed one hour);
- d) Continued assessment and response as necessary;
- e) Dispatch of field monitoring teams and establish associated communications;
- f) An individual provides for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities);
- g) Senior technical and management staff on-site are made available for consultation with NRC and State on a periodic basis;
- h) Meteorological and dose estimates are provided to offsite authorities for actual releases via a dedicated individual or automated data transmission;
- i) Release and dose projections based on available plant condition information and foreseeable contingencies are provided to appropriate agencies;
- j) Accountability process is initiated;
- k) Escalation to General Emergency class, if appropriate;

OR

- l) Close out by briefing of offsite authorities at Emergency Operations Facility and by phone followed by written summary within eight (8) hours of close.

State and local offsite authorities would as directed by their respective Emergency Plans:

- a) Provide any assistance requested;
- b) If sheltering near the site is desirable, activate public notification system;
- c) Provide public within at least ten miles with periodic updates on emergency status;
- d) Augment resources by activating EOC's and any other primary response centers;
- e) Dispatch key emergency personnel including monitoring teams and establish associated communications;
- f) Alert other emergency personnel to standby status (e.g., those in need for evacuation) and dispatch personnel to near site duty stations;
- g) Provide offsite monitoring results to licensee, DOE and others and jointly assess them;

Indian Point Energy Center Emergency Plan

- h) Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective action already initiated for public and mobilizing evacuation resources;
- i) Recommend placing milk animals within 2 miles on stored feed and assess the need to extend the distance;
- j) Provide media briefings, perhaps with a licensee;
- k) Maintain Site Area Emergency status until closeout or escalation.

General Emergency (GE)

A General Emergency indicates events are in progress or have occurred which involved actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline for more than the immediate site area.

The purpose of the General Emergency is to (1) initiate predetermined protective actions for the public, (2) provide continuous assessment of information from licensee and offsite organization measurements, (3) initiate additional measures as indicated by actual or potential releases, (4) provide consultation with offsite authorities, and (5) provide updates for the public through offsite authorities. Where radiological releases to the environment have occurred, it is possible that the site boundary doses could exceed 1000 mRem Total Effective Dose Equivalent (TEDE) and 5000 mRem CDE Thyroid, 1000 mRem/hr External Exposure Rate, or 5000 mRem/hr Thyroid Exposure Rate (for one hour of inhalation).

The Shift Manager/Emergency Director will ensure:

- a) Initiation of activation of the Emergency Response Organization which would staff of the Technical Support Center, Operations Support Center, Emergency Operations Facility and the Joint Information Center;
- b) Notification of State and local offsite authorities within 15 minutes of classifying the event;
- c) Prompt notification of the NRC (not to exceed one hour);
- d) Continued Assessment and response as necessary;
- e) Dispatch of field monitoring teams and associated communications;
- f) An individual is provided for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities);
- g) Senior technical and management staff on-site are made available for consultation with NRC and State on a periodic basis;
- h) Meteorological and dose estimates are provided to offsite authorities for actual releases;
- i) Release and dose projections based on available plant condition information and foreseeable contingencies are performed and provided to offsite authorities;
- j) Accountability process is initiated;

Indian Point Energy Center Emergency Plan

- k) Close out by briefing of offsite authorities at Emergency Operations Facility and by phone followed by written summary within eight hours of closeout.

State and local offsite authorities would as directed by their respective Emergency Plans:

- a) Provide any assistance requested;
- b) Activate immediate public notification of emergency status and provide public periodic updates;
- c) Recommend, as a minimum, sheltering for 2 mile radius and 5 miles downwind and assess need to extend distances; consider advisability of evacuation (projected time available vs. Estimated evacuation times);
- d) Augment resources by activating EOC's and any other primary response centers;
- e) Dispatch key emergency personnel including monitoring teams and establish associated communications;
- f) Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status;
- g) Provide offsite monitoring results to licensee, DOE and others and jointly assess them;
- h) Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective actions;
- i) Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance;
- j) Provide news media briefings, perhaps with a licensee;
- k) Maintain General Emergency status until closeout.

Classification Downgrading

The Indian Point policy on Classification downgrading is as follows:

All events once declared shall remain in effect until: 1. Such time as conditions warrant termination of the event and entry into the Recovery Phase or 2. the event is re-classified at a higher level.

2. Emergency Action Levels:

The postulated accidents analyzed in each units' Final Safety Analysis Report (FSAR), the example initiating conditions found in Appendix 1 to NUREG 0654-REV 1 and NUMARC/NESP-007 "Methodology for development of Emergency Action Levels" were evaluated to establish an emergency classification and emergency action level scheme. NUMARC/NESP-007 has been accepted by the NRC as an alternative to NUREG-0654-REV 1 and forms the basis of the Indian Point emergency classification scheme. The results of this are presented in nine categories of EALs, which show the parameters for establishing each emergency classification.

The specific instruments, parameters or equipment statuses that identify the overall severity of the emergency condition and the actions to be taken by the facility staff are identified in the plant emergency plan implementing procedures. The Emergency Action Levels (EALs) are grouped into nine categories to simplify their presentation and promote a rapid understanding by their users. (See Table D-1 for example initiating conditions of each category). These categories are:

- (1) Critical Safety Functions Status Trees (CSFST) Status
- (2) Reactor Fuel
- (3) Reactor Coolant System
- (4) Containment
- (5) Radioactivity Release/Area Radiation
- (6) Electrical Failures
- (7) Equipment Failures
- (8) Hazards
- (9) Other

Categories one through five are primarily symptom based. The symptoms are indicative of actual or potential degradation of either fission product barrier's or personnel safety.

Categories six, seven and eight are event based. Electrical Failures are those events associated with losses of either AC or vital DC electrical power. Equipment Failures are abnormal and emergency events associated with vital plant system failures, while hazards are those non-plant system related events, which have affected or may affect plant safety.

Indian Point Energy Center Emergency Plan

Category nine provides the Emergency Director (ED) or Shift Manager (SM) the latitude to classify and declare emergencies based on plant symptoms or events, which in his judgement warrants classification. This judgement includes evaluation of loss or potential loss of one or more fission product barriers warranting emergency classification consistent with the NUMARC barrier loss criteria.

Table D-1, Description of Emergency Action Levels, provides a further breakdown of the types events and parameter values and equipment status, which would cause the emergency, plan to be implemented. The detailed emergency action levels are provided in an emergency plan implementing procedure.

3. Offsite Classification Systems:

Indian Point works with the State of New York and local authorities to ensure consistency between classification schemes. The content of the Emergency Action Levels is reviewed with the State and local authorities on an annual basis.

4. Offsite Emergency Procedures:

Indian Point works with the State of New York and local authorities to ensure that procedures are in place that provide for emergency actions to be taken which are consistent with the protective actions recommended by Indian Point accounting for local offsite conditions that exist at the time of the emergency.

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
1.0 CSFST Status 1.1 Sub criticality	Failure of the Reactor Protection System to complete an automatic trip and manual trip was not successful and there is indication of an extreme challenge to the ability to cool the core.	Failure of Reactor Protection system instrumentation to complete or initiate an automatic reactor trip once a Reactor Protection system set point has been exceeded and manual scram trip was not successful.	Failure of Reactor Protection system instrumentation to complete or initiate an automatic reactor trip once a Reactor Protection system set point has been exceeded and manual trip was successful while in power operations or hot standby	
1.0 CSFST Status 1.2 Core Cooling	Complete loss of function needed to achieve or maintain hot shutdown with reactor coolant > 200 °F. <u>AND</u> Functional restoration actions taken and procedures not effective within 15 min.	Complete loss of function needed to achieve or maintain hot shutdown with reactor coolant > 200 °F.		
1.0 CSFST Status 1.3 Heat Sink		Complete loss of function needed to achieve or maintain hot shutdown with reactor coolant > 200 °F. <u>AND</u> Feed and Bleed Required		
1.0 CSFST Status 1.4 Integrity			Potential or actual loss of RCS integrity.	

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
1.0 CSFST Status 1.5 Containment	Potential loss of Containment integrity based on exceeding containment design pressure			
2.0 Reactor Fuel 2.1 Coolant Activity		Fuel clad degradation based on an amount of coolant activity corresponding to about 2% to 5% fuel clad damage with RCS loss or potential loss indicators.	Fuel clad degradation based on an amount of coolant activity corresponding to about 2% to 5% fuel clad damage	Fuel clad degradation based on reactor coolant samples exceeding coolant technical specifications
2.0 Reactor Fuel 2.2 Containment Radiation	Containment radiation levels indicate Fuel clad loss, RCS loss, Containment potential loss	Containment radiation levels indicate Fuel clad loss, RCS loss	Increase in containment radiation levels indicating a significant RCS leak	
2.0 Reactor Fuel 2.3 Refueling Accidents or Other Radiation Monitors			Major damage to irradiated fuel or loss of water level that has or will result in the uncovering of irradiated fuel outside the reactor vessel. OR irradiated fuel uncovered	Unexpected increase in plant radiation or airborne concentration due to loss of water level in spent fuel pool or reactor cavity
3.0 RCS 3.1 RCS Leakage		Loss of reactor vessel water level has or will uncover fuel in the reactor vessel.	RCS leakage exceeds the capacity of one charging pump.	Increased RCS leakage when greater than 200 °F

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
3.0 RCS 3.2 Primary to Secondary Leakage		Unisolable release of secondary side to atmosphere with indications of either major primary to secondary leakage or possible fuel damage		Indication of unisolable SG tube leaks that may mean a potential loss of containment
3.0 RCS 3.3 Sub cooling			Conditions where leakage from the RCS is greater than available inventory control capacity such that a loss of sub cooling has occurred.	
4.0 Containment 4.1 Integrity Status	Potential loss of containment in conjunction with losses of both RCS and fuel clad.	Incomplete containment isolation that allows direct release to the environment OR Rapid uncontrolled decrease in containment pressure following initial increase due to RCS failure OR During known LOCA Containment pressure or sump level response not consistent with conditions		Inability to maintain containment integrity during conditions when it is required.

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
4.0 Containment 4.2 SG Tube Rupture w/ Secondary Release	Steam Generator (SG) tube rupture events in conjunction with a loss of containment due to a significant secondary line break with actual or potential loss of the fuel-clad integrity.	Steam Generator (SG) tube rupture events in conjunction with a loss of containment due to a significant secondary line break.		
4.0 Containment 4.3 Combustible Gas Concentrations	Hydrogen concentrations reach or exceed the limits, where imminent loss of the containment barrier exists.			
5.0 Radioactivity Release / Area Radiation 5.1 Effluent Monitors	Boundary dose resulting from an actual or imminent release of gaseous radioactivity exceeds 1000 mRem TEDE or 5000 mR CDE Thyroid for the actual or projected duration of the release using actual meteorology.	Boundary dose resulting from an actual or imminent release of gaseous radioactivity exceeds 100 mRem TEDE or 500 mR CDE Thyroid for the actual or projected duration of the release.	Any unplanned release of gaseous or liquid radioactivity to the environment that exceeds 200 times radiological Technical Specifications for 15 minutes or longer.	Any unplanned release of gaseous or liquid radioactivity to the environment that exceeds two times the radiological Technical Specifications for 60 minutes or longer.

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
5.0 Radioactivity Release / Area Radiation 5.2 Dose Projections/ Environmental Measurements/ Release Rates	Dose projections or field surveys resulting from actual or imminent release which indicate doses / dose rates at or beyond EPA Limits	Dose projections or field surveys resulting from actual or imminent release which indicate doses / dose rates at 10% of EPA Limits	Any unplanned release of gaseous or liquid radioactivity to the environment that exceeds 200 times radiological Technical Specifications for 15 minutes or longer. Dose projections or field surveys resulting from actual or imminent release which indicate doses / dose rates at 1% of EPA Limits	Any unplanned release of gaseous or liquid radioactivity to the environment that exceeds two times the radiological Technical Specifications for 60 minutes or longer.
5.0 Radioactivity Release / Area Radiation 5.3 Area Radiation Levels			Release of radioactive material or increases in radiation levels within the facility that impedes operation of systems required to maintain safe operations or to establish or maintain cold shutdown. Elevated radiation levels in the Control Building envelope that impedes continuous occupancy.	Unexpected increase in plant radiation or airborne concentration.

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
6.0 Electrical Failures 6.1 Loss of AC Power Sources	Prolonged loss of all offsite power and prolonged loss of all onsite AC power with reactor coolant > 200 °F.	Loss of all offsite power and loss of all onsite AC power to essential busses with reactor coolant > 200 °F. <u>AND</u> Inability to power required core cooling systems with alternate power sources for > 15 min.	Loss of all offsite power and loss of all onsite AC power to essential busses during cold shutdown, refueling or defueled mode. <u>OR</u> AC power capability to essential busses reduced to a single power source for greater than 15 minutes such that any additional single failure would result in station blackout with reactor coolant > 200 °F.	Loss of all offsite power to essential busses for greater than 15 minutes.
6.0 Electrical Failures 6.2 Loss of DC Power Sources		Loss of all vital DC power with reactor coolant > 200 °F.		Unplanned loss of required DC power during cold shutdown or refueling mode for greater than 15 minutes.
7.0 Equipment Failures 7.1 Tech Spec Requirements				Inability to reach required shutdown within Technical Specification Limits.

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
7.0 Equipment Failures 7.2 System Failures or Control Room Evacuation		Control room evacuation has been initiated and plant control cannot be established.	Turbine failure generated missiles which causes or potentially causes any required safety related system or structure to become inoperable <u>OR</u> Control room evacuation has been initiated. <u>OR</u> Inability to maintain plant in cold shutdown.	Main turbine rotating component failures of sufficient magnitude to cause observable damage to the turbine casing or to the seals of the turbine generator.
7.0 Equipment Failures 7.3 Loss of Indications / Alarms / Communication Capability		Inability to monitor a significant transient in progress.	Unplanned loss of most or all safety system annunciation or indication in control room with either (1) a significant transient in progress, or (2) compensatory non-alarming indicators are unavailable.	Unplanned loss of most or all safety system annunciation or indication in the control room for greater than 15 minutes with reactor coolant temperature > 200 °F. <u>OR</u> Unplanned loss of all onsite or offsite communications capabilities.

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
8.0 Hazards 8.1 Security Threats	Security event resulting in loss of ability to reach and maintain cold shutdown.	Any security event, which represents actual or likely failures of plant systems, needed to protect the public. A Hostile Force has entered a vital area of the plant or Hostile Action has occurred within the protected area including an airliner attack and/or explosion attack.	Any security event, which represents an actual substantial degradation of the level of safety of the plant. Notification of an airliner threat within 30 minutes or an armed or explosion attack or airliner impact has occurred within the Owner Controlled Area (OCA).	Confirmed security event including an aircraft threat, which indicates a potential degradation in the level of safety of the plant.
8.0 Hazards 8.2 Fire or Explosion			Fire or explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown.	Fire within protected area boundary not extinguished within 15 minutes of detection. OR Explosion within Protected Area boundary which impacts plant safety related systems or structures.
8.0 Hazards 8.3 Man Made Events			Vehicle crash or projectile impact which may cause any required safety related system or structure to become inoperable OR Release of toxic or flammable gases, which jeopardizes operation of systems, required to maintain safe operations.	Vehicle crash into or projectile which impacts plant safety related structures or systems within Protected Area boundary OR Release of toxic or flammable gases deemed detrimental to safe operation of the plant. OR Loaded Cask has been tipped over affecting the barrier to the environment.

Indian Point Energy Center Emergency Plan
Table D-1, Description of Emergency Action Levels

Category	General Emergency	Site Area Emergency	Alert	Unusual Event
8.0 Hazards 8.4 Natural Events			<p>Earthquake felt in plant AND Seismic instruments indicate significant horizontal or vertical movement has occurred.</p> <hr/> <p>Sustained winds > 90 mph OR Tornado strikes a plant vital area</p> <hr/> <p>Any natural event which causes or potentially causes any required safety related system or structure to become inoperable</p> <hr/> <p>High or low river water levels, which may effect vital equipment.</p>	<p>Earthquake felt in plant AND Other indications of earthquake such as seismic monitors or outside confirmation</p> <hr/> <p>Report by plant personnel of tornado within plant Protected Area boundary</p> <hr/> <p>High river or low service water level</p>
9.0 Other	As determined by the Shift Manager, or Emergency Director, events are in progress, which indicate actual, or imminent core damage and the potential for a large release of radioactive material in excess of EPA PAGs outside the site boundary.	As determined by the Shift Manager, or Emergency Director, events are in progress, which indicate actual or likely failures of plant systems needed to protect the public.	Any event, as determined by the Shift Manager, or Emergency Director, that could cause or has caused actual substantial degradation of the level of safety of the plant.	Any event, as determined by the Shift Manager, or Emergency Director, that could lead to or has led to a potential degradation of the level of safety of the plant.

Part 2: PLANNING STANDARDS AND CRITERIA

Section E: Notification Methods and Procedures

This section describes the notification of State and local response organizations and Indian Point emergency response personnel. It outlines the content of initial and follow-up messages to response organizations within the Indian Point Energy Center (Units 1,2 & 3) Plume Exposure Pathway Emergency Planning Zone (EPZ).

1. Response Organization Notification:

Indian Point, in cooperation with State and local authorities, has established mutually agreeable methods for notification of response organizations consistent with the emergency classification and action level scheme. Notification methods to offsite agencies include a means of verification or authentication such as the use of dedicated communications networks or providing call back verification phone numbers.

Emergency events that involve both Units (2&3) (i.e., tornado or earthquake) and when the classification for each Unit is the same, shall be reported as affecting both Units.

In situations when both Units are affected by emergency events, but the events are not related or the classification for each Unit is different, notification will be made for the highest classification. Clarification of the relationship between the classification levels determined for the Units should be provided in the periodic updates.

The emergency conditions classified in Section D involve the alerting or activation of progressively larger segments of the total emergency organization. This section describes the communication steps taken to alert and activate authorities for each classification of emergency.

a. Notification of Unusual Event

- 1) A Notification of Unusual Event is declared by the Shift Manager (or Control Room Supervisor if the SM is unavailable) if any Unusual Event threshold listed in the EALs, Table (Section D) is met or exceeded.
- 2) Depending on the particular circumstances of the situation, the Control Room Operator under the Shift Manager's direction alerts the affected Unit's personnel and non-affected Unit's Control Room personnel and gives instructions regarding the event, using the public address system, the telephone or by an alternate method. Distinctive sounding signals are used to announce fire alarms or site emergencies.
- 3) Notification of portions of the on-call ERO are made by the public address system, pager or phone informing them of the declaration of an Unusual Event.

Indian Point Energy Center Emergency Plan

- 4) Depending on the particular circumstance of the situation, the Shift Manager has the discretion to activate all or a portion of the ERO. During normal working hours the necessary personnel are available in the plant and are contacted by Public Address System, pager or alternate methods. During off-hours individuals can be contacted at their homes by telephone or pager "beeper" system. ERO member telephone numbers are in the Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.
 - 5) Immediate Notification (within 15 minutes) of an Unusual Event is made by the Shift Manager or his designee to the New York State, Westchester, Rockland, Putnam and Orange County and Peekskill Warning Points, and the West Point Military Police Desk using the Radiological Emergency Communications System (RECS) phone (primary method) or backup methods: Local Government Radio (LGR) or commercial phone lines. The New York State Warning Point relays the information to the New York State Department of Health.
 - 6) The Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) phone or commercial phone lines.
 - 7) Individuals from Corporate Headquarters are notified by phone or pager.
 - 8) Closeout is accomplished by a verbal summary to offsite authorities followed by a written summary within 24 hours.
- b. Alert
- 1) An Alert is declared by the Shift Manager (or Control Room Supervisor if the SM is unavailable) in the event an alert condition listed in the EALs Table (Section D) is met or exceeded. If the EOF is Operational, this function would be performed by the Emergency Director.
 - 2) Notification of site personnel is accomplished by the Control Room Operators initiating the site assembly alarm and/or via the Public Address Announcements. In addition, the affected unit's Control Room Operators also contact the unaffected unit's Control Room personnel.
 - 3) In the case of a fire, additional notification in the form of a distinctive siren is also provided. The Shift Manager or designee would request, by phone, outside assistance from local support services as necessary.
 - 4) The Shift Manager initiates the activation of the Emergency Operations Facility, Technical Support Center, Operations Support Center and Joint Information Center. During normal working hours the necessary personnel are available in the plant and are contacted by the Public Address System, pager or alternate methods. During off-hours individuals can be contacted at their homes by telephone or pager "beeper" system. ERO member telephone numbers are in the Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

Indian Point Energy Center Emergency Plan

- 5) Immediate Notification (within 15 minutes) of an Alert is made by the Shift Manager or his designee to the New York State, Westchester, Rockland, Putnam, Orange County, and Peekskill Warning Points and West Point Military Police Desk using the Radiological Emergency Communications System (RECS) phone (primary method) or backup methods: Local Government Radio (LGR) or commercial phone lines. The New York State Warning Point relays the information to the New York State Department of Health.
 - 6) Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) to the NRC Operations Center or commercial phone lines.
 - 7) Individuals from Corporate Headquarters are notified by phone or pager.
 - 8) If there is a radiological release involved with the event, the Shift Manager/Emergency Director or his designee will provide information on the release to the offsite authorities.
 - 9) Close out in emergency class is accomplished by the briefing of offsite authorities at the Emergency Operations Facility and by phone, followed by a written summary within eight hours.
- c. Site Area Emergency
- 1) A Site Area Emergency is declared by the Shift Manager (or Control Room Supervisor if the SM is unavailable) in the event a site area emergency condition listed in the EALs Table (Section D) is met or exceeded. If the EOF is Operational, this function would be performed by the Emergency Director.
 - 2) Notification of site personnel is accomplished by the Control Room Operator initiating the Site Assembly Alarm or use of the public address system. Accountability of personnel located within the Protected Area is performed. In addition the unaffected Control Room Personnel are contacted by the affected Control Room Operators.
 - 3) The activation of emergency personnel to staff the Emergency Operations Facility, Technical Support Center, Operational Support Center and Joint Information Center is initiated by the Shift Manager. The minimum organization is described in Section B. During normal working hours the necessary personnel are available in the plant and are contacted by the Public Address System, pager or alternate methods. During off-hours individuals can be contacted at their homes by telephone or page "beeper" systems. Telephone numbers of Emergency Personnel are in the emergency phone list available in the Control Room and the Emergency Response Facilities.
 - 4) Individuals from Corporate Headquarters are notified by phone or pager.
 - 5) Immediate Notification (within 15 minutes) of a Site Area Emergency is made by the Shift Manager/Emergency Director or his designee to the New York State, Westchester, Rockland, Putnam and Orange County and Peekskill Warning Points, and the West Point Military Police Desk using the Radiological Emergency Communications System (RECS) phone (primary method) or

Indian Point Energy Center Emergency Plan

backup methods: Local Government Radio (LGR) or commercial phone lines. The New York State Warning Point relays the information to the New York State Department of Health.

- 6) Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) to the NRC Operations Center or commercial phone lines.
- 7) After arrival of ERO personnel, dedicated individuals would be assigned to provide plant status and meteorological and dose estimates for actual and projected releases.
- 8) If there is a radiological release involved with the event, the Shift Manager/Emergency Director or his designee shall provide information on the release to the offsite authorities.
- 9) Close out in emergency class is accomplished by the briefing of offsite authorities at the Emergency Operations Facility and by phone, followed by a written summary within eight hours.

d. General Emergency

- 1) A General Emergency is declared by the Shift Manager (or Control Room Supervisor if the SM is unavailable) in the event a general emergency condition listed in the EALs Table (Section D) is met or exceeded. If the EOF is Operational, this function would be performed by the Emergency Director.
- 2) The activation of the emergency organization, the notification of offsite authorities, Station Personnel, Corporate Headquarters is the same as described in Section E.1.c for a Site Area Emergency – with the addition of a Protective Action Recommendation being given.

2. Notification and Mobilization of Emergency Response Personnel:

At the Unusual Event classification, select portions of the Indian Point Emergency Response Organization are notified and could be activated at the discretion of the Shift Manager.

At the Alert, Site Area Emergency, or General Emergency classification level, notification and activation of all onsite Emergency Response Organization positions and related facilities is required. Based on the event the Emergency Director would de-activate some positions or call in additional personnel as required.

Onsite personnel are notified of the declaration, escalation or termination of an emergency. An announcement is made from the Control Room over the plant public address system. In addition to the public address system, pagers or alternate methods notify emergency organization personnel.

Indian Point Energy Center Emergency Plan

NOTE: NUREG-0654 Criterion II.B.5 states that the "licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency". The time frames for rapid augmentation of a nuclear power plant staff in the event of an emergency are not rigid inviolate requirements but rather goals. It is Entergy's intent to expend its best efforts to meet the augmentation criteria goals regarding staffing Emergency Response Facilities with sufficiently skilled individuals capable of handling an emergency. Both the NRC and Entergy realize that due to diversity of normal residential patterns for the stations' staff, possible adverse weather conditions and road congestion, these time frames might be exceeded. These time frames may also be exceeded during a Security event.

ERO members who are away from the site when an event is declared are notified via pager and/or phone calls. Pagers are activated either as a group or individually. An automated notification system makes individual calls to members of the ERO. Once notified, ERO members respond to their assigned facilities immediately.

Mobilization of federal, state, and county response organizations is performed in accordance with their applicable emergency plan and procedures. At a minimum, mobilization of federal response organizations and activation of state and county EOCs is expected to occur at the declaration of an Alert.

The state and county authorities are responsible for the process of notification of the general public.

3. Initial Notification:

An Initial Notification using Part I of the New York State Radiological Emergency Data Form shall be used to transmit information to appropriate State and local agencies within fifteen (15) minutes of any of the following:

- A classification is made;
- The classification changes;
- A change in radioactive release condition;
- A change in the downwind sector when a release is potential or occurring;
- A change is made in Protective Action Recommendations; and
- Additional information is available which may affect a change in the State or local protective action response.

The initial emergency message form includes information about:

- a) authenticity, i.e. "This is NOT an Exercise (Drill)" or "This is an Exercise (Drill)";
- b) identity of caller and receiver of call;
- c) emergency classification;
- d) emergency action level identification and whether a release is in progress;
- e) wind direction, speed and stability class;

Indian Point Energy Center Emergency Plan

- f) whether protective measures may be necessary;
- g) the date and time of classification and notification.

In a General Emergency the notification includes, at a minimum, a recommendation for evacuation of the general public within the two (2) mile ring of Indian Point Energy Center and five (5) miles downwind, and sheltering of the remainder of the 10-mile Emergency Planning Zone and implementation of NY State KI plan.

4. Follow-up Messages:

The Emergency Director ensures communications are maintained with the offsite authorities through periodic follow-up messages. Follow-up message should be provided approximately every 30 minutes or on agreed upon intervals established with the offsite authorities. The follow-up messages include the following, as appropriate:

- a. Location of incident, name and telephone number of caller;
- b. Date and time of incident;
- c. Class of Emergency. (Unusual Event, Alert, Site Area Emergency or General Emergency);
- d. Type of actual or potential radiological release (airborne, waterborne, surface spill);
- e. Whether or not [estimate of quantity of] radioactive material has been released or is being released;
- f. Radiological release information, including estimates of the relative quantities and concentrations of noble gases, halogens, and particulates;
- g. Meteorological conditions at appropriate levels (wind speed, direction to and from, stability);
- h. Actual or projected dose rates at the site boundary, projected integrated dose at site boundary;
- i. Projected dose rates and integrated dose at the Site Boundary and at 2, 5, and 10 miles;
- j. Estimates of any surface contamination if applicable;
- k. Recommended emergency actions, including protective measures;
- l. Prognosis for worsening or improvement.

5. State and Local Information Dissemination:

State and local government organizations, in cooperation with Indian Point personnel, have established a system for disseminating appropriate information to the public. The system includes notification through appropriate broadcast media, e.g. the Emergency Alerting System (EAS).

6. Notification of the Public:

The State and local government organizations have the capability for providing an alert signal (sirens) to their population within fifteen (15) minutes following the decision to take a protective action.

The public Alert Notification System (ANS) is operated by local government agencies and maintained by Entergy. The design of the ANS includes backup power capability in accordance with NRC Order EA-05-190, dated January 31, 2006 (Section IV.II: A1 – A5 and B1 – B3). In cooperation with offsite agencies Entergy personnel test the system periodically. System testing and preventive maintenance requirements include those specified in Section IV.II: A6 and C4 – C5 of the Order. Any system discrepancies are promptly repaired.

The public Alert Notification System (ANS) is composed of 172 sirens and the RECS phone for the US Military Academy. These are augmented with individual alerting devices for special facilities.

The sirens are electronic. They are activated from each County EOC or Warning Point via simultaneous radio and TCP/IP signals. The county EOCs and Warning Points and IPEC have the same capability for siren activation.

The system design consists of 172 sirens with a distribution as follows:

- Westchester - 77
- Rockland - 56
- Orange - 23
- Putnam - 16

Periodic testing and maintenance of the ANS is performed in accordance with approved procedures. Periodic testing includes:

- Bi-weekly silent test – intended to check computer equipment, radio transmitter/repeater and siren receiver.
- Quarterly growl test – intended to test the siren sub-system from receiver antenna to siren (satisfies the requirement of the bi-weekly silent test).
- Annual activation test – intended to test the actuation and operation of the siren system (satisfies the requirements of the bi-weekly silent test) at full volume for a period of approximately 3 – 5 minutes.

Indian Point Energy Center Emergency Plan

Tone Alert Radios are distributed within the 10-mile EPZ to augment siren alerting for institutions and are provided to residents when requested. On an annual basis, guidance is provided on the use and testing of the tone alert radios.

7. Messages to the Public:

The State has developed draft messages for the Emergency Alerting System (EAS) that are intended for the public. These draft messages are included as part of the State plan and contain instructions with regard to specific protective actions to be taken by occupants and visitors of affected areas.

Messages to the public are also provided via the Media. These messages are coordinated by utility, Federal, State and local representatives at the Joint Information Center.

Part 2: PLANNING STANDARDS AND CRITERIA

Section F: Emergency Communications

This section describes the emergency communications equipment available to support the Indian Point Energy Center (Indian Point) Emergency Response Organization (ERO). It outlines the available communications equipment to:

- Notify the Indian Point Emergency Response Organizations;
- Provide Initial Notification to Offsite governmental agencies;
- Communicate among the Indian Point Emergency Response Facilities and field teams;
- Communicate with the Nuclear Regulatory Commission (NRC) and other Federal, State, and local response agencies;
- Communicate with hospitals, ambulances, and other agencies providing offsite assistance to Indian Point.

This section further outlines the program for insuring that the communications equipment is tested on a regular schedule, and that methods are in place to ensure rapid and reliable repair of any equipment found not operational.

1. Description of Primary Communications Systems

Communications may be established by different means (radio, phone, public address system) within plant buildings, between the Site and local authorities and between the following groups: Control Room personnel, offsite support groups, Emergency Operations Facility personnel, Technical Support Center personnel, Operations Support Center personnel, Joint Information Center personnel, monitoring teams, security forces and Corporate Management.

Public Address System

The Public Address Systems are designed for paging within the Units (1, 2 and 3) from the Units' Control Rooms. Personnel paged have the ability to talk to the Control Room Operator via party line phones that are strategically located within the units. Plant personnel may initiate the communication to the Control Room from outlying party lines. This system is used to call personnel and announce emergencies in the Indian Point Protected Area(s).

In the event the Public Address system is not operational, alternate methods of notification will be used.

Telephone Exchanges

Normal telephone communication service includes Private Branch (PBX), Commercial and/or Federal Telephone System (FTS) exchanges in the Control Rooms, Emergency Operations Facility, Technical Support Center, Operations Support Center, Joint Information Center, Incident Command Post and Corporate Headquarters.

Indian Point Energy Center Emergency Plan

The Emergency Notification System (ENS) and the Health Physics Network (HPN) are dial telephone circuits in the Federal Telecommunication System used for the dissemination of operational conditions as well as the initial warning notification from the site to the NRC. This system has extensions at the Control Rooms, Technical Support Center, Emergency Operations Facility and Alternate Emergency Operations Facility. Additional FTS2000 lines are available in the Emergency Operations Facility for NRC personnel responding to the site.

Direct Line Phones

Radiological Emergency Communications System (RECS) and the Emergency Response Facility direct lines.

- The Radiological Emergency Communication System (RECS) with phones in the Control Rooms and the Emergency Operations Facility is the primary means for Indian Point personnel to simultaneously notify the State and County Warning Points, Emergency Operations Centers, West Point and the City of Peekskill of an emergency. This system is staffed twenty-four hours per day in the Control Rooms, State, County, City of Peekskill and West Point Warning Points. IPEC Implementing Procedures and State and County Warning Point procedures detail the activation of this system and their respective responses organization.

Figure F-1.1 depicts RECS.

- Automatic ringing phones connect the Technical Support Center/Operations Support Center with the Control Rooms and the Emergency Operations Facility/Alternate EOF.
- An Executive Hotline has been established between the EOF and the State and County Emergency Operations Centers that provides for a dedicated link between state and local officials and the Emergency Director once the EOF has taken command and control of Entergy's emergency response.

Radio Systems

A two-channel radio system is available for communication between the emergency facilities and individuals onsite. One channel is assigned for each unit to communicate with individuals performing tasks within the plant.

An additional radio channel is available for communications with the Field Monitoring Teams.

The Security Force connecting the Command Guard Houses with all guard posts uses a security radio system.

The Local Government Radio (LGR) is installed in the Control Rooms and Emergency Operations Facilities to be used as backup to the Radiological Emergency Communications System (RECS) phone. Figure F-1.2 depicts the LGR system.

Backup power for the IPEC Emergency Response Facilities radio systems is provided by either gas or diesel engine driven generators or batteries that will automatically supply AC power for the radio system if normal power is interrupted.

Radio Paging System - (Page "Beeper" Service)

A commercial radio paging service is used for calling personnel at the start of an emergency. A paging service is contacted to initiate the page. The paging service then transmits a message to all personnel to whom a pager has been issued. Personnel acknowledge by calling a pre-designated number connected to an answering machine that receives the caller's name and time of the call and their availability to respond. A coded message identifies the need for personnel to report to their ERO positions.

Computer Systems

The Emergency Response Data System (ERDS) is a computer link from Indian Point to the NRC Operations Center that displays key plant data. ERDS will be activated at an Alert or higher classification.

Other computer systems have been established to display plant data and meteorological data in the onsite and offsite Emergency Response Facilities.

Additional Communications:

Indian Point Emergency Response Facilities are equipped to communicate with state and county Emergency Operations Centers once the Emergency Response Organizations are in place.

- a. The Nuclear Regulatory Commission is Indian Point's primary point of contact for communications with the Federal Emergency Response Organization. (see Figure F-1.3 for types of communications systems used.)
- b. The communications described in this section provide for adequate communications between Indian Point Emergency Response Facilities. Implementing procedures provide guidance for the ERO to establish and maintain proper communications throughout an event at Indian Point.
- c. Section E.2 describes the provisions for alerting and activating the Emergency Response Organization.
- d. Procedures are in place for the ERO to continuously provide information to the NRC as requested.

Indian Point Energy Center Emergency Plan

Medical Communications:

Indian Point establishes communications with the primary medical supplier, Hudson Valley Hospital Center, Peekskill/Cortlandt, and if needed the backup hospital, Phelps Memorial, Sleepy Hollow, via commercial telephone that is accessed by station personnel either via commercial onsite telephone or by an Indian Point telephone system. The Unit 2 Control Room, by calling 911, obtains direct ambulance dispatch. The Dispatcher provides for a coordinated communications link to the ambulances responding to Indian Point or transporting personnel from the Station.

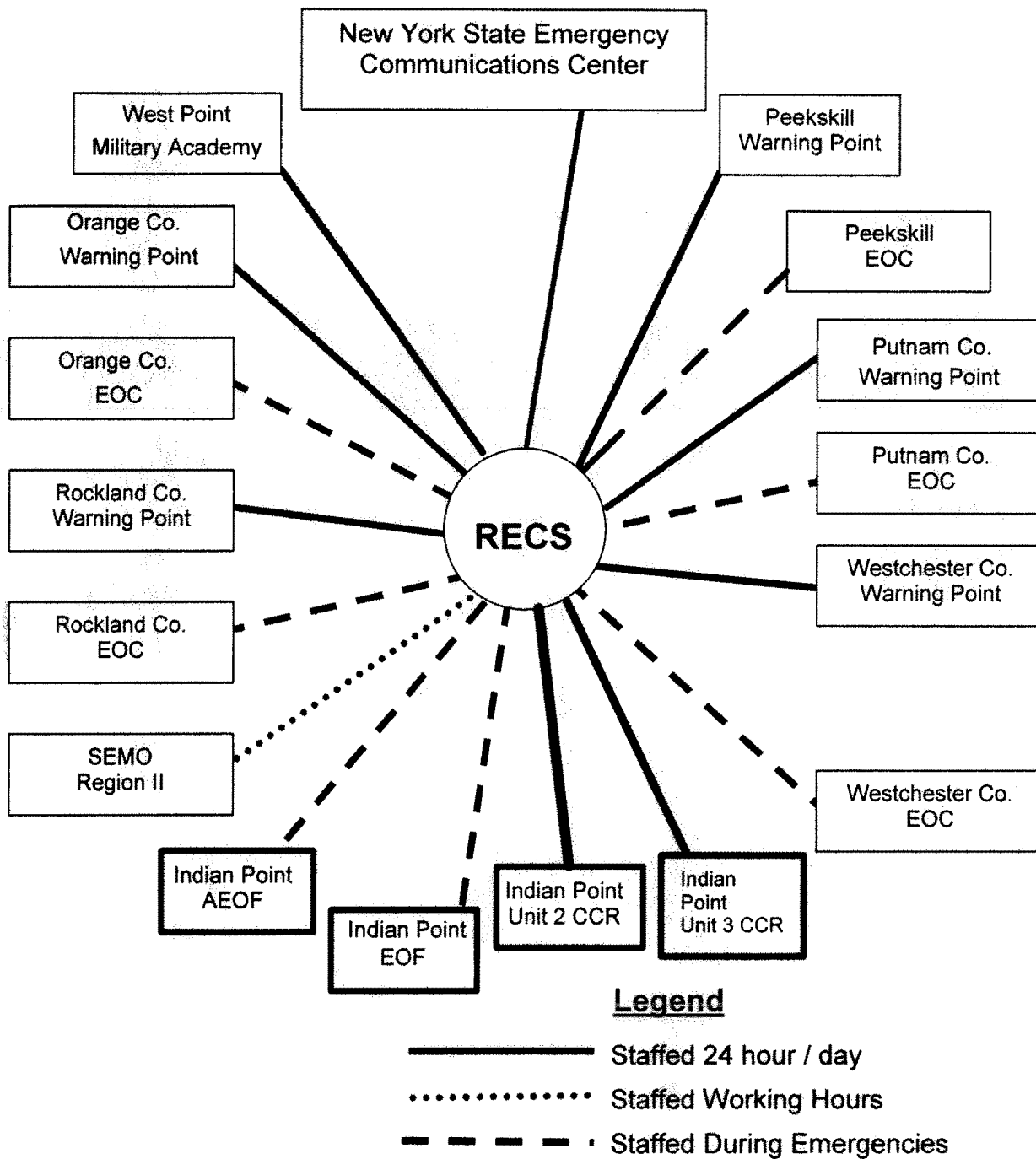
Communications Drills and Testing:

Communications drills between Indian Point and state and local governments are conducted in accordance with criteria contained in Section N.2. Also, Indian Point personnel conduct monthly and quarterly surveillances to determine the working condition and availability of critical communications equipment. This surveillance includes a check of the units' operability and general condition. Deficiencies are identified and reported for prompt corrective action.

Indian Point Energy Center Emergency Plan

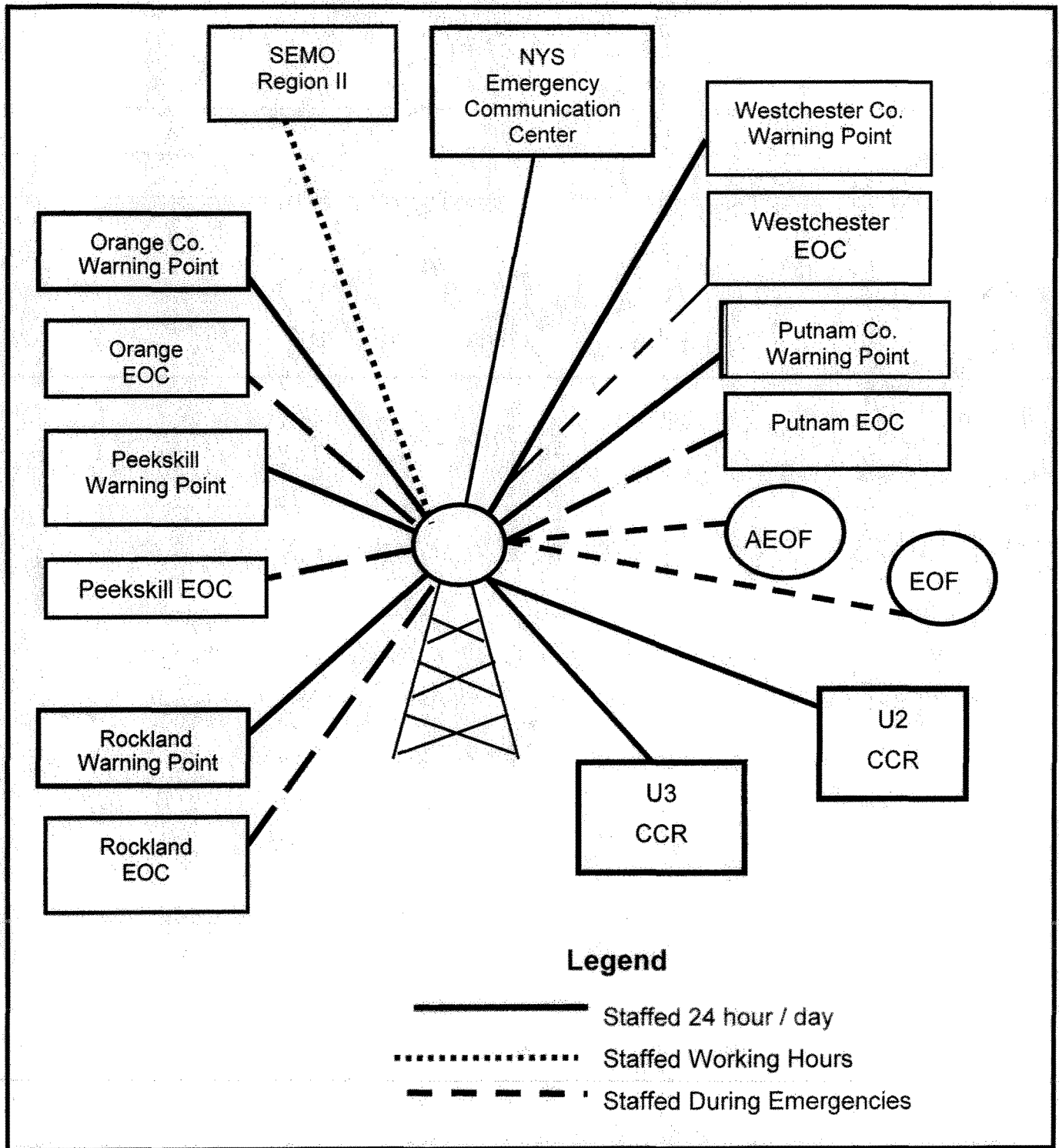
Typical Indian Point Communications Paths

Figure F-1.1 Radiological Emergency Communications System

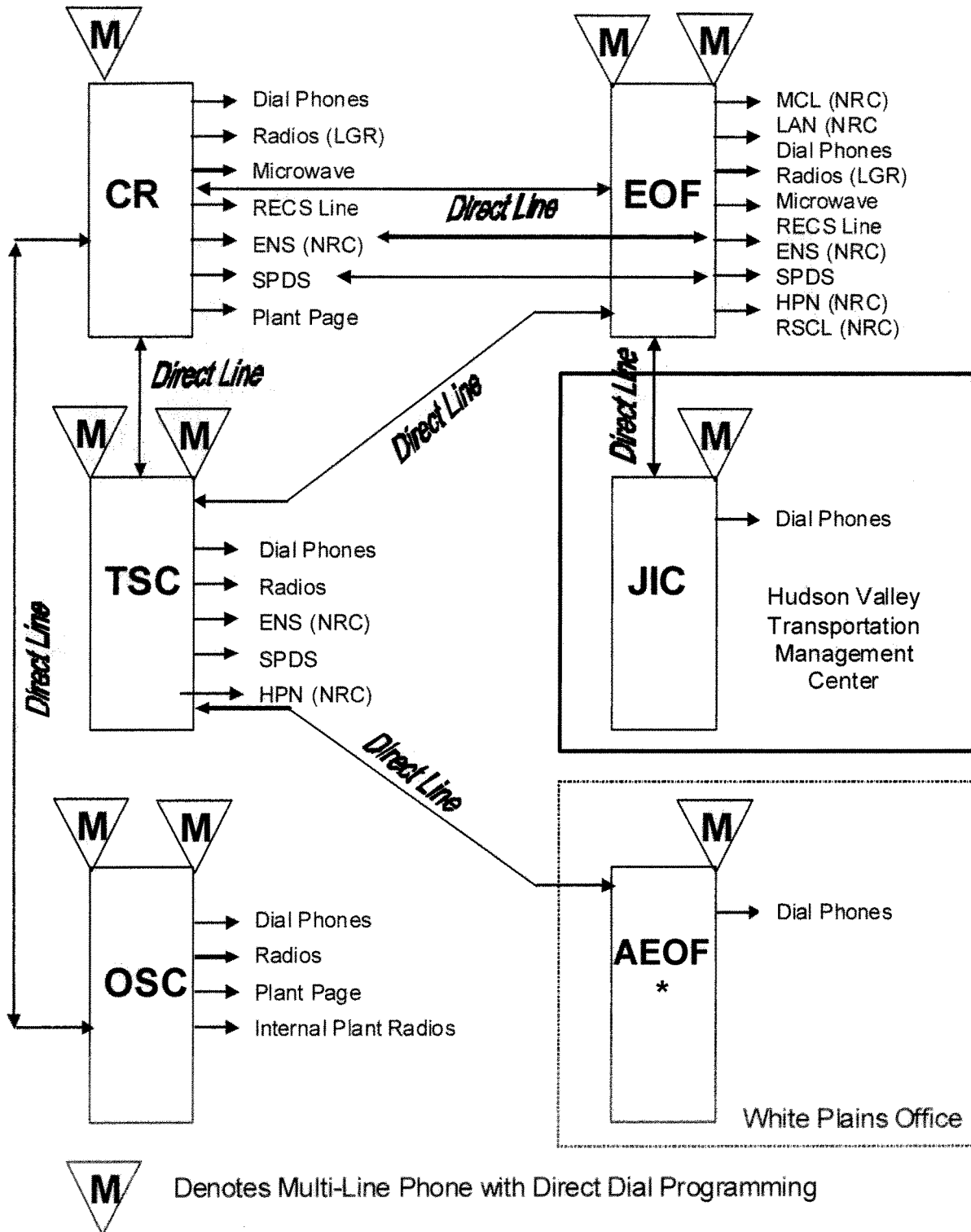


Indian Point Energy Center Emergency Plan
 Typical Indian Point Communications Paths

Figure F-1.2 Local Government Radio System



Indian Point Energy Center Emergency Plan
 Typical Indian Point Communications Paths



* When the AEOF is activated in the White Plains Office, it has similar communications capabilities as the EOF.

Figure F-1.3 Emergency Facilities Communications Systems

Part 2: PLANNING STANDARDS AND CRITERIA

Section G: Public Education and Information

This section describes the Indian Point Energy Center public education and information program. It outlines the methods for distributing public information materials on an annual basis and describes how the public is informed in the event of an emergency.

1. Public Information Publication:

Entergy, New York State and the counties of Westchester, Orange, Rockland and Putnam, are responsible for the periodic dissemination of educational information to the public within the 10-mile Emergency Planning Zone (IPEC EPZ).

County-specific emergency planning educational booklets are provided to the public. The booklets contain public safety information about emergencies at Indian Point and what the public may be asked to do in an emergency. The booklets are mailed to each household and business within the 10-mile IPEC EPZ.

Updated booklets will be distributed annually.

The booklet contents include, but are not limited to:

- a. Educational information on radiation;
- b. The types of events which require public notifications;
- c. State and county contacts for additional information;
- d. Instructions for the members of the public with special needs;
- e. Definitions of protective measures, written descriptions of emergency bus routes, locations of reception centers, steps to follow when sheltering or evacuating;

2. Public Education Materials:

Additionally, an advertisement containing specific information is prepared and inserted into telephone books. Siren information stickers/posters are distributed to provide information for the transient population.

These materials instruct the public to tune their radios or television to an Emergency Alert System station when they hear the Alert Notification System (sirens). The materials identify the local radio and television stations which the public should tune into to receive emergency-related information.

Distribution of materials, updated as necessary, will be conducted annually.

Indian Point Energy Center Emergency Plan

3. Joint Information Center

- a. The Joint Information Center (JIC) is the official distribution point for the coordinated release of information from the four counties of Westchester, Rockland, Putnam and Orange, the State of New York, and Entergy's Indian Point Energy Center. The JIC is located outside the plume exposure emergency planning zone at the Hudson Valley Transportation Management Center, 200 Bradhurst Avenue in Hawthorne, NY.

The JIC's primary functions are to:

- Provide information to the media, through briefings or written statements on plant conditions and on emergency response actions being taken to protect the public.
 - Ensure that the public receives credible, accurate and timely information, and to identify and correct rumors or misinformation through coordinated public inquiry functions, as well as via coordinated media referral and media monitoring response operations.
 - Support further distribution of Emergency Alert System (EAS) emergency advisories to the public in the 10-mile Emergency Planning Zone (EPZ).
- b. The JIC can accommodate federal, state and local government representatives as well as news media representatives. State and local government representatives can all access the JIC through virtual connections such as video or teleconference capabilities.
 - c. The JIC is equipped to support all activities including video conferencing computers, fax machines and copiers.
 - d. JIC procedures allow Entergy JIC staff to disseminate information to the media at the Unusual Event classification or prior to activation of the JIC at higher classifications.

4. Coordination of Public Information

- a. The Entergy Company Spokesperson is the primary spokesperson for Entergy during an emergency. The Company Spokesperson has direct access to all necessary information.
- b. The JIC is staffed by federal and state emergency management agencies and Entergy personnel to assure timely exchange and coordination of information. County emergency management representatives participate in the JIC and exchange and coordinate information through video, teleconferencing and web link. Representatives coordinate information prior to distributing news releases and prior to news briefings.

Indian Point Energy Center Emergency Plan

- c. The JIC responds to public inquiries news media calls. It also monitors media reports through Internet websites. Rumors or misinformation are identified during an emergency by phone and media monitoring teams. Reports of misinformation or rumors are forwarded to the JIC staff for appropriate response.

5. Media Orientation

Entergy in cooperation with NYS, will annually acquaint news media personnel with the emergency plans, information concerning radiation and points of contact for release of public information in an emergency.

NYS typically issues a media advisory annually informing the media of Licensee, State, and County Websites that provide information on Emergency Planning, Radiation, and Indian Point.

Part 2: PLANNING STANDARDS AND CRITERIA

Section H: Emergency Facilities and Equipment

This section describes the emergency facilities and equipment used by the Indian Point Emergency Response Organizations. It outlines the facilities and equipment requirements that aid in the timely and accurate response by the Indian Point Emergency Response Organizations. It also describes the surveillance programs used to monitor and insure that these facilities and equipment are maintained in a high degree of constant readiness.

The emergency response activities of the Indian Point Emergency Plan are distributed among the functions of the following Emergency Response Facilities (ERF):

- Control Room (Unit 2 & Unit 3)
- Technical Support Center (joint facility)
- Operations Support Center (joint facility)
- Emergency Operations Facility (joint facility)
- Alternate Emergency Operating Facility (joint facility)
- Joint Information Center (joint facility)

Each facility has procedures, staff, accommodations, equipment, services and supplies for implementing its function.

1. In-Plant Emergency Response Facilities

Control Rooms (CR)

Each unit's control room contains the necessary instrumentation for operating the plant under normal and accident conditions. Control Room personnel make the initial declaration and classification of an emergency and perform activities of other Emergency Response Facilities until those facilities are activated and operational. Manipulations of the reactor or the plant to mitigate the consequences of an accident and restore safe conditions, however, remain as the primary function of the CR.

Once the entire Emergency Response Organization is activated additional positions are assigned to the CR. These individuals assure plant parameter data is available to the TSC/OSC and provide other emergency communications as necessary.

Overall management of the emergency response lies with the Shift Manager in the CR until it is accepted by either another qualified Emergency Director, (Plant Operations Manager) or the Emergency Director located in the EOF. Meteorological, plant parameter, offsite radiation monitor and survey data are available for accident assessment, emergency classification and protective action recommendations. Radio and telephone services are available to alert and notify government authorities of emergencies and recommend protective action.

Indian Point Energy Center Emergency Plan

Technical Support Center (TSC)

The Indian Point Energy Center TSC is in the Unit 1 Superheater Building, 53' elevation across the hall from the Unit 2 CR.

In the event that the TSC becomes uninhabitable, Emergency Planning Implementing Procedures provide details on how to relocate TSC personnel.

The primary functions of the TSC include providing:

- Plant management and technical support to the reactor operating personnel in the Control Room (CR) and
- Information on plant events and conditions, including plant parameter data, to the Emergency Director in the EOF.

The TSC is operational within 60 minutes after a declaration of an Alert, SAE or GE. Activation of the ERO at an NUE is discretionary.

The TSC Manager directs and coordinates activities in the TSC. Plant parameter data is available for accident assessment including core damage assessment. This data can be forwarded to the EOF or AEOF. Telephone service between locations on and off the site is also available.

Included in the TSC are the Computer Room, an NRC area, Records Management Office and Workspace. The Ventilation System assures that the General Design Center Criterion 19 (GDC) exposure limits of 5 Rem whole body and 30 Rem thyroid, during the first 30 days of a Design Basis Accident (DBA) can be met.

Operations Support Center (OSC):

The Indian Point Energy Center, OSC is located in the Unit 1 Superheater Building, 53' elevation adjacent to the TSC.

The OSC is where survey, operations and repair teams are dispatched into areas of the plant and is the staging area for individuals who may be assigned to first aid, search, rescue, survey, repair and corrective action teams.

The OSC Manager is responsible for managing the activities in the OSC including:

- Ongoing accountability of anyone dispatched from the OSC. The Control Room Supervisor or the Security Shift Supervisor tracks individuals who are assigned to the Control Room Watch or the Security Force respectively;
- Radiological exposure control for the individuals within the OSC and TSC.
- Mobilizing of individuals on the emergency roster needed to fill the positions in the OSC and other support personnel such as materials and warehouse personnel.

The OSC is operational within 60 minutes after a declaration of an Alert, SAE or GE. Activation of the ERO at an NUE is discretionary.

Equipment and supplies for the OSC include protective clothing, dosimetry, sampling and survey equipment to be used by the OSC teams.

Indian Point Energy Center Emergency Plan

Radiological exposure controls for the OSC include monitoring conditions and relocation if necessary.

Tools and parts available for normal plant maintenance are also available for damage control operations during emergencies.

In the event the OSC becomes uninhabitable, Emergency Planning Implementing Procedures provide details on how to relocate OSC personnel.

2. Emergency Operations Facilities:

The EOF is located at the Indian Point Energy Center, just inside the Main Entrance on Broadway. Functions performed at the EOF include:

- Overall management of the Indian Point emergency response;
- Accident assessment including environment samples, surveys and dose calculations;
- Alert and notification of Federal, State and local government authorities of plant events, conditions, emergency action levels, emergency classifications and dose projections;
- Protective action recommendations to State and Local government authorities for the population around the site;
- Coordination with Federal, New York State and local government;
- Radiological exposure control for the individuals assigned to the EOF.

The EOF is activated with minimum staff within 60 minutes after a declaration of an Alert, SAE or GE. Activation at a NUE is discretionary. Accommodations are available for Federal, State and local government representatives.

The Emergency Director in the EOF is responsible for the overall management of the response. Meteorological, plant parameter, offsite radiation monitor, environmental sample and survey data are available for accident assessment, emergency classification and protective action recommendations. Telephone and radio services are available to alert and notify government authorities of emergencies and recommend protective action.

There are two levels in the EOF. The Emergency Control Center (ECC), Dose Assessment Area, NRC Room, Electrical Equipment Room and Communications Equipment Room are on the lower level and the State, County and Administrative Support areas are on the upper level.

Indian Point Energy Center Emergency Plan

Alternate Emergency Operating Facilities (AEOF)

There is an alternate location for the EOF outside the plume exposure emergency planning zone (EPZ). AEOF and EOF functions are similar.

The Alternate Emergency Operations Facility is located on the 12th floor of the AT&T building at 440 Hamilton Avenue, White Plains, NY. Procedures, staff, accommodations, equipment, services and supplies for the AEOF are similar to those for the EOF.

Entergy Regional Offices

Entergy provides support from the Corporate Headquarters and other Entergy sites. This office provides a common point of communication and coordination for the Emergency Director and the Indian Point emergency response organization with the resources available through other corporate organizations.

3. Joint Information Center (JIC)

The JIC is located outside the plume exposure emergency planning zone at the Hudson Valley Transportation Management Center, 200 Bradhurst Avenue, Hawthorne, NY and provides a place for;

- Point of contact between the Entergy corporate spokesperson and the news media; and
- Coordination of public information released to the news media and the public by Entergy, State and Local government including alerts, notifications and protective action recommendations.

The JIC has accommodations for Federal, State and Local government representatives as well as representatives of the news media.

The JIC Manager manages Entergy activities at the JIC. The JIC has equipment to support the activities including video conferencing, telephones, facsimile and photocopiers. The JIC will be operational within 2 hrs after a declaration of an Alert, SAE or GE.

4. Offsite Emergency Operations Centers (EOC)

State and Local Agencies have established Emergency Operations Centers to direct their emergency response. The offsite EOCs are located as follows:

Orange County Orange County Emergency Services Center, Goshen, NY

Putnam County Putnam County Bureau of Emergency Services, Carmel, NY

Rockland County Fire Training Center, Pomona, NY

Westchester County Transportation Management Center, Hawthorne, NY

NY State Public Safety Building
State Campus Building #22, Albany, NY

Indian Point Energy Center Emergency Plan

5. Activation and Staffing of Emergency Response Facilities

Entergy has in place plans and procedures to ensure the timely activation of its emergency response facilities. Facilities are activated when facility managers determine they can perform required functions based on available staff and emergency conditions. The full staffing of the emergency facilities is described in Section B of this plan. Timely mobilization and activation of the ERO is described in Section E.1

6. Emergency Onsite Monitoring Systems

In addition to the extensive normal plant systems which continually monitor plant systems, the following systems are used for emergency assessment:

a. Seismic Monitoring Equipment

The seismic monitoring equipment at the Indian Point Station is located in the Unit 3 Containment Building. The Unit 3 Control Room Operator transmits information from this equipment to the Unit 2 Control Room. The monitoring system consists of three peak shock recorders in a tri-axial mount at EL-46'-0" on the base mat; two tri-axial strong motion accelerographs, one at EL-46'-0" on the base mat and one on the Containment Structure Wall at EL-100'-0" directly above the lower unit and three peak recording accelerographs, one each on a steam generator, a reactor coolant pump and the pressurizer.

The peak shock recorders readout in the Unit 3 Control Room on a peak shock annunciator when acceleration limits are exceeded. Both strong motion accelerographs record on magnetic tape recorders also located in the Control Room. The accelerographs on the base mat are wired to an alarm panel in the Unit 3 Control Room which produces an audible and a visual signal at an earthquake acceleration greater than 0.01g. If necessary, the magnetic clips from the peak recording accelerographs must be retrieved from inside containment to be further evaluated.

b. Radiological Monitors

A Radiological Monitoring System, consisting of fixed process (air, liquid or gas) monitors and area radiation monitors, are installed throughout each Unit with remote readouts and alarm indications in the Control Rooms. Key fixed radiation-monitoring equipment is identified in the U2 and U3 FSAR's.

In-plant Iodine Instrumentation

Measurement and analysis of airborne iodine concentrations within the station can be performed onsite using equipment located in areas expected to have post accident accessibility. Portable equipment to collect local samples is also available onsite. Procedures provide direction and guidance for sample collection and analysis.

Indian Point Energy Center Emergency Plan

Post-accident Sampling

Plant design includes the capability to sample the reactor coolant system, the discharge of the recirculation and residual heat removal pumps, and the post accident containment atmosphere.

Facilities for the radiation protection and chemistry groups include laboratory and calibration rooms for both conventional and radio chemical analyses.

Portable Survey Instruments

Counting equipment and supplies are available in emergency lockers. Administrative procedures describe type, locations and the amount of equipment available to the Emergency Response Organization.

c. Process Instrumentation

Vital parameters (e.g. pressure, flow, temperature, fluid level) are monitored and abnormal conditions immediately brought to the attention of the watch force with either local indication or remote indication in the Control Rooms.

Process instrumentation inside containment provides required operating and assessment information after a loss of coolant accident or a steam-line break. This instrumentation includes:

- Pressurizer pressure channels
- Pressurizer level channels
- High-head flow channels
- Accumulator pressure channels
- Recirculation spray flow channels
- Recirculation sump level channels
- Containment sump level channels
- Residual heat loop flow channels

d. Instrumentation for Detecting Inadequate Core Cooling

Instrumentation for detecting inadequate core cooling includes:

- Reactor coolant saturation meter
- Hot leg wide range temperature
- Cold leg wide range temperature
- Wide range reactor coolant pressure
- Pressurizer level
- Reactor vessel level indication system (RVLIS)
- Core exit thermal couples

Indian Point Energy Center Emergency Plan

The first indication of mass loss from the Reactor Coolant System (RCS) may be a decreasing pressurizer level. Saturation or the degree of subcooling can be determined from the saturation meter or with primary system pressure and temperature from the steam table in the Control Room. Cold and/or hot leg wide range temperatures that are higher than the saturation temperature indicate degradation of core cooling.

e. Fire Detection

Heat and smoke detectors are located throughout the plant with alarms annunciated in the Control Rooms. A detailed description of the fire detection equipment is in the Fire Protection Program documents.

7. Offsite Emergency Data Acquisition

a. Alternate sources for geophysical data

If meteorological data is unavailable from the station's tower, information can be obtained from the following sources:

- Several internet sites provide meteorological data and may be accessed from Emergency Response Facilities
 - National Weather Service (NWS) hourly data from area reporting stations including wind speed, wind direction, cloud cover, precipitation, temperature, dew point and atmospheric pressure.
 - Atlantic City, New Jersey and Albany, New York NWS stations. These sources can also be used for flood and drought conditions for the Hudson River.
- b. Consultants are available to the Indian Point Energy Center staff regarding seismic monitoring of the Indian Point vicinity.
- c. Backup radiological monitoring equipment and assistance can be obtained from other utilities through INPO or the Department of Energy's Brookhaven Area Office. Letters of agreement for these services can be found in Appendix 2 of this plan.
- d. Environmental sample preparation and counting are available through James A. Fitzpatrick (JAF) environmental lab or through the use of an offsite laboratory. The offsite laboratory contract is available through the Indian Point contracts department.

8. Facilities and Equipment for Offsite Monitoring

a. Survey Vehicles

Indian Point has survey vehicles, equipped with two-way radios, GPS units and cell phones. Offsite Monitoring Kits used in these vehicles include air samplers, sample counters, portable survey meters (including low-level radioiodine detection equipment with a minimum sensitivity of 1×10^{-7} $\mu\text{Ci/cc}$), personnel dosimeters and

Indian Point Energy Center Emergency Plan

respirators are available for offsite monitoring. A more detailed list of equipment is available in the Emergency Plan Implementing Procedures.

During an emergency, the survey vehicles are sent to pre-selected locations within 10-mile radius of the site. Laboratory facilities for personnel whole body counting and for environmental sample preparation and counting exist at the site.

b. Radiological Environmental Monitoring Program

Indian Point Radiological Environmental Monitoring Program includes routine direct gamma measurements, particulate and radioiodine air sampling, water sampling, and seasonal aquatic and land vegetation sampling at various locations. The Indian Point Radiological Environmental Monitoring Program is described in each unit's Offsite Dose Calculation Manual (ODCM).

Backup facilities for the environmental sample preparation and counting are available by a contract with an offsite laboratory.

c. Fixed Field Measurement Sites

Pressurized ionization chambers, one in each of the 16 sectors are located at various distances between the site boundary and 2 miles. The radiation data is collected by a computer system at the Indian Point Energy Center that allows access to this information through the Meteorological, Radiological and Plant Data Acquisition System (MRPDAS) which is part of the Emergency Response Display System (ERDS). These systems are available at all IPEC facilities through the Entergy computer network. This information is also available to offsite Emergency Operation Centers via MRPDAS through a secure internet portal to the Entergy computer network. This data may be used to estimate whole body exposure offsite.

9. Meteorological Monitoring

The meteorological system at the Indian Point Site provides real-time meteorological parameters as specified in Enclosure 1 to Appendix 2 of NUREG-0654 (January 1980) and USNRC Regulatory Guide 1.23 Revision 1. The three basic functions outlined in Annex 1 to Appendix 2 of NUREG-0654-Rev. 1 have been implemented.

The meteorological system at Indian Point consists of three meteorological towers. The 122 meter primary meteorological tower has instrumentation consisting of wind speed, wind direction and temperature at multiple levels. The vertical temperature gradient is then used to determine atmospheric stability. A backup diesel generator equipped with an automatic power transfer switch is available in the event that the normal AC feed is lost.

Indian Point Energy Center Emergency Plan

Backup towers are also available onsite. These towers provide a single 10-meter elevation for wind speed and wind direction instrumentation only. Determination of atmospheric stability is determined from the standard deviation of the horizontal wind fluctuation (σ - θ) over a 15-minute period.

Real-time wind speed and wind direction data are continuously monitored and recorded as 15-minute averages, with the data available through the Entergy computer network (ERDS, MRPDAS). All of the data outputs are in the format specified in Enclosure 1 and Appendix 2 of NUREG-0654 (January 1980). Real-time meteorological information can also be obtained from the National Weather Service stations and other offsite meteorological facilities identified in Section H.7.

Real-time atmospheric transport and diffusion calculations are made using a computer system and peripherals.

10. Facility and Equipment Readiness

Emergency facilities and equipment are inspected and inventoried in accordance with departmental administrative procedures. The inspection includes an operational check of instruments and equipment. Equipment, supplies and parts that have a shelf life are identified, checked and replaced as necessary. Sufficient reserves of instruments/equipment are maintained to replace those that are removed from emergency kits or lockers for calibration or repair.

Survey instruments and counters have been placed on a rotating calibration schedule. Other equipment requiring calibration will be calibrated as recommended by the manufacturer. Normally, equipment-requiring calibration will be calibrated at the Station and will be immediately available in the event of an emergency.

Dedicated communications equipment between Federal, State and local government agencies within the plume exposure pathway EPZ are checked periodically in accordance with Section N.2.

The results of tests, inventories, and inspections are submitted to the Emergency Planning Manager or designee for review. The Emergency Planning Manager or a designee is responsible for the evaluation of these results and assignment of corrective actions for deficiencies identified, if any.

Emergency Preparedness staffs will be informed of select system inoperability determinations resulting from any tests, inventories or inspections conducted on the systems, as the availability of these systems can have significant impact on the Emergency Plan.

11. Identification of Emergency Equipment and Supplies

Table H.1, Typical Emergency Equipment lists equipment that is typically provided for emergency response. Emergency Preparedness administrative procedures provide for details of specific type, location, content and are used to inventory of emergency supplies.

12. Collection and Analysis of Field Monitoring Data

Indian Point Energy Center Emergency Plan

The Indian Point Energy Center is equipped to collect Offsite Monitoring data and samples. Sampling and analysis equipment is available to determine the activity of samples taken outside the Protected Area. Instrumentation and equipment utilized for sample activity determination is routinely calibrated to ensure timely availability. Emergency response personnel are in place to analyze samples and data to make decisions on protective action recommendations. Samples can be packaged and shipped to offsite laboratories for further analysis.

Table H-1: Typical Emergency Equipment

Emergency equipment and supplies are stored at various locations throughout the site for immediate use by emergency forces. The following is a listing of the types of equipment and supplies stored at various locations.

- Protective Equipment:
 - Anti-C Clothing
 - Respirators
 - Self-Contained Breathing Apparatus
 - Potassium Iodide (KI)
 - Breathing Air Stations
- Radiological Monitoring Equipment:
 - Air Samplers
 - Ionization Chamber Survey Instruments
 - G-M Friskers
 - Iodine Counters
 - Dosimetry
 - Maps and Overlays
- Communication Equipment:
 - Telephones and outside lines
 - Various dedicated lines specific for the purpose of warning: RECS, ENS/HPN, Plant Alarms and Public Address System
 - Various direct lines
 - Radios (IPEC onsite, offsite channels, and Local Government)
 - Fax machines
 - Log Books/EP-Forms
- Emergency Supplies:
 - First Aid Kits
 - Stretchers / Blankets
 - Resuscitators
 - Backboards / Splints
 - Cervical collars

Part 2: PLANNING STANDARDS AND CRITERIA

Section I: Accident Assessment

To effectively coordinate and direct all facets of the response to an emergency situation at Indian Point Energy Center, diligent accident assessment efforts are required throughout the emergency. All four emergency classifications have similar assessment methods, however, each classification requires a greater magnitude of assessment effort dependent upon the plant symptoms and/or initiating event(s).

In the case of a Notification of Unusual Event, the assessment and coordination of efforts are handled through the Control Room, with additional support as identified by the Shift Manager. During Alert, Site Area and General Emergencies the Technical Support Center, Operations Support Center, and the Emergency Operations Facility are activated. Technical Support Center personnel assist the watch personnel in the assessment of the accident and recommend appropriate steps to mitigate the accident. The Operations Support Center assists with in field inspections of plant equipment. The Emergency Operations Facility personnel continue the evaluation of offsite consequences started by the Shift Manager. The Emergency Operations Facility, when activated, maintains contact with the Control Room and contact with the offsite agencies, and then provides an overview of the assessment actions taken at various classifications levels as follows:

Notification of Unusual Event

The existence of conditions which would be classified under this heading is brought to the attention of Control Room Operators by (a) meteorological reports, (b) indications and alarms in the Control Room monitoring plant parameters, (c) indications from fire, seismic or security detection systems, or (d) observations by plant personnel.

Depending upon the particular circumstances of the event, the Shift Manager takes one or more of the following actions to assess the severity of the situation: request clarification and periodic update of meteorological information received from offsite source; monitor Control Room indications more closely; request the plant security force to investigate the matter further and report their findings; dispatch member(s) of the watch force to personally inspect areas of the plant; request assistance from the plant operations staff and/or Entergy's Engineering Departments in evaluating data; and make personnel observations (e.g. assessing the intensity and extent of fire). With regard to accidental releases of radioactivity within plant buildings, the Shift Manager would evaluate the alarm received with respect to other radiation monitors and process instrumentation readouts in the Control Room. Radiation Protection personnel could be sent into the affected plant area to make observations and evaluate radiation levels.

Indian Point Energy Center Emergency Plan

Alert

For emergency situations that are classified as Alerts, the Shift Manager/Emergency Director evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, containment integrity and status of safeguards equipment.

The Shift Manager or Plant Operations Manager, acting as the Emergency Director at the start of the emergency, and the on call Emergency Director after taking over control at the Emergency Operations Facility, will continually direct assessment of the relative condition of the three fission product barriers and radiological conditions onsite and offsite.

During Alerts with radiological concerns, radiological assessment actions are initiated as described under the Site Area Emergency and General Emergency part of this section.

Site Area Emergency and General Emergency

For emergency situations that are classified as Site Area Emergencies or General Emergencies, the Shift Manager/Emergency Director evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, containment integrity and the status of safeguards equipment.

An immediate assessment of the projected exposure to the offsite populace is made by using Dose Assessment Computer Programs or by using an Implementation Procedure which includes determining a source term, release rate, radioactive airborne concentrations in the environment and projected exposure to the whole body and thyroid of individuals exposed to the plume. The specifics of these are as follows:

The source term is determined from the R-25 and R-26 accident monitor instruments, indicating radioactivity in the containment building released from the reactor core.

- The release rate is determined from the Plant Vent Monitor, Air Ejector Monitor or the Main Steam Line Monitors. Should the plant vent monitors read off-scale or be inoperable, contact field measurements are taken on the plant vent and a procedure is available to convert the mR/hr reading to an equivalent radioactive concentration for noble gases and radioiodine.
- The radioactive airborne concentrations in the environment are determined first by calculation and then by actual measurement. The calculations are done by computer or by hand, utilizing the Implementation Procedures.
 - The calculation is performed using an equation that utilizes the release rate, dilution factor and wind speed. The dilution factor is obtained from a table in the computer code or implementation procedure corresponding to the current meteorological data.
 - Measurements are made by offsite monitoring teams who go to selected points and perform field surveys and air sampling. The air samples are counted and the activity calculated.

Indian Point Energy Center Emergency Plan

- The projected thyroid exposures are obtained from calculations that convert radioactive concentrations to mRem/hour and measurements taken in the field. Whole body exposures are as indicated by the field surveys.

The assessment information is disseminated to the New York State Office of Emergency Management and to the Westchester, Rockland, Putnam, and Orange County Emergency Management Offices.

This assessment is updated based on air sampling and field surveys performed by offsite monitoring teams using radio and cell phone equipped vehicles under the direction of the Emergency Director. The area within a 10-mile EPZ is divided into 16 equal 22½° sectors. In each sector, Dosimetry of Legal Record (DLR) has been installed at strategic locations.

A number of strategically located continuous air sampling sites may also be used to evaluate the exposure for the population at large.

The Emergency Director transmits updated information to the New York State Office of Emergency Management and the Westchester, Rockland, Putnam and Orange County Emergency Management Offices.

Radioactive contamination assessment is performed after a release is terminated. The ongoing Indian Point Radiological Environmental Monitoring Program described in the ODCM is utilized to determine the extent of contamination.

Radiological assessment personnel in accordance with an implementation procedure calculate total population dose. This calculation and others utilize established demographic information in combination with the DLR, bioassays, and projected dose distributions to obtain total population exposure within the ten-mile EPZ.

1. Plant Parameters and Corresponding Emergency Classification

- a. Plant system and effluent parameter values are utilized in the determination of accident severity and subsequent emergency classification. Environmental and meteorological events are also determining factors in emergency classification.
- b. An emergency condition can be the result of just one parameter or condition change, or the combination of several. The specific symptoms, parameter values or events for each level of emergency classification are detailed in the Indian Point Emergency Plan Implementing Procedures.
- c. In order to adequately assess the emergency condition, each emergency facility has the necessary equipment and instrumentation installed to make available essential plant information on a continuous basis. The types of instrumentation and equipment capabilities available for each emergency facility are described in Section H of the Emergency Plan.

2. Onsite Accident Assessment Capabilities

In addition to normal plant monitoring systems and procedures, the following systems are provided for accident assessment:

a. Sampling System

Plant design includes the capability to sample the reactor coolant system, the discharge of the recirculation and residual heat removal pumps, and the containment atmosphere.

Facilities for the radiation protection and chemistry groups include laboratory and calibration rooms for both conventional and radio chemical analyses.

b. Area Radiation & Process Radiation Monitors

Indian Point has Area Radiation Monitors (ARM) for the direct measurement of inplant exposure rates and Process Radiation Monitors (PRM) for the measurement of noble gas and radioactive iodine concentrations in plant effluents. The ARM readings allow inplant exposure rate determinations to be made remotely without requiring local hand-held meter surveys. This information may be used, initially, to aid in the determination of plant area accessibility. The Process Radiation Monitors provide an immediate indication of a radiological release of effluents. The Process Radiation Monitor readings can be used as an input into the dose assessment programs (computer programs) that display the projected whole body and child thyroid exposures to the populace in the plume exposure pathway.

c. Containment Radiation Monitors and Hydrogen Monitor

Containment Radiation Monitors and/or Hydrogen Monitors along with Core Exit Thermocouples may provide an early indication of core damage. These monitor readings are utilized as a method for core damage determination. This is accomplished through use of established procedures based on Westinghouse Owners Group guidance. The core damage estimate obtained from the procedures may also be used to confirm the core damage results obtained through isotopic analysis. These monitors also allow for the evaluation of a potential radiological release.

3. Release Source Term Determination

a. The potential for release of radioactive material and the magnitude of the release can be assessed through use of the Containment Radiation Monitors and Process Monitors. The Containment Monitoring System readings can be used to estimate the percentage of core damage and establish the total number of curies available for release.

b. If a liquid or gaseous release occurs, the routine or high range process monitors will indicate the release rate. If the release is from an unmonitored point, technicians will take grab samples to be analyzed.

Radiation monitors are located as described in the U2 & U3 FSARs. The readings obtained from these monitors are converted to actual release rates through the use of a computer program.

Indian Point Energy Center Emergency Plan

4. Effluent Monitor Data and Dose Assessment:

The correlation between effluent monitor data and onsite and offsite exposure rates is accomplished through use of the dose assessment computer codes. These programs allow for the direct input of effluent monitor and meteorological data. The computer will generate release rates, projected dose rates and doses to the whole body and thyroid as well as downwind noble gas and particulate concentrations via the plume exposure pathway. Dose projections may also be performed without the use of a computer through a series of hand calculations. Indian Point uses ground releases to conduct dose assessment.

Entergy has procured and installed computer based systems, which are capable of:

- a. Calculating the dispersion path of radioactive material if released to the atmosphere by the plant;
- b. Obtaining meteorological information from a primary and backup meteorological tower, thus providing assurance that basic meteorological information is available during and immediately following on accidental airborne radioactivity release;
- c. Calculating the radiological consequences of accidental radioactive releases to the atmosphere;
- d. Providing simultaneous real-time meteorological data for estimation of transport and diffusion estimates of a release in the vicinity of the site. This information is available to the licensee, offsite emergency response organizations and the NRC Staff, via telephone computer access;
- e. Obtaining additional radiological and meteorological inputs that assist in defining the site generated dispersion path calculations.

In addition each unit has a computer program which performs the hand calculations outlined in the implementing procedures.

5. Meteorological Information:

Meteorological data are available from the station meteorological tower. The data available includes wind speed, wind direction, stability class (Pasquill). These data are utilized by the utility, Counties, State and NRC to provide near real-time predictions of the atmospheric effluent transport and diffusion. Section H.9 provides more details on the Meteorological Monitoring System.

6. Unmonitored Release:

If during an actual release, via an unmonitored flow path or in situations in which effluent monitors are either off scale or inoperative, dose projections can be made through use of actual sample data and/or field monitor team readings.

Indian Point Energy Center Emergency Plan

7. Offsite Monitoring:

In the event of an airborne or liquid release, the station maintains the resources and capabilities to take air, soil, water, and vegetation samples as well as to directly measure gamma dose rates. Samples are taken at locations specified by the Radiological Assessment Coordinator. Environmental measurements are utilized as an aid in the determination of protective and recovery actions for the general public.

A Reuter Stokes Radiation Monitoring System consisting of a network of monitors is installed in each of the 16 standard meteorological sectors around the Indian Point Site at a distance of 0.5 to 2.5 miles. These devices will continuously telemeter, via radio, radiation level readings to a computer system, which can be accessed in the EOF, AEOF, IPEC Central Control Rooms and County and State EOCs.

Dosimetry of Legal Record (DLR) - DLR's are deployed in three (3) rings at approximately 2, 5 and 10 miles from the site. DLR's are sensitive to Gamma radiation and are gathered and read periodically. There are approximately 57 DLR's distributed within the 10 mile Emergency Planning Zone for Indian Point.

Air Samplers are deployed at a number of the sampling sites. They are constantly in operation and pass ambient air through a series of filters that are capable of trapping radioactive iodine and other radioisotopes in the air. The filters are periodically removed and analyzed by Entergy personnel.

8. Offsite Monitoring Teams:

Offsite Monitoring Teams are available at an Alert or higher classification to make rapid assessments of the actual or potential magnitude and location of any radiological hazards from the liquid or gaseous release pathways. These teams are composed of two individuals qualified to perform radiological monitoring.

Monitoring teams establish and maintain direct radio or phone communications with the Emergency Operations Facility (EOF). An offsite team coordinator in the EOF controls the teams. The teams locate and monitor the radioactive plume while taking air samples as directed.

Offsite teams utilize portable equipment during an emergency to gather data from any of the sixty-one predesignated emergency sampling locations around the Indian Point Site. Large-scale maps showing the locations are in the Control Room and Emergency Operations Facility (EOF) or AEOF, for use by the Emergency Director. Readings taken by these teams are relayed back to the site via radio, using commercial telephones as back up.

Indian Point Energy Center Emergency Plan

Monitoring Team Kits containing necessities including the following radiological equipment are maintained in a ready state and would be utilized by the teams:

- a. Radiation field survey instruments used to perform beta and gamma radiation field surveys.
- b. Air Sampler which is basically a blower with a filter holder in the inlet, utilized to take samples of ambient air and pass the air through a fiberglass and an activated charcoal or silver zeolite filter. The filters remove and absorb radioisotopes from the air.
- c. Sample counter that is a device used to measure the radioactivity of filters used in the air sampler.
- d. Equipment for personnel protection such as shoe covers and gloves for use in radiation environments.
- e. Support equipment and supplies.

Survey data from monitoring teams is used to define affected areas, verify or modify dose projections and protective action recommendations, and assess the extent and significance of a release.

9. Iodine Monitoring:

Offsite Monitoring Teams collect air samples while in the plume exposure pathway. The teams carry procedures and equipment for sampling and measuring radioiodine concentrations in air as low as $1.0E-7$ micro curies per cubic centimeter in the presence of noble gases.

10. Dose Estimates:

Specific procedures exist for the correlation of air activity levels to dose rate for key isotopes. Provisions have been established for estimating integrated dose from the projected and actual dose rates and for the comparison of these estimates with the protective action guides.

11. State Monitoring Capabilities:

The State of New York has the ability to dispatch its own offsite monitoring teams to conduct ingestion pathway monitoring. The state also has the ability and resources to coordinate with federal and utility monitoring teams to compare sample results.

Part 2: PLANNING STANDARDS AND CRITERIA

Section J: Protective Response

Protective response consists of emergency actions taken during or after an emergency situation, which are intended to minimize or eliminate hazards to the health and safety of the public and/or Station personnel. A range of protective actions has been developed for emergency workers and the general public in the plume exposure pathway Emergency Planning Zone (EPZ). Additionally, guidelines have been established to aid in choosing protective actions during an emergency that are consistent with federal guidance. Entergy is responsible for onsite protective actions, while the responsibility for offsite protective actions rests with the State of New York, local authorities and other offsite response agencies.

1. Notification of Onsite Personnel:

- a. For all emergency classifications, all station personnel, contractors, visitors and OCA badged personnel are notified of an emergency by either the public address system, distinct audio signals (air raid alert, fire, site assembly or containment evacuation alarms) and/or alternate methods. Announcements include the emergency classification and response actions to be taken by site personnel.

The Public Address System(s) are designed for paging within the Protected Area site from the Control Rooms. Personnel paged have the ability to talk to the Control Rooms via party line phones that are strategically located within the units. Plant personnel may initiate the communication to the Control Room from outlying party lines.

- b. Visitors within the Protected Area are escorted at all times by badged personnel who will ensure that the visitor takes the proper actions for the event.
- c. Contract personnel who have un-escorted access to the Protected Area must complete Plant Access Training that includes instructions for actions to be taken during an emergency.
- d. Accountability of persons within the Site Boundary but outside the Protected Area is not required. However, the Security Force will ensure that individuals in the Owner Controlled Area (including individuals with OCA badges) are notified as necessary of any emergency and the response actions to be taken.

2. Evacuation Locations:

Assembly areas and evacuation routes are specified in the Emergency Planning Implementing Procedures. Depending on meteorological conditions, the Shift Manager/ Emergency Director decides whether to release plant personnel and the appropriate evacuation routes. Inclement weather, high traffic density and specific radiological conditions and other hazards are considered in making this decision. The release of personnel is under the direction of the Shift Manager/Emergency Director. Personnel are released to go home or continue from the site to assembly areas using their own cars when practical or other transportation provided by Indian Point.

Indian Point Energy Center Emergency Plan

3. Radiological Monitoring:

Radiological monitoring of personnel, their possessions and their automobiles would be performed by Radiation Protection or trained monitoring personnel using instrumentation that is normally available or specifically assigned for this purpose. Personnel may be evacuated/released as part of the general public to offsite relocation centers designated by offsite authorities.

4. Assembly & Evacuation:

Relocation outside the Protected Area and/or evacuation is the primary protective action anticipated for onsite personnel not having emergency response assignments. Non-essential personnel (personnel not assigned emergency response functions, contractors and visitors) are directed to assemble at pre-designated assembly areas at the Alert or higher classification. The primary assembly areas are the Indian Point Generation Support Building (GSB) and the Energy Education Center (EEC). The Indian Point Training Center serves as the back-up assembly area and could be used during periods of high volume, such as an outage. Personnel assigned emergency response functions respond to their assigned emergency facilities.

Evacuation / release of non-essential Indian Point personnel is initiated upon declaration of either a Site Area Emergency or General Emergency. The Emergency Director may release personnel at a lower classification.

5. Accountability:

At the declaration of an Alert, all personnel are relocated from within the Protected Area. At a Site Area Emergency or General Emergency all individuals within the Protected Area are accounted for and the names of missing individuals are ascertained within 30 minutes of sounding the Site Assembly Alarm. Once established, accountability within the Protected Area is maintained throughout the course of the event, unless conditions allow suspension in the later stages of the event. Should missing personnel be identified, search and rescue operations are initiated. Accountability is coordinated between the OSC Manager and the Lead Accountability Officer. The results are forwarded to the Emergency Plant Manager and/or Emergency Director.

Accountability could be suspended if movement of personnel would place them in more danger than leaving them in place, such as outside weather conditions or security events.

Personnel who are assembled outside the Protected area are given further instructions. These instructions may include sheltering in place, evacuation or, individuals may be requested to assist the ERO in accident mitigation.

If site evacuation is called for, Security will sweep all onsite areas outside the Protected Area and verify all personnel have evacuated or been released.

Indian Point Energy Center Emergency Plan

6. Provisions for Onsite Personnel:

The station maintains an inventory of respiratory protection equipment, anti-contamination clothing, and radioprotective drugs that are made available to emergency workers remaining onsite should conditions warrant.

- a. Assembly areas and evacuation routes are described in the Implementing Procedures. Assembly areas are located to assure that personnel are not in the path of the plume. Each assembly area has a telephone. The assembly areas (GSB, EEC, and IPEC Training Building) are within the range of the plant paging system.
- b. Self-contained breathing apparatus (SCBAs) and full-face respirators are used as the primary method of respiratory protection in an emergency. Emergency response personnel use SCBAs in any environment involving exposure to high-level gaseous activity or oxygen deficient atmosphere, or where air quality is in doubt. In the presence of airborne particulates, emergency response personnel may be directed by Radiation Protection personnel to use full-face filter type respirators.
- c. Anti-contamination clothing, located in the Operations Support Center (OSC) lockers, is available for use by onsite personnel entering areas of plant with known or unknown contamination.
- d. The use of thyroid-blocking Potassium Iodide (KI) may be recommended at 5 Rem CDE child thyroid or when a General Emergency condition initiates the recommendation to State and Counties to implement KI Program. This is a lower value than specified by EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents". A supply of KI is maintained in the Emergency Response Facilities. Procedures are in place for the use of these agents by emergency response personnel. Administration of such agents may be authorized only by the Emergency Director or by the Emergency Plant Manager.
- e. Precautions shall be taken to prevent the contamination of drinking water and food supplies by using bottled water and packaged foods.

7. Protective Action Recommendations for the General Public:

Plant conditions, projected whole body gamma and thyroid doses, and/or field monitoring data are evaluated to develop protective action recommendations for the purpose of preventing or minimizing exposure to the general public. Protective action recommendations for the plume exposure pathway are based on the Environmental Protection Agency (EPA) Protective Action Guides (PAGs) discussed in EPA-400-R-92-001 - "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents".

Protective action recommendations are made directly to the State and local agencies that are responsible for implementing protective actions for the general public within the plume exposure EPZ. The Emergency Director makes protective action recommendations.

Indian Point Energy Center Emergency Plan

Recommendations issued by Indian Point at a General Emergency based on plant conditions include as a minimum, evacuation in the two (2) mile radius and five (5) miles downwind and advising the remainder of the EPZ population to shelter and listen to EAS.

8. Evacuation Time Estimates:

An independent evacuation time study has been performed to provide estimates, of the time required to evacuate commercial, resident and transient populations (see Appendix 5).

9. Protective Measure Implementation:

State and local agencies are responsible for implementing offsite protective actions. These actions are included in the State and County Emergency Plans. Entergy is responsible for recommending offsite protective actions to the offsite authorities.

10. Factors Affecting Protective Measure Implementation

The State, and County emergency plans used to implement the protective measures for the plume exposure pathway take numerous factors into consideration. Among these considerations are:

- a. Most of the evacuating population will travel in their own vehicles, leaving the EPZ via designated evacuation routes. Maps showing the evacuation routes, evacuation Protective Action Areas, reception centers in host areas, and congregate care centers have been developed as part of the state and local plans. Pre-selected sampling and monitoring points have also been identified.
- b. The population distribution around Indian Point Energy Center is presented in the Evacuation Time Estimate.
- c. Section E of this plan describes how offsite agencies are notified in the event the Emergency Plan is activated. State and local agencies have the capability to notify all members of the transient and resident population within the plume exposure EPZ.
- d. State and local organizations have the capability to protect those persons where mobility may be impaired due to such factors as institutional or other confinement. At the time of an emergency, transportation requirement of special needs persons (including mobility impaired) is verified. Mobility impaired will be notified of a protective action via the Emergency Alert System (EAS).
- e. An adequate supply of potassium iodide (KI) is available for distribution to special facility staff and patients/residents where immediate evacuation would be life threatening. Authority for use of radioprotective drugs rests with the NY Health Department.

Indian Point Energy Center Emergency Plan

- f. State and local organization plans include the method by which decisions are made for administering radioprotective drugs to emergency workers. The distribution of radioprotective drugs to the general public has been authorized by the State. Each individual County's Emergency Plan addresses Pre and Post distribution of Radioprotective drugs.
- g. State and local organizations have the capability of providing a means of relocation for the general population. Most of the evacuating population will travel in their own vehicles, driving out of the EPZ using designated evacuation routes. Transportation dependent persons will be instructed through the Emergency Alert System (EAS) to go to a pickup point or bus route for transportation to a reception center.
- h. State and local organizations are capable of providing reception centers in host areas that are beyond the boundaries of the plume exposure pathway emergency-planning zone.
- i. Projected traffic capacities have been determined for evacuation routes under emergency conditions. Section 4 of the Evacuation Time Estimate provides discussion regarding capacity.
- j. Federal, State and local organizations have the responsibility for the control of access to evacuated areas. Personnel from New York State Police and local police departments' staff access control points. The New York Highway Department and local public works departments provide necessary equipment to support access control. The U. S. Coast guard would assist in patrolling the Hudson River areas.
- k. Potential impediments to the use of evacuation routes and contingency measures for such impediments have been identified in local emergency plans.
- l. Time estimates for evacuation of various groupings of Protective Action Areas have been performed, under various conditions for the plume exposure pathway emergency-planning zone.
- m. The basis for dose driven protective action recommendations are as follows:
 - If projected doses exceed minimum EPA PAGs and timely evacuation is feasible, then evacuation is recommended. If timely evacuation is not feasible, (i.e. time required for mobilization, warning and evacuation transit is greater than time before plume arrival), then State authorities may direct sheltering in place.
 - Additionally, if the sheltering dose exceeds the PAG but is less than the projected evacuation dose, then sheltering is considered. A shielding factor of 0.9 is conservatively assumed in the calculation of the sheltering dose. This factor (from SANDIA 77-1725) represents the shielding afforded by a wood frame house. The decision to shelter is the responsibility of the offsite authorities.

Indian Point Energy Center Emergency Plan

11. Ingestion Pathway Protective Measures:

The responsibility for specifying protective measures to be used for the ingestion pathway rests with the States of New York, Pennsylvania, Connecticut and New Jersey. These measures include the methods for protecting the public from consumption of contaminated water and foodstuffs.

12. Monitoring of Evacuees:

The State and local organizations have the capability to register and monitor evacuees at reception centers at host communities. This capability includes personnel and equipment capable of monitoring residents and transients evacuating from the plume exposure EPZ and arriving at the reception centers, in accordance with FEMA guidelines.

Part 2: PLANNING STANDARDS AND CRITERIA

Section K: Radiological Exposure Control

This section of the plan describes the means for controlling emergency worker radiological exposures during an emergency, as well as the measures that are used by Entergy to provide necessary assistance to persons injured or exposed to radiation and/or radioactive materials. Exposure guidelines in this section are consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides, EPA 400-R-92-001.

The general guideline for emergency personnel exposure will be to keep it as low as reasonably achievable.

1. Emergency Exposure Guidelines:

Radiation exposure in an emergency is controlled taking every reasonable effort to minimize exposure. However, circumstances may warrant exposure in excess of 10CFR20 limits. Saving a life, measures to circumvent substantial exposures to the general public, or the prevention of damage to critical equipment may be sufficient cause for above normal exposures. The following are the exposure guidelines for emergency activities:

Dose Limit (Rem TEDE)	Activity	Condition
0-5	All	Personnel may be kept within normal 10 CFR 20 occupational limits during declared emergencies or an emergency exposure up to 5 Rem may be authorized for members of the ERO.
5 - 10	Protecting valuable property	Lower dose not practicable. Must be authorized on individual bases.
10 - 25	Lifesaving or protection of large populations	Lower dose not practicable. Must be authorized on individual bases.
> 25	Lifesaving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved. Must be authorized on individual bases.
Limit dose to the lens of the eye to 3 times the above values and doses to any other organ (including skin and body extremities) to 10 times the above limits.		

Any emergency response action requiring greater exposure than 10CFR20 limits should be limited to only volunteers. Individuals over forty-five years of age are considered first. Females of childbearing age shall not be permitted to receive exposures in excess of 10CFR20 limits.

Indian Point Energy Center Emergency Plan

2. Emergency Radiological Control Program:

The Radiological Assessment Coordinator (EOF) and the Radiation Protection Coordinator (OSC) ensure that proper personnel radiological monitoring equipment is provided for all personnel during emergency conditions, that exposure accountability is maintained, and that personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated. Plan implementing procedures detail the emergency radiological controls utilized during emergencies. Radiation protection guidelines during emergencies include the following:

- Persons undertaking any emergency operation in which the dose will exceed 25 Rem TEDE should do so only on a voluntary basis and with full awareness of the risks involved including the numerical levels of dose at which acute effects of radiation will be incurred and numerical estimates of the risk of delayed effects.
- In the context of the emergency limits, exposure of workers that is incurred for the protection of large populations may be considered justified for situations in which the collective dose avoided by the emergency operation is significantly larger than that incurred by the workers involved.
- Exposure accountability is maintained and proper personnel radiological monitoring equipment is provided for all personnel during emergency conditions.
- Access to high radiation areas is only permitted with prior approval of the applicable Radiation Protection Coordinator, and personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated.
- Periodic habitability surveys of emergency facilities are performed during an emergency. If the facility is determined to be uninhabitable, the facility is evacuated in order to prevent or minimize exposure to radiation and radioactive materials. Alternate assembly areas are established, as necessary, to relocate and monitor evacuated personnel.

KI shall be used in accordance with New York State Policy for issuance of Potassium Iodide. If the risk of using KI outweighs the benefit, KI may not be issued. KI is stored in onsite Emergency Response Facilities.

Indian Point Energy Center Emergency Plan

3. Personnel Monitoring

- a. If abnormal radiological conditions exist outside the Radiologically Control Area (RCA), exposure to emergency response personnel not issued Dosimetry of Legal Record (DLR) badges will be tracked by use of surveys and time spent in radiation areas.
- b. Workers who would be expected to enter the RCA are trained and issued DLR Badges. In addition to these badges, dosimetry devices will be issued, high range or electronic dosimeters and/or alarming self-indicating dosimetry, are used to monitor emergency workers exposure during an accident. The capability exists for the emergency processing of DLRs on a 24-hour per day basis, if necessary. Emergency workers are instructed to read self-indicating dosimeters frequently, and DLRs may be processed with increased periodicity.
- c. Emergency worker dose records are maintained in accordance with one or more Emergency Plan Implementing Procedures and Radiation Protection Procedures.

4. Non-Emergency Personnel Exposure Authorization:

The responsibility for authorizing non-Emergency emergency workers (i.e. State and local agency emergency workers) to receive exposures in excess of the EPA General Public Protective Action Guides rests with the State and local organization, except when such emergency workers are onsite. Authorization of exposures in excess of EPA General Public Protective Action Guides, in this latter instance, rests with the Emergency Director or the Emergency Plant Manager in conjunction with Incident Response Team Leaders (such as the Fire Department, Police or Medical teams sent to the site).

5. Decontamination and First Aid

- a. Normal contamination control limits apply in emergency conditions. However, these limits may be modified by Radiation Protection Coordinator or the radiological Assessment Coordinator should conditions warrant.
- b. Decontamination materials and portable first-aid kits are stored within the Protected Area and at the EOF / Warehouse Complex. A personnel injury onsite involving possible radioactive contamination is initially treated by an on-shift first responder or EMT if available. Prompt attention is given to life endangering injuries such as extensive burns, serious wounds or fractures, in preference to decontamination. If the injury permits, all reasonable effort is made to decontaminate the individual prior to movement. If decontamination is impractical, the patient is covered in such a manner as to minimize the spread of contamination until medical aid can be obtained or the patient can be hospitalized.

Indian Point Energy Center Emergency Plan

The Verplanck Fire Department ambulance is the primary provider of prompt transportation of persons requiring medical attention from the station to area hospitals. This service is available on a 24-hour per day basis. For accidents involving contamination, if a Radiation Protection Technician (RP) is available, then one will be assigned to accompany the patient to the hospital to assist and advise ambulance and hospital personnel.

Patients requiring Emergency Room care, laboratory work, X-rays or lifesaving procedures are transported to the Hudson Valley Hospital Center (primary), to Phelps Memorial Hospital Center (1st backup) or another equipped medical facility. Hospital personnel have been trained and hospitals are equipped to handle radiologically contaminated or radiation injured individuals. Medical personnel may recommend transportation to other medical facilities equipped for long term or intensive care for radiation injuries. Radiation Protection personnel are available to assist medical personnel with decontamination, radiation exposure and contamination control.

6. Contamination Control Measures

- a. Areas in the plant found to be contaminated are isolated as restricted areas with appropriate radiological protection and access control as directed by the Radiation Protection Coordinator.
- b. In order to preclude the spread of contamination from restricted areas, all personnel and equipment are monitored for radioactive contamination prior to exiting the restricted areas. Contaminated personnel are decontaminated. Eating, drinking and smoking are prohibited in all Emergency Response facilities until such time as habitability surveys indicate that such activities are permissible.
- c. Restricted areas will be returned to normal use when contamination levels have been returned to acceptable levels.

7. Decontamination of Relocated Personnel:

Non-essential onsite personnel are released from the Protected Area during an emergency, if radiological concerns occur. Radiation Protection personnel and/or portal monitors are used to monitor evacuees and decontamination is performed, as needed. Existing and temporary facilities to limit contamination and exposure will be utilized and established at the site as necessary during an emergency situation. In the event that decontamination of onsite personnel locally is not possible, personnel will be sent to a county reception center for monitoring and decontamination. Provisions for extra clothing, as well as suitable decontaminates are available.

Part 2: PLANNING STANDARDS AND CRITERIA

Section L: Medical and Public Health Support

This section describes the Indian Point Energy Center's arrangements for medical services including contaminated injured individuals sent from the Station.

1. Hospital Services:

The Hudson Valley Hospital Center at Peekskill/Cortlandt has agreed to accept patients from the Indian Point Site who have been injured, contaminated or irradiated. This is a modern hospital with facilities such as an emergency room, a laboratory, a radiology department and a nuclear medicine department. A written agreement is contained in Appendix 2.

The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital. A written agreement is contained in Appendix 2.

Physicians, when available, will respond onsite or to a hospital to assist. A written agreement is contained in Appendix 2.

Station procedures contain directions that cover the request for medical assistance and the handling of patients. In the event that a patient should receive a massive radiation exposure, an expert medical consultant specializing on the management of radiation injuries would be available. A written agreement is contained in Appendix 2.

2. Onsite First Aid Capability:

Unit 1 and 2 First Aid Room

A First Aid Room in a non-radiation area is on el. 15 of the Unit 1 Administration Building. This room contains general first aid equipment, oxygen breathing apparatus and an examination table for non-contaminated patients.

Unit 3 First Aid Room

A First Aid and Decontamination Room is located just beyond the Radiation Protection Control Point. This facility consists of a stainless steel interior with decontamination table, showers and sinks draining into a holdup tank. This room contains general first aid equipment and medical supplies for treatment of injuries.

Medical Facility

A Medical Facility is located at the Indian Point Training Center. General first aid equipment including bandages and dressings, splints, etc., is available as well as an examination area.

First Aid Kits

First Aid Kits are located in several locations throughout the station.

Indian Point Energy Center Emergency Plan

3. Medical Service Facilities:

The State of New York maintains a list of public, private and military hospitals and other emergency medical facilities considered capable of providing medical support for any contaminated injured individuals. A medical consultant company which specializes in treatment of radiological related injuries is contracted to provide assistance if needed.

4. Medical Transportation:

Indian Point has arranged with a local ambulance service for transporting victims of radiological accidents to medical support facilities.

Arrangements have been made for transporting injured, contaminated and irradiated personnel to the hospital via the Verplanck Fire Department ambulance that provides 24-hour services. Backup ambulance service is available through a mutual aid system. A written agreement is contained in Appendix 2. The Verplanck Fire Department Ambulance participates in annual medical emergency drills as described in Section N.

Part 2: PLANNING STANDARDS AND CRITERIA

Section M: Re-entry and Recovery Planning

This section describes the measures to be taken for re-entry into the areas of Indian Point Energy Center that have been evacuated as a result of an accident. It also outlines the Indian Point Recovery Organization and its concepts of operation.

1. Re-entry and Recovery:

Re-entry

During an emergency, immediate actions are directed toward limiting the consequences of the accident, so as to afford maximum protection to Station personnel and the general public. Once corrective measures have been taken and effective control of the plant has been re-established, a more methodical approach to re-entry is taken. This Emergency Plan therefore divides re-entry into two separate categories:

- Re-entry during the emergency phase of an accident is performed to save a life, control a release of radioactive material, prevent further damage to plant equipment or restore plant equipment. If necessary, this category of re-entry may be performed using emergency exposure limits. Briefings and emergency forms, rather than written radiation protection procedures, operating procedures and maintenance procedures can be used when making these entries.

The Shift Manager and/or the Control Room Supervisor direct re-entry activities prior to activation of the Emergency Facilities. Once the TSC/OSC has been activated, all re-entry activities conducted during the emergency are authorized by the Emergency Plant Manager (EPM) and coordinated through the Operations Support Center.

- Re-entry during the recovery phase is performed using normal exposure limits. Either normal procedures or procedures developed specifically for each re-entry are utilized.

The Site Recovery Director or the station's normal management organization oversees the re-entry. Generally, site problems are addressed first to make the site tenable for workers, with a series of radiation surveys to establish accessibility and then steps are taken restore the station to normal operations.

All data gathered from re-entry operations and additional information developed by the various technical support groups will be assessed.

The plan is to return plant conditions to within Technical Specification limits and it may include detailed schedules, specialized equipment and personnel, preparing procedures for decontamination, processing highly radioactive water, repairing equipment, and purchasing equipment. A station nuclear safety/review committee reviews and approves recovery operations in accordance with its charter and the Technical Specifications.

Indian Point Energy Center Emergency Plan

Recovery:

Recovery is defined as those steps taken to return the plant to its pre-accident condition. Radiation exposure to personnel involved in the recovery will be kept at a minimum and within the stated limits of 10 CFR 20. Radiation areas will be roped off and posted with warning signs indicating radiation levels and permissible entry times based on survey results. Access to these areas will be controlled, and exposures to personnel entering such areas documented. Shielding will be employed to the fullest extent possible. Survey results, interviews of individuals with direct knowledge of recent conditions in the affected area(s) and all other pertinent information collected from logs and other records or indicators in the Control Room and in the Emergency Operations Facility may be used to evaluate the advisability and the timing of re-entry to affected areas.

The Emergency Director, after consulting with the EOF Manager, Company Spokesperson, the Emergency Plant Manager and the Plant Operations Manager, has the responsibility for determining when an emergency situation is stable and the station is ready to enter the recovery phase. Prior to terminating an emergency and entering the recovery phase, the following conditions are considered:

- Do conditions still meet an Emergency Action Level? If so, does it appear unlikely that conditions will deteriorate?
- Radioactive releases are under control and are no longer in excess of Technical Specification limits.
- The radioactive plume has dissipated and plume tracking is no longer required. The only environmental assessment activities in progress are those necessary to assess the extent of deposition resulting from passage of the plume.
- In-plant radiation levels are stable or decreasing, and acceptable, given the plant conditions.
- The potential for uncontrolled radioactive release is acceptably low.
- The reactor is in a stable shutdown condition and long-term core cooling is available and adequate. There is no foreseeable danger of losing heat removal capability
- Containment pressure is within Technical Specification limits.
- Any fire, flood, earthquake or similar emergency condition no longer exists.
- All required notifications have been made.
- Discussions have been held with Federal, State and local agencies and agreement has been reached to terminate the emergency.

Indian Point Energy Center Emergency Plan

- At an Alert or higher classification (non-transitory classification), the Emergency Response Organization is in place and emergency facilities are activated.
- Any contaminated injured person has been treated and/or transported to a medical care facility.
- Offsite conditions do not unreasonably limit access of outside support to the station.

It is not necessary that all conditions listed above be met; however, all items must be considered prior to entering the recovery phase. For example, it is possible after severe accidents that some conditions remain which exceed an Emergency Action Level, but entry into the recovery phase is appropriate.

2. Recovery Organization

Once the decision is made to enter the recovery phase, the extent of the staffing required for the Indian Point Recovery Organization is determined.

- For events of a minor nature, (i.e. for UNUSUAL EVENT classifications) the normal on shift organization is normally adequate to perform necessary recovery actions.
- For events where damage to the plant has been significant, but no offsite releases have occurred and/or protective actions were not performed, (i.e. for ALERT classifications) the Indian Point Emergency Response Organization, or portions thereof, should be adequate to perform the recovery tasks prior to returning to the normal Station organization.
- For events involving major damage to systems required to maintain safe shutdown of the plant and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY classifications) the Indian Point and Corporate Support Manager is put in place.

The specific members of the Indian Point Recovery organization are selected based on the sequence of events that preceded the recovery activities as well as the requirements of the recovery phase. The basic framework of the Indian Point Recovery Organization is as follows:

- a. The Corporate Support Manager is responsible for:
 - Ensuring adequate corporate support to maintain Indian Point Energy Center (IPEC) units in a safe condition;
 - Ensuring Site Recovery Director is aware of Entergy Corporate goals and expectations for recovery of IPEC after an event;
 - Ensuring adequate support to the site to carry out recovery activities;

Indian Point Energy Center Emergency Plan

- b. The Site Recovery Director is charged with the responsibility for directing the activities of the Indian Point Recovery organization. These responsibilities include:
- Ensuring an Event Summary Report is prepared and transmitted to offsite authorities;
 - Overseeing the development of and approving a Recovery Plan and any special recovery procedures. The Recovery Plan shall address both short term and long-term actions and provide guidance on when Recovery is to be terminated. A specific instruction for the development of a Recovery Plan is provided in an Implementing Procedure;
 - Deactivating any of the Indian Point Emergency Response Organization that was retained to aid in recovery, in the appropriate manner. Depending upon the type of accident and the onsite and offsite effects of the accident, portions of the Indian Point Emergency Response Organization may remain in place after initiation of the recovery phase;
 - Coordinating the integration of available Federal and State assistance into onsite recovery activities;
 - Coordinating the integration of Indian Point support with Federal, State and local authorities into required offsite recovery activities;
 - Verifying and approving information released by the public information organization that pertains to the emergency or the recovery phase of the accident;
 - Maintaining a record/log of specific recovery actions taken.
 - Working with senior company management in providing for assistance to Entergy Employees affected by the event; and
 - Determining when the recovery phase is terminated. Recovery will be terminated when actions identified in the Recovery Plan have been completed.
- c. The Onsite Recovery Manager reports to the Site Recovery Director and is responsible for:
- Identifying and documenting issues relating to Recovery operations
 - Coordinating the development and implementation of the recovery plan and procedures;
 - Directing all onsite activities in support of the recovery of Indian Point; and
 - Designating other Indian Point recovery positions required in support of onsite recovery activities.
 - Developing of a Root Cause Report.

Indian Point Energy Center Emergency Plan

The Plant Manager or a designated alternate will become the Onsite Recovery Manager.

- d. The Offsite Recovery Manager reports to the Site Recovery Director and is responsible for:
- Offsite activities during the Recovery phase include assisting State and local authorities to survey, map and decontaminate areas necessary to return the general public evacuated from around the site;
 - Providing liaison with offsite agencies and coordinating Indian Point assistance for offsite recovery activities;
 - Coordinating Indian Point ingestion exposure pathway EPZ sampling activities and the development of an offsite accident analysis report;
 - Developing a radiological release report; and
 - Designating other Indian Point recovery positions required in support of offsite recovery activities.

A member of Emergency Planning Department Management or a designated alternate will serve as the Offsite Recovery Manager.

- e. The Company Spokesperson reports to the Site Recovery Director and is responsible for:
- Functioning as the official spokesperson to the press for Indian Point on all matters relating to the accident or recovery;
 - Coordinating non-Indian Point public information groups (Federal, State, local, etc.);
 - Coordinating media monitoring and rumor control; and
 - Determining what public information portions of the Indian Point Emergency Response Organization will remain activated.

A senior Indian Point management individual or a member of the company's Public Information Group is designated as the Company Spokesperson.

- f. The Corporate Support Manager reports to the Site Recovery Director and is responsible for:
- Overseeing development of corporate recovery issues dealing with support of the site.
 - Ensuring the Site Recovery Director is aware of Entergy Corporate goals and expectations for recovery of IPEC after an event.
 - Ensuring adequate support to the site to carryout recovery activities.

Indian Point Energy Center Emergency Plan

The remainder of the Indian Point Recovery Organization is established and an initial recovery plan developed at the end of the emergency phase or just after entry into the recovery phase. Consideration is given to recovery activity needs and use of the normal Indian Point organizations. Individual recovery supervisors may be designated in any or all of the following areas:

- Training
- Radiation Protection
- Chemistry
- Technical Support
- Engineering Support
- Quality Assurance
- Operations
- Security
- Maintenance
- Special Offsite Areas (Community Representatives, Environmental Samples, Investigations, etc.)

3. Recovery Phase Notifications:

When the decision is made to enter the recovery phase, all members of the Indian Point Emergency Response Organization are informed of the change. All Indian Point personnel are instructed of their roles in relation to the Indian Point Recovery Organization and their responsibilities to the recovery effort.

4. Total Population Exposure:

A method has been developed for estimating the total population exposure resulting from the accident. Total population exposure calculations are performed during the recovery phase of an accident. Cumulative data are collected from Indian Point Emergency Response Organization records to estimate the source term. Data are obtained from offsite agencies to estimate the total exposed population. Environmental TLDs, Bioassays, and continuing environmental monitoring results will be analyzed to provide additional data.

Part 2: PLANNING STANDARDS AND CRITERIA

Section N: Drill and Exercise Program

This section describes the Drill and Exercise Program that Entergy has implemented to:

- Verify the adequacy of the Indian Point Energy Center Emergency Preparedness Program.
- Develop, maintain and evaluate the capabilities of the Indian Point Emergency Response Organization to respond to emergency conditions and safeguard the health and safety of Station personnel and the general public.
- Identify deficiencies in the Indian Point Energy Center Emergency Plan and the associated procedures, or in the training of response personnel, and ensure that they are promptly corrected.
- Ensure the continued adequacy of emergency facilities, supplies and equipment, including communications networks.

1. Exercises

- a. Federally prescribed **Exercises** are conducted biennially, which involve implementation of the participants' emergency plan(s) and activation of major portions of participating emergency organizations. Where full participation by offsite agencies occurs, the sequence of events simulates an emergency that results in the release of radioactivity to the offsite environs, sufficient in magnitude to warrant a response by offsite authorities. Offsite agencies involved in the planning effort for an emergency at the station shall be invited to participate at least every two years. For exercises involving only partial participation by these agencies, emphasis is placed on development and conduct of an exercise that is more mechanistically and operationally realistic. Players will be able, by implementing appropriate procedures and corrective actions, to determine the outcome of the scenario to a greater extent than when core damage and the release of radioactivity are prerequisites for demonstration of all objectives.
- b. Exercises provide an opportunity to evaluate the ability of participating organizations to implement a coordinated response to postulated emergency conditions. In accordance with the Indian Point Six-Year Plan (maintained in accordance with a fleet procedure), exercises are conducted to ensure that all major elements of the emergency plan and preparedness program are demonstrated at least once in each six-year period. At least one exercise every six years is started between 6:00 pm and 4:00 am. Exercises are scheduled to be conducted at different times of the year. An unannounced drill/exercise is included in the Six-Year Plan.

Indian Point Energy Center Emergency Plan

2. Drills:

In addition to the exercises described above, Indian Point conducts drills for the purpose of training, testing, developing and maintaining the proficiency of emergency responders. Drills and/or surveillance tests are conducted at the Indian Point Energy Center for the following:

a. Communication Drills or Surveillance Tests:

- Monthly: The Radiological Emergency Communication System (RECS) link between the Control Room, EOF/AEOF and the State and four county Warning Points will be tested.
- Monthly: The Emergency Notification System with the NRC will be tested.
- Quarterly: The telephone links with Federal response organizations (i.e., Department of Energy Radiological Assistance Program) and County governments within the ingestion pathways will be tested. These links are normally tested by the State.
- Quarterly: The radio communication link between the Emergency Operations Facility, the Control Room and with the offsite survey team vehicles will be tested.
- Quarterly: The emergency communications links between facilities will be operationally checked (onsite and offsite facilities.)

Each of these drills or tests includes provisions to ensure that all participants in the test are able to understand the content of the messages (e.g. by requesting repeat-backs of information or verification of message transmittal forms).

Communications systems are also tested during the conduct of training drills and annual exercises. Any discrepancy is noted and actions are initiated to correct problems as soon as possible.

- b. Fire Drills: Drills for the Indian Point Fire Brigade are conducted in accordance with Technical Specifications and Station procedures.
- c. Medical Emergency Drills: a medical emergency involving a simulated contaminated individual in which the operations personnel, the hospital, site first-aid team, radiation protection personnel and security force participate is conducted **annually** at each unit.
- d. Radiological Monitoring Team Drills: Radiological Monitoring Team drills are conducted at least **annually** and include provisions for the collection and analysis of environmental sample media (e.g. water, snow, vegetation, soil, and air), and the monitoring of radiological conditions outside the Indian Point Protected Area. These drills include provisions for communications and record keeping.

Indian Point Energy Center Emergency Plan

- e. Radiation Protection Drills: At least **semi-annually**, drills are conducted which involve response to, and analysis of, simulated airborne samples with elevated levels of activity. These drills also involve direct measurements of radiation levels in the Station and may include collection and analysis of sample media (e.g., water, vegetation, soil and air) and provisions for communications and record keeping. Normal station Radiation Protection rules and procedures are followed and emergency Radiation Protection procedures will be simulated.
 - f. Augmentation Drills: At least **semi-annually**, drills are conducted to test the ability to augment the on-shift organization. These drills are conducted using the following methods:
 - Activation of the automated calling systems for all ERO responders as described in Section B calling in their anticipated arrival times and phone callouts being performed.
 - At least once **every six years** a complete call out of ERO as described in Section B will be conducted with actual response to Emergency Response Facilities.
 - g. Combined Functional Drills: Periodically, drills are conducted to test the interface, coordination, communication, and operation of the onsite emergency facilities including at least two of the following facilities: EOF, TSC, OSC and Joint Information Center. Drills should be developed and conducted to maximize training to participants. Coaching, mentoring, breaks for discussion should all be used when appropriate to aid participants in preparing for an actual emergency.
3. Conduct of Drills and Exercises: For each emergency preparedness exercise or drill conducted, a scenario package is developed which includes at least the following information:
- The basic objectives to be demonstrated during the drill or exercise,
 - Date(s), time(s), and place(s) of postulated events,
 - Scope of the drill or exercise and list of participating organizations,
 - The simulated sequence of events and the estimated schedule for major events,
 - Evaluation criteria should be provided as necessary to be used in determining the success of the drill or exercise,
 - A narrative summary which includes at least the following information:
 - Events that are postulated to occur
 - Extent of simulation
 - Briefing materials to be provided to drill controllers and/or official observers and information on arrangements made for them.

Indian Point Energy Center Emergency Plan

Prior approval of appropriate Indian Point management is obtained for all drills and exercises conducted in support of the Emergency Preparedness Program.

4. Criteria and Evaluation:

Controllers/Observers are assigned to evaluate the drill or exercise performance. Following each drill or exercise, a critique is conducted to evaluate the ability of the participants to implement the Indian Point Emergency Plan and procedures. Biennially, representatives from the NRC observe and evaluate an exercise including an evaluation of the licensee's ability to conduct an adequate self-critical critique. For full offsite participation exercises both the NRC and FEMA observe, evaluate, and critique.

5. Resolution of Drill and Exercise Findings:

The critique and evaluation process is used to identify areas of the Indian Point Energy Center emergency preparedness program that require improvement. The Emergency Planning Manager or his/her designee is responsible for evaluation of all recommendations and comments, entering required corrective actions into the Corrective Action Program and the determination regarding which of the items is to be incorporated into the Emergency Preparedness Program. Feedback is provided to participants through critiques, drill or exercise reports or during annual refresher training.

Part 2: PLANNING STANDARDS AND CRITERIA

Section O: Emergency Response Training

This section describes the emergency response training that is provided to those who may be called upon in an emergency. It outlines the training provided by Entergy to employees and offsite support personnel requiring site access.

1. Assurance of Training:

Entergy assures the training of appropriate station personnel through implementation of an Emergency Response Organization (ERO) Training program. Guidance is in place outlining how Initial and Continuing training of the ERO is completed. The required training for the Indian Point ERO positions that are defined in Section B of this Emergency Plan is described here.

Offsite training is offered to support organizations (fire, ambulance, medical providers, law enforcement agencies, etc.) that may be called upon to provide assistance in the event of an emergency. The following outlines the training received by these organizations:

- a. Specialized training is offered to the offsite agencies (fire, ambulance, medical providers, law enforcement agencies, etc.) who may be called upon to provide onsite assistance in the event of an emergency:

Training consists of the following:

- Notification Process
- Site Orientation
- Basic Radiation Protection
- Specific Interface

These courses do not qualify offsite personnel for unescorted access. Escorts are provided to assist support personnel.

This training may be provided by the Emergency Planning Department or by appropriate interfacing organizations such as Fire Protection, Security, Safety department and/or the Training Department. The Emergency Planning Department shall monitor training provided by other departments to ensure it meets requirements of this Emergency Plan. This requirement will normally be met by performing training observations.

- b. Indian Point offers training support, as requested, for State and local agencies whose function is to provide assistance during an emergency at Indian Point. Training is offered on an annual basis, or as needed. Training of offsite emergency response organizations is described in their respective radiological emergency plans.

Indian Point Energy Center Emergency Plan

2. Methods of Training

Members of the Indian Point ERO receive general and specialized classroom training as necessary, self-study and / or hands-on emergency response training.

Classroom training is used for initial qualifications as needed to provide individuals with basic knowledge needed to perform assigned functions.

Self-Study training is used for initial overview training and as refresher training for individuals to requalify to an ERO position.

Hands-on training is provided using one or more of the following methods:

- **Familiarization Sessions:** A familiarization session is an informal, organized tabletop discussion of predetermined objectives.
- **Walk-Throughs:** Consists of a facility walk-through to familiarize Indian Point ERO personnel with procedures, communications equipment and facility layout. Walk-throughs also provide the opportunity to discuss facility activities, responsibilities and procedures with an instructor.
- **Drills:** A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. Drills described in Section N of this Plan are a part of training. These drills allow each individual to demonstrate the ability to perform assigned emergency functions. During drills, on-the-spot correction of erroneous performance may be made and drill controllers or coaches/mentors will make a demonstration of the proper performance (may be during or subsequent to the drill in progress).

Exercises, drill evaluations and/or written tests are used to evaluate the effectiveness of the training accomplished. All key positions will be evaluated in a drill, exercise or tabletop prior to becoming qualified to fill the assigned position.

3. First Aid Response:

First Responder personnel are trained to respond to medical emergencies.

4. Indian Point ERO Training Program:

The Indian Point ERO personnel who are responsible for implementing this plan receive initial, specialized and annual continuing training. Training program details are maintained in Training Department Procedures.

State and local EOC personnel receive training as outlined in their respective plans. Entergy provides support as requested.

Indian Point Energy Center Emergency Plan

Indian Point emergency response position assignments may be based upon an individual's normal daily function and area(s) of expertise. Position-specific training provides the individual with the skills and knowledge to satisfactorily perform emergency assignments. A computerized system is used to track initial/continuing training and drill/exercise participation.

New Indian Point ERO personnel receive an initial overview course which familiarizes them with the Plan by providing basic information in the following areas as well as specific information as delineated in the sections below:

- Planning Basis
- Emergency Classifications
- Indian Point ERO and Responsibilities
- Callout of Emergency Organization
- Emergency Response Facilities
- Communications Protocol/Emergency Public Information
- Offsite Organizations

Annual continuing training is provided to ensure personnel are informed of changes in the Plan, procedures, organization and facilities. Incumbents (except craft positions) are provided an operating experience reading assignment.

- a. Personnel Responsible for Management of an Emergency (Shift Manager, Emergency Director, EOF Manager, Emergency Plant Manager / Plant Operations Manager / TSC Manager and OSC Manager)

These positions receive specialized training in one or more of the following areas as applicable to their ERO responsibilities:

- Emergency Classifications
- Notifications
- Protective Action Recommendations
- Emergency Action Levels
- Emergency Exposure Control
- Command and Control Practices

Indian Point Energy Center Emergency Plan

b. Personnel Responsible for Accident Assessment:

The skills and knowledge required to perform plant stabilization and mitigation are a normal function of specific Nuclear Operations positions, as identified in Section B of this Plan. Power changes, planned and unplanned reactor shutdowns are handled on a normal operation basis. Subsequent plant stabilization and restoration is pursued utilizing normal operating procedures. Licensed Operators receive routine classroom and simulator training to ensure proficiency in this area.

To remove peripheral duties from the Nuclear Operations shift, those Emergency Organization positions responsible for accident assessment, corrective actions, protective actions, and related activities receive position-specific training.

c. Radiological Monitoring Teams and Radiological Analysis Personnel

Offsite Radiological Monitoring: Offsite radiological monitoring is performed by trained individuals who provide samples and direct readings for dose assessment calculations.

Offsite Monitoring Team members receive classroom and hands-on training in the following areas:

- Equipment and Equipment Checks
- Communications
- Plume Tracking Techniques

Personnel Monitoring: Trained individuals who monitor Station personnel and their vehicles for contamination during an emergency perform personnel monitoring. This monitoring will normally be done by Radiation Protection Technicians who are qualified to do this type of monitoring as part of their normal job.

If Non-Radiation Protection personnel are to be used as Personnel Monitoring Team members they shall receive classroom and hands-on training in the following areas:

- Personnel Monitoring Equipment and Techniques
- Radiological Survey Techniques
- Contamination Control Techniques
- Basic De-Contamination Techniques

Dose Assessment: Dose Assessment training includes the skills and knowledge necessary for calculation and interpretation of an offsite release and its impact on the environment under any meteorological condition. Individuals responsible for performing dose assessment are trained in the following areas:

- Computerized and Manual Dose Assessment
- Protective Action Recommendations

Indian Point Energy Center Emergency Plan

- Radiological Monitoring Team Interface
 - Protective Action Guidelines associated with offsite plume exposure doses
 - Basic Meteorology
- d. Police, Security and Fire Fighting Personnel
- Local Police and Fire Fighting Personnel: The local Police and Fire Departments are invited to receive training as outlined in Part 1.a of this section of the Emergency Plan.
- Security: Indian Point emergency security response is based upon a normal daily security function that is to safeguard the site. Security personnel receive specialized training in the following areas:
- Accountability
 - Evacuation
 - Search and Rescue
 - Emergency Response Facility Activation and Access Control
 - Radiation Protection for Security Outpost
- Onsite Fire Fighting Personnel: Onsite fire fighting personnel are selected from Operations (or other on shift personnel) and receive their emergency response training as part of those groups in accordance with station Fire Protection Program documents.
- e. Repair and Damage Control Teams: Operations, Maintenance, Radiation Protection and Chemistry personnel are trained as part of their normal job specific duties to respond to both normal and abnormal plant operations. Part of this training includes an overview of OSC operations and immediate response actions individuals are to take when notified of an emergency and activation of their assigned facilities.
- Operations personnel are trained to recognize and to mitigate degrading conditions in the plant. Operations personnel are trained to mechanically and electrically isolate broken or malfunctioning equipment, to isolate fluid leaks and to minimize transients.
- Maintenance / I&C personnel are trained to troubleshoot and to repair damaged or malfunctioning electrical, mechanical, or instrumentation systems as appropriate to their job classification.
- Radiation Protection personnel are trained to assess the radiological hazards associated with equipment repair and instruct personnel as to the appropriate protective clothing requirements, respiratory protection requirements, time limits, and other protective actions specific to the conditions present.

Indian Point Energy Center Emergency Plan

- f. First Aid and Rescue Personnel: First aid and rescue team members receive training as outlined in Part 3 of this section.
- g. Local Support Service Personnel: Local support service personnel providing assistance during an emergency are invited to receive training as outline in Parts 1.a and 1.b of this section.
- h. Communications Personnel: Indian Point ERO personnel receive training on communications protocol as a part of the initial Emergency Response Overview. Personnel using specialized communications equipment that is not part of their normal daily function receive initial and requalification training on the equipment. Personnel involved in notifications to offsite agencies receive specialized training in the notification process.
- i. Personnel responsible for Recovery: ERO personnel receive training on the Recovery organization and their Recovery functions.
- j. Drill/Exercise Evaluation Support: Controllers/Observers will be trained on their roles and responsibilities to support drill/exercise control and player evaluation.

5. General, Initial and Annual Training Program Maintenance

- a. Plant Access Training: All personnel with unescorted access to the station's Protected Area receive orientation training. Plant Access Training provides initial training and annual requalification training on the basic elements of the Indian Point Emergency Plan for all personnel working at Indian Point. These elements include:
 - Station emergency alarms and their meaning
 - Assembly areas
 - Site evacuation procedures
 - Special precautions and limitations during an emergency
 - Purpose of the Indian Point Emergency Plan
 - Role of the worker during emergency
- b. Initial Training: Prior to becoming a qualified ERO member, personnel receive a first-time course that provides introductory knowledge to new members of the organization. Indian Point provides initial emergency response overview and specific training to assigned ERO members as outlined in the Emergency Response Organization Training Program. Additionally, Indian Point offers initial training to those offsite organizations that provide onsite support, as discussed in Part 1.a of this Section.

When an employee successfully completes the training requirements for an assigned emergency position, training is documented and the employee's name placed in the Emergency Telephone Directory. The completed training documents certify that the individual is qualified to perform their emergency functions.

Indian Point Energy Center Emergency Plan

- c. **Requalification Training:** Annual requalification training is provided to Indian Point ERO personnel. Requalification training consists of one or more of the following:
- Annual Requalification Evaluation
 - Classroom or hands-on training addressing changes to the Indian Point Emergency Response organization, facilities, procedures and equipment
 - Drill participation
- d. **Update Training:** In some cases, it may be necessary to provide additional training prior to the annual requalification training. Changes to this Plan, Indian Point ERO, procedures, facilities or equipment may require training in an effort to maintain a proficient Indian Point ERO.

Program changes or deficiencies identified during drills, exercises or audits may require training to be performed prior to annual requalification training. Emergency Preparedness management evaluates the impact of these changes or deficiencies upon the effectiveness of the organization. As a result of this evaluation process, one or more of the following may occur:

- Specialized Classroom Training
- Hands-On Training
- Required Reading
- Drills
- Memo (email) Notifications

Part 2: PLANNING STANDARDS AND CRITERIA

Section P: Responsibility for the Maintenance of the Planning Effort

This section describes the responsibilities for development, review and distribution of the Indian Point Generating Station Emergency Plan and actions that must be performed to maintain the Indian Point Emergency Preparedness Program. It also outlines the criteria for insuring that personnel who perform the planning are properly trained.

1. Emergency Planning Staff Training

Emergency Planning Staff Members receive on-going training and experiences to maintain or improve their knowledge related to emergency planning. At least once each calendar year members of the Emergency Preparedness staff are involved in one of the following activities:

- Training courses specific to emergency preparedness.
- Training courses related to emergency preparedness management, such as problem solving, stress management or confrontation/media relations' courses.
- Observation of or participation in drills and/or exercises at other utilities or stations.
- Participation in industry review and evaluation programs.
- Participation in regional or national emergency preparedness seminars, committees, workshops or forums.
- Indian Point training courses in related areas, such as systems, operations, or radiological protection training.

2. Authority for Emergency Preparedness Effort:

The Site Vice President has overall authority and responsibility for the Indian Point Emergency Preparedness Programs. This includes the authority to provide the necessary resources to ensure the continuous state of readiness for the Emergency Response Organization.

The General Manager Plant Operations (GMPO) is responsible for ensuring adequate staffing of the ERO.

3. Emergency Planning Manager:

Entergy has designated a site Emergency Planning Manager who is responsible for the maintenance of the Indian Point Emergency Preparedness Program. In maintaining the program, the Emergency Planning Manager ensures the following:

- Development, maintenance and revision of the Indian Point Emergency Plan and implementing procedures is accomplished in accordance with applicable regulations and industry standards.

Indian Point Energy Center Emergency Plan

- Development and maintenance of 50.54q evaluations of program changes.
- Adequate Entergy support is provided to ensure the maintenance of offsite emergency response plans and procedures for the State of New York and the local communities involved in response to an incident at Indian Point Station.
- Entergy adequately supports the training program for offsite response personnel.
- Development and maintenance of a strong working relationship with State and local authorities responsible for Emergency Preparedness.
- Consistency is maintained between this Plan and its implementing procedures and the Emergency Plans and procedures of the State and local authorities.
- Preparation for and conduct of the drill and exercise program, and that the program meets all regulations and guidelines of the NRC.
- Emergency Response Facilities are maintained in a constant state of readiness.
- Appropriate files are maintained to document the activities of the Emergency Preparedness Program as required by law and regulations.
- Work coordinated with the communications group in development and implementation of the Emergency Preparedness Public Information program.
- Indian Point is appropriately represented at state and local meetings dealing with emergency preparedness matters.
- Preparation of reports to the NRC, FEMA and other agencies on emergency preparedness matters.
- The alert and notification systems are maintained and tested in accordance with approved procedures.
- Emergency Preparedness staff is involved in a program to maintain an adequate knowledge of state of the art planning techniques and the latest applications of emergency equipment and supplies.
- Emergency Preparedness staff provides technical assistance to other Indian Point organizations in areas of emergency preparedness.
- Coordination of EP Self-Assessment, Audits and Inspections.
- Development of and coordination of the EP budget to ensure program integrity.
- Coordination of the EP Drill and Exercise Program.
- Corrective actions identified during the conduct of Exercises, Drills, Training, Audits and Inspections are tracked using the station's corrective action program.

Indian Point Energy Center Emergency Plan

4. Indian Point Emergency Plan Revisions:

This Plan is reviewed and updated as necessary, on an annual basis. The annual update includes required changes identified during training, drills and exercises. The Emergency Planning Manager is responsible for determining which recommended changes are incorporated into the Plan. Editorial changes to the Plan can be held until the annual Plan update. If no change to the Plan is required a memo to file shall be maintained to document annual review.

Revisions to the Plan that: decrease the effectiveness of the Emergency Plan, when determined through the technical review process or other changes deemed appropriate by the Emergency Planning Manager will be reviewed by the onsite safety review committee prior to implementation.

Changes to the Plan are made without NRC approval only if such changes do not decrease the effectiveness of the Plan, and the Plan as changed continues to meet the standards of 10CFR50.47(b) and 10CFR50, Appendix E. This will be determined using the 50.54q review process. Proposed changes that decrease or have a potential to decrease the effectiveness of the approved Plan are not implemented without prior approval by the NRC.

Emergency Plan Implementing Procedures shall be developed and revised concurrent with the Emergency Plan and reviewed in accordance with station procedures.

Technical reviews of the Emergency Plan and procedures shall be conducted in accordance with station procedures. Individuals that conduct the technical review and safety review shall be qualified in accordance with station requirements. The reviewer shall determine the need for cross-disciplinary reviews. Revisions to the Emergency Plan and Implementing Procedures shall be reviewed and approved by the Emergency Planning Manager prior to implementation.

State and County personnel are provided the opportunity to review the Emergency Action Levels (EALs) annually and upon any changes made to the EALs.

5. Emergency Plan Distribution:

Controlled copies of the Indian Point Emergency Plan and Implementing Procedures are issued to all appropriate locations onsite, as well as Nuclear Regulatory Commission. The State and Counties are provided with the Emergency Plan only. Verified copies may be used for position specific procedure sets used by the Emergency Response Organization. Procedure requirements include use of revision numbers and required page identifications (i.e. section of plan, revision number, etc.). Controlled copies of the EAL wall charts are issued to appropriate locations. The distribution of these wall charts is maintained by the Emergency Planning Department.

Indian Point Energy Center Emergency Plan

6. Supporting Emergency Response Plans:

Other plans which support this Plan are:

- Federal Radiological Emergency Response Plan
- State of New York Radiological Emergency Response Plan
- Westchester County Radiological Emergency Response Plan
- Rockland County Radiological Emergency Response Plan
- Orange County Radiological Emergency Response Plan
- Putnam County Radiological Emergency Response Plan

Each of these plans has associated Implementing Procedures.

7. Implementing and Supporting Procedures:

Appendix 3 of this Plan contains a listing, by number and title, of those procedures that implement this Plan during an emergency. Administrative procedures that outline the steps taken to maintain the Indian Point Emergency Preparedness Program have been developed. All Emergency Plan Implementing Procedures are reviewed biennially.

Major revisions to the procedures are reviewed by the departments or ERO positions affected (i.e. departments or individuals to whom responsibilities are assigned or changed) prior to their approval. (NOTE: Only one individual qualified for a given position is required to review a procedure change and an ERO facility management position can review changes within his/her facility or functional area.) Implementing procedures are reviewed and approved in accordance with approved station procedures.

8. Cross Reference to Planning Criteria:

The Plan is formatted in the same manner as NUREG-0654, FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in support of Nuclear Power Plants", Revision 1. This allows for ease in auditing evaluation criteria and eliminates the need for a cross-reference.

9. Review of Indian Point Emergency Preparedness Program: An assessment (audit) of the emergency preparedness program is performed by the Indian Point Nuclear Quality Assurance (NQA) organization. The assessment will be performed either at intervals not to exceed 12 months or as necessary, based on an assessment by NQA against the emergency preparedness performance indicators, and after changes in personnel, procedures, equipment, or facilities that could adversely affect emergency preparedness, but no longer than 12 months after the change. In any case, all elements of the emergency preparedness program are reviewed at least once every 24 months. The Quality Assurance Program provides the management controls for documenting, reporting and retaining audit results and for evaluation and correcting audit findings.

Indian Point Energy Center Emergency Plan

Results of this audit are submitted for review to the Station's Vice President. The Emergency Planning Manager ensures that any findings that deal with offsite interfaces are reviewed with the appropriate agencies. Records of the audit are maintained for at least five years.

On an annual basis, a report of the Emergency Planning activities for the year will be presented to the onsite safety review committee. Such activities include: Plan and procedure revisions, drill/exercise results, and audit/inspection results. Additional activities may be added as deemed appropriate by the Emergency Planning Manager.

10. Maintenance of Emergency Telephone List

A phone list(s) contains telephone numbers used by the Emergency Response Organizations during an emergency. Emergency Preparedness Administrative Procedure(s) provide for verifying and updating these numbers at least quarterly.

Indian Point Energy Center Emergency Plan

Appendix 1: References

References consulted in the writing of this Emergency Plan are listed in this section. With exception of regulatory requirements, inclusion of material on this list does not imply adherence to all criteria or guidance stated in each individual reference.

1. 10CFR50.47, Emergency Plans
2. 10CFR50 Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities
3. 10CFR20, Standards for Protection Against Radiation
4. Code of Federal Regulations, Title 10, Chapter I Parts 70, 73, and 100.
5. Code of Federal Regulations, Title 33, Chapter I, Part 153.
6. Code of Federal Regulations, Title 40, Chapter I, Parts 110, 112, 116, 118, 302 and 355.
7. Code of Federal Regulations, Title 44, Chapter I, Part 401.
8. Code of Federal Regulations, Title 49, Chapter I, Parts 171 and 172.
9. NUREG-0654, FEMA-REP-1, Revision 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
10. NUREG-0696, Revision 1, Functional Criteria for Emergency Response Facilities
11. NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," Dec. 1978.
12. NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."
13. NUREG-0696, Revision 1, Functional Criteria for Emergency Response Facilities
14. NUREG-0737, Clarification of TMI Action Plan Requirements, dated October 1980.
15. NUREG-0737, Supplement 1, Requirements for Emergency Response Capability, December 1982.
16. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
17. FEMA-Guidance Memorandum, MS-1 "Medical Services"
18. Indian Point Unit 1, 2 and 3 FSARs
19. Indian Point Unit 1, 2 and 3 Tech Specs
20. USNRC Reg. Guide 1.101, "Emergency Planning & Preparedness for Nuclear Power Plants"
21. 10CFR50, Appendix R
22. SANDIA 77-1725
23. INPO Emergency Resources Manual

Indian Point Energy Center Emergency Plan

Appendix 1: References (cont.)

24. "Maintaining Emergency Preparedness Manual," dated November, 1987 INPO 87-019.
25. "Federal Bureau of Investigation and Nuclear Regulatory Commission Memorandum of Understanding for Cooperation Regarding Threat, Theft, or Sabotage in U.S. Nuclear Industry," Federal Register, Vol. 44, p. 75535, December 20, 1979.
26. "Voluntary Assistance Agreement By and Among Electric Utilities involved in Transportation of Nuclear Materials," dated November 1, 1980.
27. Comprehensive Environmental Response, Compensation and Liability Act of 1980.
28. Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendation for State and Local Agencies, Volume 47, No. 205, October 22, 1982.
29. American Nuclear Insurers Bulletin #5B (1981), "Accident Notification Procedures for Liability Insured's".
30. "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency: Final Recommendations on Use," Federal Register Vol. 47, No. 125, June 29, 1982.
31. INPO Coordination agreement on emergency information among USCEA, EPRI, INPO, NUMARC and their member utilities, dated April (1988).
32. Babcock and Wilcox Company, Post Accident Sample Offsite Analysis Program (1982).
33. ANI/MAELU Engineering Inspection Criteria For Nuclear Liability Insurance, Section 6.0, Rev. 1, "Emergency Planning."
34. NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels"
35. USNRC Reg. Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants", March 2007
36. INPO 09-006 Guidelines for Training and Qualification of Emergency Response Organization Personnel
37. NYS Radiological Emergency Preparedness Plan Appendix K, Rev 11/08

Indian Point Energy Center Emergency Plan

Appendix 2: Letters of Agreement

Copies of agreement letters for the offsite emergency response supporting organizations listed below are contained in this appendix.

1. Verplanck Fire Protection Association (Fire/Ambulance)
2. Buchanan Fire Department
3. Hudson Valley Hospital Center at Peekskill / Cortlandt
4. Phelps Memorial Hospital Center
5. Department of Energy – Radiation Emergency Assistance
6. Department of Energy Radiological Assistance Plan
7. Westinghouse Electric Corporation
8. Institute of Nuclear Power Operations (INPO)
9. New York State Police
10. New York State Disaster Preparedness Commission
11. City of Peekskill Fire Department

As Letters of Agreement are received and updated they will be added to this section. A revision to the EPLAN is not necessary to update Letters of Agreement. Letters in this section are the current letters as of the date of this revision.

The Letters of Agreements (LOAs) with outside support organizations and government agencies are reviewed and confirmed annually in accordance with NUREG 0654 P.4. These letters are updated as needed. Letters with no specific end date remain in effect until terminated in writing by either party. This has been agreed to by the applicable supporting agencies.

Indian Point Energy Center Emergency Plan

Appendix 2: Letters of Agreement

NOTE 1: Copies of agreement letters for the offsite emergency response supporting organizations listed below are contained in this appendix.

NOTE 2: As Letters of Agreement are received and updated they will be added to this section. A revision to the EPLAN is not necessary to update Letters of Agreement, nor this page. Letters in this section are the current letters as of the date of this revision.

NOTE 3: The Letters of Agreement (LOAs) with outside support organizations and government agencies are reviewed and confirmed annually in accordance with NUREG 0654 P.4. These letters are updated every two years as needed.

Agency Letter of Agreement is With	Date of Letter	Date of Expiration of this LO
Verplanck Fire Protection Association (Fire Ambulance)	September 24, 2010	November 30, 2011
Buchanan Fire Department	August 30, 2010	November 30, 2011
Hudson Valley Hospital Center and Peekskill / Cortland	May 24, 2010	November 30, 2011
Phelps Memorial Hospital Center	May 18, 2010	No Expiration
Department of Energy – Radiological Emergency Assistance	August 30, 2010	No Expiration
Department of Energy Radiological Assistance Plan	November 25, 2009	No Expiration
Westinghouse Electric Corporation	August 19, 2010	November 30, 2011
Institute of Nuclear Power Operations (INPO)	September 30, 2008	No Expiration
New York State Police	June 10, 2010	November 30, 2011
New York State Office of Emergency Management	October 13, 2010	November 30, 2011
City of Peekskill Fire Department	July 31, 2010	November 30, 2011

ORGANIZED MARCH 22, 1929

BOARD OF FIRE COMMISSIONERS

Verplanck Fire District

P.O. Box 356-238 Eighth Street

Verplanck, New York 10596

Business Phone 914-788-6940 - Fax Number 914-737-3932

Commissioners

Charles A. Graven, Gerald Dyckman,

Glenn T. Welch – David Smyth— Cleo Cueves - Michael Breen, Treasurer

Frank Simeone, Attorney

September 24, 2010

Office of Emergency Planning
450 Broadway
Buchanan NY 10511

To Whom It May Concern:

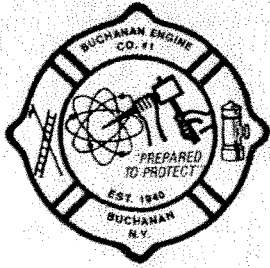
This is to inform you that the Verplanck Fire Department will continue to provide fire and Ambulance service to the Indian Point Nuclear Facility as we have in the past. Indian Point lies within the Boundaries of the Verplanck Fire District which has provided service to that area for the better part of 80 years, as such; we are mandated by New York State laws to supply your essential Fire and EMS services.

Serving you with Pride and quality service

Sincerely



Charles Graven
Commissioner
Verplanck Fire District



Organized December, 1940
Buchanan Engine Co., No. 1, Inc.

159 Albany Post Road, Buchanan, New York 10511

— Member of —

*Firemen's Association of The State of New York
Hudson Valley Volunteer Firemen's Association
Westchester County Volunteer Firemen's Association
Westchester County Fire Chief's Association*

**For Emergency
Dial 911**

**Business Phone
737-5010**

**Chief's Office
737-0334**

August 30, 2010

Mr Michael Slobodien
Director Emergency Programs
Entergy Nuclear Northeast

RE: Letter of Agreement for emergency response.

This letter is to confirm the intent of Buchanan Engine Co.No.1 Inc. to respond to an emergency situation or accident at the Indian Point Energy Center under the Mutual Aid System. Buchanan Engine Company No.1 Inc will provide equipment and emergency services for assistance to Entergy and respond to emergency situations or accidents at the Indian point Energy Center. This response may include firefighting equipment and services for providing pumping capabilities to supply Hudson River water to selected connection points.

If you have any questions regarding this agreement, please feel free to contact me at my office - (914) 737-0334.

Sincerely,

Thomas Grant
Chief of Department



Building On Excellence

This agreement made this Twenty-fourth day of May, 2010 between HUDSON VALLEY HOSPITAL CENTER, 1980 Crompond Road, Cortlandt Manor, New York 10567 (hereinafter referred to as "Hospital) and the Indian Point Energy Center Plants, P.O. Box 308, Buchanan, New York 10511.

- 1. The Hospital will accept as patients, in accordance with the plant and Hospital procedures, any personnel from the Indian Point Energy Center Plants who may be considered to have sustained radiation injuries and/or who may have been exposed to radioactive material, provided that: All potentially contaminated patients will be accompanied to the Hospital by the Indian Point Facility personnel; and the Indian Point Facility will take all appropriate precautionary radioactive contamination measures and will advise the Hospital by telephone in advance of patient's arrival, of the patient's status, and radiation hazard.
2. The Indian Point Energy Center will:
a. Pay the Hospital the sum of \$30,000 each year and in addition thereto, will;
b. Compensate or reimburse the Hospital for all materials and equipment consumed or which must be destroyed or replaced due to radiation.
c. Indemnify and hold the Hospital harmless from any and all claims of third persons resulting from radiation exposure not resulting from the Hospital's negligence.
d. Be responsible for decontaminating the Hospital's equipment and property and disposing of materials contaminated as a result of services rendered to personnel of Entergy.

HUDSON VALLEY HOSPITAL CENTER

Handwritten signature of John C. Federspiel
John C. Federspiel
President

ENTERGY NUCLEAR NORTHEAST
INDIAN POINT ENERGY CENTER

Handwritten signature of Mike Slobodien for N. Slobodien 6/3/10
Mike Slobodien
Director of Emergency Programs

OUR EXPERTISE THROUGHOUT THE REGION

Radiology Centers | The Wellness Club | Physical Therapy Centers

COLD SPRING • CROTON-ON-HUDSON • HOPEWELL JUNCTION • MAHOPAC • PUTNAM VALLEY • YORKTOWN HEIGHTS

1980 CROMPOND ROAD • CORTLANDT MANOR, NY 10567 • 914-737-9000 • WWW.HVHC.ORG

Phelps Memorial Hospital Center
701 North Broadway
Sleepy Hollow, New York 10591-1096

P H E L P S

May 18, 2010

Mr. Frank Phillips
Senior Emergency Planner
Entergy Nuclear Planner
Indian Point Energy Center
450 Broadway, Suite 2
Buchanan, NY 10511

Dear Mr. Phillips:

This letter will confirm that Entergy will pay Phelps Memorial Hospital Center a sum of \$30,000 per year, in accordance with our agreement to accept as patients any personnel from the Indian Point Energy Center who may be considered to have sustained radiation injuries and/or contamination.

While this agreement is valid until terminated via written notice, we want to confirm that Phelps continues to appreciate the mutual advantages of our long-standing partnership.

It is a pleasure to continue to work together for the benefit of our community.

Yours truly,


Keith F. Safian, FACHE
President and C.E.O.

/al



Department of Energy

Oak Ridge Office
P.O. Box 2001
Oak Ridge, Tennessee 37831

August 30, 2010

Mr. Alain Grosjean
Senior Project Manager
Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway Avenue Suite 2
Buchanan, New York 10511

Dear Mr. Grosjean:

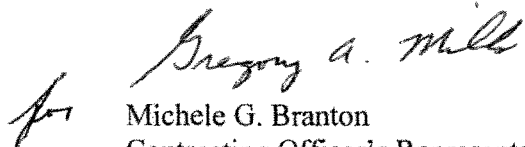
LETTER OF AGREEMENT – RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TS) SUPPORT

Please reference a request from Mr. Frank M. Phillips on August 19, 2010, requesting that the Department of Energy (DOE) REAC/TS facilities and team continue to be available to provide back-up capability and assistance to the Entergy's Indian Point Energy Center in the event of a radiological emergency. This response constitutes our agreement to provide this service upon your request. The agreement remains in effect until terminated in writing by either party.

We wish to remind you that our REAC/TS facilities in the Oak Ridge Institute for Science and Education (ORISE) are government controlled and operated by the Oak Ridge Associated Universities under contract with DOE. Therefore, REAC/TS is prohibited from competing with commercial firms that can provide radiological emergency services. Only if the magnitude or uniqueness of a radiological emergency exceeds your in-house and commercially available capabilities would REAC/TS be authorized to provide back-up services.

Since these facilities are government controlled, no fee or retainer is required to assure the availability of back-up services by REAC/TS. However, if you utilize the services of REAC/TS, we should expect to recover those costs that could reasonably be related to handling such an incident, including all charges billed to DOE or ORISE by hospitals and physicians. Information concerning the REAC/TS facilities, staff, services available, and procedures for seeking REAC/TS assistance can be obtained by direct contact with the REAC/TS Director, Dr. Albert Wiley, ORISE, Post Office Box 117, Oak Ridge, Tennessee 37831, or at telephone number (865) 576-3131.

Sincerely,


Michele G. Branton
Contracting Officer's Representative

Mr. Alain Grosjean

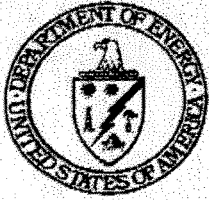
-2

August 30, 2010

cc:

Rebecca M. Kennard, MS 26, ORISE

Albert L. Wiley, MS 39, ORISE



Department of Energy

Oak Ridge Office
P.O. Box 2001
Oak Ridge, Tennessee 37831

November 25, 2009

Mr. Alain Grosjean
Senior Project Manager
Entergy Nuclear Northeast
450 Broadway Avenue
Buchanan, New York 10511

Dear Mr. Grosjean:

LETTER OF AGREEMENT - RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TS) SUPPORT

Please reference your request of November 24, 2009, requesting that the Department of Energy (DOE) REAC/TS facilities and team continue to be available to provide back-up capability and assistance to the Entergy Nuclear Northeast's nuclear facilities in the event of a radiological emergency. This response constitutes our agreement to provide this service upon your request.

We wish to remind you that our REAC/TS facilities in the Oak Ridge Institute for Science and Education (ORISE) are government controlled and operated by the Oak Ridge Associated Universities under contract with DOE. Therefore, REAC/TS is prohibited from competing with commercial firms which can provide radiological emergency services. Only if the magnitude or uniqueness of a radiological emergency exceeds your in-house and commercially available capabilities would REAC/TS be authorized to provide back-up services.

Since these facilities are government controlled, no fee or retainer is required to assure the availability of back-up services by REAC/TS. However, if you utilize the services of REAC/TS, we should expect to recover those costs, which could reasonably be related to handling such an incident, including all charges billed to DOE or ORISE by hospitals and physicians. Information concerning the REAC/TS facilities, staff, services available, and procedures for seeking REAC/TS assistance can be obtained by direct contact with the REAC/TS Director, Dr. Albert Wiley, ORISE, Post Office Box 117, Oak Ridge, Tennessee 37831, or at telephone number (865) 576-3131.

Sincerely,

A handwritten signature in cursive script that reads "Gregory A. Mills".

Gregory A. Mills
Contracting Officer's
Representative (Alt.)

cc:

R. M. Kennard, MS 48, ORISE
A. L. Wiley, MS 39, ORISE



Westinghouse Electric Company
Nuclear Services
Waltz Mill Service Center
P.O. Box 158
Madison, Pennsylvania 15663
USA

Mr. Anthony Vitale
Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway
Buchanan, NY 10511

Direct tel: 724-722-5658
Direct fax: 724-722-5166
e-mail: shieldep@westinghouse.com

Our ref: IPP-10-26

August 19, 2010

Entergy Nuclear Operations, Inc.
Indian Point Unit 2 & 3
Westinghouse Emergency Response Plan Roster Revision

Dear Mr. Vitale:

Attached for your information is the updated version of the Westinghouse Electric Company LLC Emergency Response Plan. This document describes how Westinghouse Electric Company LLC will provide general services related to nuclear steam supply operation during and following an accident situation. Your initial contacts are as follows:

Plant	Title	Name	Office	Home	Cell Phone	Pager
IPP/INT	First Contact	Steve Harms	914-734-5825 or 914-736-8846	845-897-3343	914-319-9954	800-921-5984
IPP/INT	1 st Alternate	Ed Shields	724-722-5658	724-864-4749	724-244-7242	
IPP/INT	2 nd Alternate	Sallie Carrera	724-722-6447	724-836-1581	724-331-7154	

If you have any questions, please contact me.

Very truly yours,

Edward P. Shields
Customer Project Manager

/slb

cc: Joe Pollock/IPEC
Pat Conroy/IPEC
Tom Orlando/IPEC
Bob Walpole/IPEC

Electronically Approved Records Are Authenticated in the Electronic Document
Management System

Westinghouse Proprietary Class 2

Page 2 of 2
Our ref: IPP-10-26
August 19, 2010

Brian Sullivan/IPEC
Frank Phillips/IPEC
Steve Harms/Westinghouse
Ed Shields/Westinghouse
Sallie Carrera/Westinghouse

Electronically Approved Records Are Authenticated in the Electronic Document
Management System

IPEC00243167



NEW YORK STATE POLICE
DIVISION HEADQUARTERS
1220 WASHINGTON AVENUE
ALBANY, NEW YORK 12226-2252

RECEIVED
6/25/10

JOHN P. MELVILLE
ACTING SUPERINTENDENT

June 10, 2010

Mr. Michael Slobodien
Director, Emergency Programs
Entergy Nuclear Northeast
Energy Center
P.O. Box 308
Buchanan, NY 10511

Dear Mr. Slobodien:

The Division of State Police will continue to respond to requests for routine police service at your facility. In addition, the Division will supply support activities as set forth in the New York State Radiological Emergency Preparedness Plan and Article 2-B of the New York State Executive Law. In regards to other matters of a police nature, our members are governed by statute and will respond within the constraints of such laws when a violation of law appears probable, is attempted, or occurs.

The communications equipment installed at our Hudson Valley Traffic Management Center (TMC) allows for continuous communication capability with the Indian Point nuclear facilities, and for any emergency contingency that may arise.

Sincerely,

John P. Melville
Acting Superintendent



New York State Office of Emergency Management
1220 Washington Avenue
Building 22, Suite 101
Albany, NY 12226-2251



David A. Paterson, Governor

Andrew X. Feeney, Director

October 13, 2010

Mr. Mike Slobodien
Director, Emergency Programs
Entergy Nuclear Northeast
Indian Point Energy Center
P.O. Box 308
Buchanan, New York 10511

Dear Mr. Slobodien:

This serves to update the annual agreement letter between the Indian Point Energy Center Facilities and State Emergency Management Office for the Radiological Emergency Preparedness Program.

In the event of an emergency at the Indian Point Energy Center Power Plants, New York State will respond in accordance with procedures contained within the State Radiological Emergency Preparedness Plan. Notification to New York State of the emergency should be initiated via the Radiological Emergency Communication System hotline. The State will also continue to participate in training exercises and drills.

Sincerely,

Andrew X. Feeney
Director

**CITY OF PEEKSKILL
FIRE DEPARTMENT**

LENNY VARELLA, JR.
CHIEF

ROBERT FIORIO SR.
1ST ASST. CHIEF

VINCENT MALASPINA.
2ND ASST. CHIEF



DR. JOHN A. MCGURTY, JR.
DEPARTMENT SURGEON

DON "SPANKY" MACLENNAN
SAFETY OFFICER

PEEKSKILL, NEW YORK 10566
FIRE HEADQUARTERS (914) 737-2760

July 2010

To Whom It May Concern

Entergy Nuclear Northeast owners and operators of Indian Point Energy Center are authorized to use Station 6 Firehouse located at 701 Washington Street, Peekskill as a staging area for their personnel during events when access to their site is prohibited. This facility will be able to support communication (i.e. computer) to the site. This agreement shall be renewed in two years.



Chief Leonard Varella Jr.
City of Peekskill Fire Department

Indian Point Energy Center Emergency Plan

Appendix 3: Procedure Cross-Reference to Sections of the Plan

Emergency Plan Implementing Procedures to Plan Sections

Number	Subject Addressed	IPEC Emergency Plan Section(s)
IP-EP-115	Emergency Plan Forms	All
IP-EP-120	Emergency Classification	D.2, Table D-1
IP-EP-250 IP-EP-220 IP-EP-210	Emergency Management	B.2 B.3, B.4, B.5, Table B-1
IP-EP-210	Control Room Augmentation	B-5, Table B-1, D.1. E.2
IP-EP-220	TSC Activation and Response	B-5, Table B-1
IP-EP-230	OSC Activation and Response	B-5, Table B-1
IP-EP-250 IP-EP-251	EOF Activation and Response	B-5, C.2.b, Table B-1 D.1, E.2
IP-EP-230 IP-EP-250	Radiation Protection, Emergency Exposure Controls and Response	B-5, Table B-1 J.6, K.1, K.2
IP-EP-240	Emergency Security Organization Activation and Response	B-5, Table B-1
IP-EP-241	Incident Command Post	B-5, Table B-1
IP-EP-310	Offsite Dose Assessment	B-5, Table B-1
IP-EP-330	Airborne Sample Analysis	H.12, I.8, I.9, I.10, I.11
IP-EP-350	Emergency Contamination Control	K.5, K.6, K.7
IP-EP-360	Core Damage Assessment	D.1, D.2, I.1
IP-EP-410	Protective Action Recommendations	J.2
IP-EP-420	Use of Potassium Iodide by Indian Point Personnel During and Emergency	K.2
IP-EP-251	Alternate EOF Activation and Response	H.2
IP-EP-510 IP-EP-520	Data Equipment Operation	B.5, Table B-1
IP-EP-320	Offsite Monitoring Team Activation and Response	I.7, I.8, I.9
IP-EP-240 IP-EP-430	Evacuation/Accountability	J.2, J.4, J.5
IP-EP-230 IP-EP-430	Search and Rescue	J.5
IP-EP-610	Termination and Recovery	M.2, M.3, M.4
IP-EP-620	Estimating Total Population Exposure	M.6
IP-EP-260	Joint Information Center Procedure Set	G.3, G.4
IP-EP-610	Emergency Preparedness Corporate Support	A.1, B.7, C.4, O.4
IP-1052	Hazardous Waste Emergencies	Part I, Section C
IP-1055	Fire Emergency Response	Part I, Section C
0-AOP-SEC-2	Air Craft Threat	Part I, Section C

Indian Point Energy Center Emergency Plan

Appendix 3: Procedure Cross-Reference to Sections of the Plan

Emergency Plan Implementing Procedures to Plan Sections

Number	Subject Addressed	IPEC Emergency Plan Section(s)
IP-EP-115	Emergency Plan Forms	All
IP-EP-120	Emergency Classification	D.2, Table D-1
IP-EP-250 IP-EP-220 IP-EP-210	Emergency Management	B.2 B.3, B.4, B.5, Table B-1
IP-EP-210	Control Room Augmentation	B-5, Table B-1, D.1. E.2
IP-EP-220	TSC Activation and Response	B-5, Table B-1
IP-EP-230	OSC Activation and Response	B-5, Table B-1
IP-EP-250 IP-EP-251	EOF Activation and Response	B-5, C.2.b, Table B-1 D.1, E.2
IP-EP-230 IP-EP-250	Radiation Protection, Emergency Exposure Controls and Response	B-5, Table B-1 J.6, K.1, K.2
IP-EP-240	Emergency Security Organization Activation and Response	B-5, Table B-1
IP-EP-241	Incident Command Post	B-5, Table B-1
IP-EP-310	Offsite Dose Assessment	B-5, Table B-1
IP-EP-330	Airborne Sample Analysis	H.12, I.8, I.9, I.10, I.11
IP-EP-350	Emergency Contamination Control	K.5, K.6, K.7
IP-EP-360	Core Damage Assessment	D.1, D.2, I.1
IP-EP-410	Protective Action Recommendations	J.2
IP-EP-420	Use of Potassium Iodide by Indian Point Personnel During and Emergency	K.2
IP-EP-251	Alternate EOF Activation and Response	H.2
IP-EP-510 IP-EP-520	Data Equipment Operation	B.5, Table B-1
IP-EP-320	Offsite Monitoring Team Activation and Response	I.7, I.8, I.9
IP-EP-240 IP-EP-430	Evacuation/Accountability	J.2, J.4, J.5
IP-EP-230 IP-EP-430	Search and Rescue	J.5
IP-EP-610	Termination and Recovery	M.2, M.3, M.4
IP-EP-620	Estimating Total Population Exposure	M.6
IP-EP-260	Joint Information Center Procedure Set	G.3, G.4
IP-EP-610	Emergency Preparedness Corporate Support	A.1, B.7, C.4, O.4
IP-1052	Hazardous Waste Emergencies	Part I, Section C
IP-1055	Fire Emergency Response	Part I, Section C
0-AOP-SEC-2	Air Craft Threat	Part I, Section C

Indian Point Energy Center Emergency Plan

Emergency Preparedness Administrative Procedures

The following procedures do not implement the Emergency Plan during emergencies, but do outline maintenance of the program as required by the applicable sections of the Plan.

Number	Subject Addressed	IPEC Emergency Plan Section(s)
IP-EP-AD1	Emergency Preparedness Department Organization and Responsibilities	P.1, P.2, P.3
IP-EP-AD2	Emergency Plan Controlled Documents	P.4, P.5
IP-SMM-TQ-110	Emergency Response Training Program	Section O
EN-EP-306	Drills and Exercises	N.1.b, N.2.a, N.2.c, N.2.e.1, N.2.e.2
IP-EP-AD5	Emergency Preparedness Performance Indicator Program	N.1.b, N.2.a, N.2.e.1, N.2.e.2, Section B, E.6
IP-EP-AD6	Emergency Preparedness Department Facilities and Equipment Surveillances	F.3, H.10
IP-EP-AD9	Notifications Systems Testing and Maintenance	F.3, N.2.a
IP-EP-AD10	Offsite Emergency Preparedness Support	A.1, O.1
IP-EP-AD12	Tone Alert Radio Program	E.6
IP-EP-AD13	Emergency Action Levels Technical Basis Document	D.1, D.2, I.1, I.4, J.7
IPEP-AD-16	Emergency Planning Records	All
IP-EP-AD 17	Emergency Planning Equipment Administration	E.6, F.1, H.8, H.9
IP-EP-AD18	Emergency Response Organization	B.1-B.5, Table B-1, B-5
IP-EP-AD19	IPEC ANS Modification Acceptance Test	E.6
IP-EP-AD19.1	IPEC Alert Notification System Testing	E.6
IP-EP-AD20	IPEC Alert Notification System Test	E.6
IP-EP-AD23	ATI Siren System Verification of Completion of Confirmatory Order Reliability Testing	E.6
IP-EP-AD-30	ATI Siren System Administration	E.6
IP-EP-AD-31	ATI Siren System Maintenance Administration	E.6

Indian Point Energy Center Emergency Plan

Number	Subject Addressed	IPEC Emergency Plan Section(s)
IP-EP-AD-32	ATI Siren System Routine Polling and Testing	E.6
IP-EP-AD-33	ATI Siren System Quarterly Preventive Maintenance	E.6
IP-EP-AD-34	ATI Control Station Semi-Annual Preventive Maintenance	E.6
IP-EP-AD-35	ATI Siren System Site Annual Preventive Maintenance	E.6
IP-EP-AD-36	ATI Repeater Tower Semi-Annual Preventive Maintenance	E.6
IP-EP-AD-37	ATI Solar Powered Siren Semi-Annual Preventive Maintenance	E.6
IP-EP-AD-38	ATI Repeater Site Annual Preventive Maintenance	E.6
IP-EP-AD-39	ATI Control Station Annual Preventive Maintenance	E.6
IP-EP-AD-40	Equipment Important to Emergency Response	E.6, F.1, G.3, Section H

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

Any abbreviation followed by a lower case 's' denotes the plural form of the term.

AC	.....	Alternating Current
AEOF	.....	Alternate Emergency Operations Facility
ALARA	.....	As Low As Reasonably Achievable
ANI	.....	American Nuclear Insurers
ANSI	.....	American National Standards Institute
ARM	.....	Area Radiation Monitor
CB	.....	Citizen Band
cc	.....	cubic centimeter
CR	.....	Control Room
CFR	.....	Code of Federal Regulations
CIC	.....	Corporate Information Center
cm ²	.....	square centimeter
Cs	.....	Cesium
dc	.....	direct current
DHS	.....	Department of Homeland Security
DOE	.....	U. S. Department of Energy
DOT	.....	U. S. Department of Transportation
dpm	.....	disintegration per minute
EAL	.....	Emergency Action Level
EAS	.....	Emergency Alerting System
ENS	.....	NRC Emergency Notification System
EOC	.....	Emergency Operating Center
EOF	.....	Emergency Operations Facility
EOP	.....	Emergency Operating Procedure
EPA	.....	U. S. Environmental Protection Agency
EPZ	.....	Emergency Planning Zone
FEMA	.....	Federal Emergency Management Agency
FRERP	.....	Federal Radiological Emergency Response Plan
FSAR	.....	Final Safety Analysis Report
Ge	.....	Germanium
GET	.....	General Employee Training

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

I	Iodine
INPO	Institute of Nuclear Power Operations
IP1, IP2, or IP3	Indian Point Unit 1,2 or 3
IPEC	Indian Point Energy Center
IRAP	Interagency Radiological Assistance Program
Li	Lithium
LOCA	Loss of Coolant Accident
mR	milliroentgen
NRC	U. S. Nuclear Regulatory Commission
NSRAC	Nuclear Safety Review and Audit Committee
OSC	Operations Support Center
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PASS	Post Accident Sampling System
R	roentgen
RACES	Radio Amateur Civil Emergency Services
RERP	Radiological Emergency Response Plan
RMT	Radiation Monitoring Team
SCBA	Self Contained Breathing Apparatus
SPDS	Safety Parameter Display System
Sr	Strontium
STA	Shift Technical Advisor
TAG	Technical Assessment Group
TDD	Telecommunications Device for the Deaf
TLD	Thermoluminescent Dosimeter
TSC	Technical Support Center
μ Ci	microcuries

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

Definitions

Accountability - The process used by the Onsite Emergency Organization to identify potentially missing and/or injured personnel within the Protected Area during an emergency. This process is accomplished within 30 minutes and is normally maintained throughout the event.

Annual - Frequency of occurrence equal to once per calendar year, between January 1st and December 31st.

Area Radiation Monitors - Fixed radiation detectors placed in strategic locations throughout the Station for the purpose of continuously monitoring area radiation dose rates; an integral part of the Radiation Monitoring System that provides the Unit 2 and Unit 3 Control Rooms with remote monitoring capabilities.

Assembly - The process of relocating onsite personnel, during an emergency to a pre-designated location. Generally speaking all onsite personnel who do NOT have an emergency response assignment (non-essential personnel) relocate to an "Assembly Area." Those onsite personnel who are assigned emergency response functions (essential personnel) respond to their assigned emergency facility.

Assembly Area - A pre-designated area to which non-essential personnel relocate during an emergency. The primary Assembly Areas at IPEC are the Generation Support Building (GSB) and the Energy Education Center (EEC). The back-up Assembly Area, normally used only during periods of high personnel volume (e.g. outage), is the Indian Point Training Center.

Assessment Actions - Those actions taken during or after an accident to obtain and process information that is necessary to make decisions to implement specific emergency measures.

Biennial - Frequency of occurrence equal to once per two calendar years.

Classification - The classification of emergencies is divided into FOUR (4) categories or conditions, covering the postulated spectrum of emergency situations. Each emergency classification is characterized by Emergency Action Levels (EALs) or event initiating conditions. The four classifications address emergencies of increasing severity.

Committed Dose Equivalent (CDE) - The dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

Corrective Actions - Those emergency measures taken to ameliorate or terminate an emergency situation at or near its source.

County Emergency Operations Center - Each of the four (4) counties (Westchester, Rockland, Putnam and Orange) surrounding the site has an Emergency Operations Center from which the County officials evaluate and coordinate all County activities during an emergency.

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

Dose Equivalent (DE) - The product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The unit of dose equivalent is the Rem.

Dose Projection - The calculated estimate of a radiation dose to individuals at a given location (normally off-site), determined from the source term/quantity of radioactive material (Q) released, and the appropriate meteorological dispersion parameters (X/Q).

Drill - A supervised instruction period aimed at testing, developing and maintaining skill in a particular operation.

Emergency Action Level (EAL) - A predetermined, site-specific, observable threshold for a plant Initiating Condition that places the plant in a given emergency class. (NUMARC/NESP-007).

Emergency Alert System (EAS) - A network of broadcast stations and interconnecting facilities which have been authorized by the Federal Communications Commission to operate in a controlled manner during a war, state of public peril or disaster, or other national or local emergency. In the event of a nuclear reactor accident, state or local government authorities on the EAS would broadcast instructions/notifications to the public on conditions or protective actions.

Emergency Coordinator - A position title in NUREG 0654-Rev 1 corresponding to the Emergency position of Emergency Director.

Emergency Director - A previously designated and trained individual who assumes total responsibility for directing all licensee activities related to an emergency at the site. The Emergency Director is the interface between the Onsite Emergency Organization and all offsite agencies.

Emergency Notification System (ENS)- The NRC Emergency Notification System is a dedicated telephone system (part of the Federal Telephone System). It connects the plant with NRC headquarters in Bethesda, Maryland. It is used for reporting emergency conditions to NRC personnel.

Emergency Operations Facility - The facility for evaluating and coordinating all of Emergency activities related to an emergency.

Emergency Plan Administrative Procedures - Procedures that provide detailed information necessary to maintain the Emergency Planning Program. Primarily used by members of the Emergency Planning Staff.

Emergency Plan Implementing Procedures - Procedures that provide detailed information necessary to implement required tasks during an emergency. Primarily used by members of the Emergency Response Organization.

Emergency Planning Manager - Individual responsible for reviewing and updating the emergency plan and supporting documents and coordinating all onsite and offsite emergency planning efforts.

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

Emergency Planning Zone (EPZ) - The area around the Indian Point Site where planning is required for the plume exposure pathway, out to approximately 10-miles (10-mile EPZ). For the ingestion exposure pathway, the EPZ extends out to approximately 50-miles (50-mile EPZ). The 10-mile EPZ encompasses areas of Westchester, Rockland, Putnam and Orange Counties. The 50-mile EPZ includes the 10-mile EPZ and encompasses areas of Connecticut, New Jersey, Pennsylvania and New York.

Emergency Response Data System (ERDS) - ERDS is a direct near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected parameters.

Essential Personnel - Those individuals needed to achieve the goals and tasks as deemed necessary by the Shift Manager, Emergency Director and/or Emergency Plant Manager during an emergency. Unless otherwise directed, initially all members of the Emergency Response Organization (ERO) are considered essential personnel.

Exclusion Area - The area surrounding the reactor in which licensee has authority to determine all activities including exclusion or removal of personnel and property from the area. (10CFR100)

Fission Product Barrier - The fuel cladding, reactor coolant system boundary, or the containment boundary.

Health Physics Network (HPN) - In the event of a site emergency, the NRC HPN line will be activated by the NRC Operations center in Bethesda, Maryland. This phone is part of a network that includes the NRC Regional Office and the NRC Operations Headquarters in Bethesda, Maryland. This system is dedicated for the transmittal of radiological information to the NRC Operations Headquarters in Bethesda, Maryland, and the NRC Regional Office. HPN phones are located in the TSC/OSC and EOF.

Indian Point Site - The combined areas immediately surrounding Units 1, 2 and 3 that are owned and operated by Entergy.

Joint Information Center (JIC) - Located outside the plume exposure emergency planning zone at the Hudson Valley Transportation Management Center, 200 Bradhurst Avenue, Hawthorne, NY. This facility provides for coordination of public information released to the news media and the public. It provides for a point-of-contact between Entergy and the news media.

New York Emergency Operations Center - New York State has two (2) Emergency Operations Centers. One is in the Southern District (Emergency Management Office located in Poughkeepsie, New York), and the other is in the substructure of the Public Security Building, State Office Building Campus, Albany, New York.

Nuclear Facility Operator - The licensee (Entergy) who operates the nuclear power plants at the Indian Point Site.

Offsite - Locations outside of the Indian Point Site boundary.

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

Onsite - The area within the Indian Point Site boundary.

Onsite Emergency Organization - The Indian Point organization that has the capability to provide initial response to emergency situations.

Operations Support Center - Located on the 53' elevation adjacent to the Technical Support Center, it houses all Operations, Instrument and Control, Maintenance, Chemistry and Radiation Protection personnel awaiting assignment by the Shift Manager/Plant Operations Manager. (NUREG 0654)

Plant Emergency Operating Procedures - Procedures located under separate cover from the Emergency Implementing Procedures that specify actions required to be performed by control room personnel to mitigate reactor coolant system or process system abnormalities.

Process Radiation Monitors - Radiation detectors which continuously monitor operating plant systems or specific effluent release points and provide the Control Room with remote monitoring capabilities and in some cases provide initiation of automatic termination of a specific effluent release.

Protective Actions - Those actions taken during or after an emergency for the purpose of reducing or eliminating hazards, or preventing or minimizing radiological exposures to persons that would likely occur if the actions were not taken. Protective actions would be warranted provided the reduction in an individual dose expected to be achieved by carrying out the protective actions is not offset by excessive risks to individual safety in taking the protection action.

Protective Action Guide (PAG) - Projected radiological dose values to individuals in the general population who warrant protective action. Protective Action Guides contain criteria used to determine whether the general population needs protective action regarding projected radiological doses, or from actual committed (measured) dose values.

Protective Action Recommendations (PARs) - Recommended actions to the States and counties for the protection of the offsite public from whole body external gamma radiation, and inhalation and ingestion of radioactive materials. The State(s) assesses the PARs and may issue access control and other recommendations concerning the safeguards of affected food chain processes.

Protected Area - The area enclosed by the security fence immediately surrounding Units 1, 2 and 3 where access is restricted in accordance with the Security Plan.

Quarterly - Frequency of occurrence equal to once in each of the following periods: January 1st through March 31st, April 1st through June 30th, July 1st through September 30th, October 1st through December 31st.

Radiation Area - Any area, accessible to personnel, in which there exists radiation, originating in whole or in part within licensed material, at such levels that a major portion of the body could receive in any one hour a dose in excess of five millirem, or in any five consecutive days a dose in excess of one hundred millirem.

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

Radiologically Controlled Area – Any area within plant buildings or on plant property where access is restricted and monitored for the purpose of radiation protection.

Radiological Emergency Communication System (RECS) - Dedicated private line telephone system connecting the licensee with NY State and the four County Warning Points and Emergency Operations Centers, and other agencies.

Recovery Actions - Those actions taken after the emergency to restore the plant as nearly as possible to its pre-emergency condition.

Recovery Center - The location from which the Recovery Manager will control the overall recovery effort.

Security Code Yellow - Indicates that a bomb threat has resulted in the discovery of a device, an unarmed individual has attempted to enter the site, or an unsuccessful sabotage. Personnel are restricted from using radios, cell phones or other electronic devices. Personnel may be directed to evacuate to their Assembly Area, or to respond to Emergency Response Facilities. All personnel are to remain in this position until an "all clear" or similar announcement is made over the plant page.

Security Code Orange – Indicates that a successful sabotage to the plant has occurred. Personnel may be directed to evacuate to their Assembly Area, or to respond to their Emergency Response Facility. Personnel are restricted from using radios, cell phones or other electronic devices. All personnel are to remain in this position until an "all clear" or similar announcement is made over the plant page.

Security Code Red – Indicates that security officers are responding to a threat or an actual armed intruder. Personnel may be instructed to conceal themselves or to evacuate to their Assembly Area. Personnel are restricted from using radios, cell phones or other electronic devices. Personnel in office environments are to stay away from windows and keep concealed under their desks. Personnel in the field should find equipment or areas in which to conceal themselves. All personnel are to remain in this position until an "all clear" or similar announcement is made over the plant page.

Shift Manager - Management person in charge of plant operations during each shift. This person initially takes charge of the emergency response effort until arrival of the management persons who will relieve them of the emergency duties of Plant Operations Manager and Emergency Director.

Site Boundary - That line beyond which the land is neither owned, leased, nor otherwise controlled by the site licensee (Technical Specifications). The site boundary for the purposes of the Emergency Plan coincides with the "exclusion area" boundary shown in the FSAR. (FSAR, Figure 2.2-2)

For Dose Assessment and Protective Actions Recommendation purposes the Site Boundary is the closest distance at which members of the public would be exposed to a radioactive release. When the plume is traveling toward the water, the distance to the nearest point on the opposite side of Hudson River will be considered as the Site Boundary.

Indian Point Energy Center Emergency Plan

Appendix 4

Abbreviations, Acronyms and Definitions

Site Evacuation – Process of removing non-essential personnel from the Owner Controlled Area.

Site Recovery Director - The individual who reports to senior management of the Company and who directs the Corporate Response Organization during the recovery stage. The Site Recovery Director is responsible for the technical direction and control of the integrated recovery effort.

Station - The three Entergy Nuclear Generating Units (1, 2 and 3) located on the Indian Point Site, near Peekskill, NY.

Technical Support Center – Located on the 53' elevation adjacent to the Operations Support Center, it is used by technical, engineering and operations personnel in their support of the watch personnel handling the in-plant accident conditions (NUREG 0654)

Technical Support Center Manager - The individual who directs and coordinates the technical support activities.

Vital Area - Areas within the station security fence that contain vital equipment. Examples include Control Rooms, Containment and Electrical Equipment Rooms.

Warning Point - A location designated by a government agency for the purposes of receiving and promulgating warning information.

Watch - Positions covered by plant operating personnel on a 24-hour basis.

Indian Point Energy Center Emergency Plan

Appendix 5
EVACUATION PLANS

I. INTRODUCTION

Evacuation planning is based on the identification of both the population to be evacuated and the transportation resources required to accomplish the task. These are the essential data around which the Evacuation Time Estimate (ETE) is built. Because the population in the areas to be evacuated can vary with the time of day, the day of the week, the seasons and other factors, a set of fourteen time-based scenarios has been developed for use in the ETE. These scenarios, prepared for both fair and adverse weather conditions, address variations in the general population, employee population, transient population and special facilities (e.g., schools, nursing homes, hospitals, and recreation areas). The fourteen evacuation scenarios are:

Scenario	Season	Day of Week	Time of Day	Weather	Special
1	Summer	Midweek	Midday	Good	None
2	Summer	Midweek	Midday	Rain	None
3	Summer	Weekend	Midday	Good	None
4	Summer	Weekend	Midday	Rain	None
5	Summer	Midweek, Weekend	Evening	Good	None
6	Winter	Midweek	Midday	Good	None
7	Winter	Midweek	Midday	Rain	None
8	Winter	Midweek	Midday	Snow	None
9	Winter	Weekend	Midday	Good	None
10	Winter	Weekend	Midday	Rain	None
11	Winter	Weekend	Midday	Snow	None
12	Winter	Midweek, Weekend	Evening	Good	None
13	Autumn	Weekend	Midday	Good	West Point Football
14	Spring	Midweek	Midday	Good	West Point Graduation

Indian Point Energy Center Emergency Plan

Appendix 5 EVACUATION PLANS

The traffic demand and trip-generation rate of evacuating vehicles were estimated from the gathered data. Sources of data include the 2000 Census, New York agencies, county agencies, a telephone survey and special concern facilities. (See Sections 3 and 5 of the ETE for a complete discussion of generation time and traffic demand.) The permanent resident population figures for each of the shown in Table .

Following federal guidelines, the IPEC Emergency Planning Zone (EPZ) is subdivided into 40 Protective Action Areas. The Protective Action Area definitions are provided in this appendix. The new Protective Action Areas have been designed so that each can be defined in terms of well known community names or boundaries. These Protective Action Areas are then grouped to conform with circular areas or "keyhole" configurations (circles plus radial sectors) that define Evacuation Regions for the ETE study. The Evacuation Regions are defined in Appendix A of the ETE Addendum. For each Protective Action Area within the EPZ, primary evacuation routes have been identified. Descriptions of the Protective Action Area and their associated evacuation routes are given in the county plan procedures. Listings and maps of reception centers for each Protective Action Area are also included in the county procedures.

As part of the public education program associated with the implementation of the County Radiological Emergency Response Plan (RERP), the general public will be provided with materials to enable identification of their residential locations within a given Protective Action Area, thus identifying the recommended evacuation route and reception center as well.

Indian Point Energy Center Emergency Plan

Appendix 5 EVACUATION PLANS

II. EVACUATION ROADWAY TRAVEL TIME ESTIMATES

Evacuation travel time estimates by Region for each of the scenarios is presented in Appendix E of the ETE Addendum. An over view of evacuation time estimates for the Protective Action Areas included in the regions defined by the two-mile and five-mile rings and for the full EPZ are provided in Tables 2-A, 2-B and 2-C. These tables also show a comparison of times for 50%, 90%, 95% and 100% of the Protective Action Areas population.

III. DESCRIPTION OF THE EVACUATION PLAN

The evacuation plan comprises four major phases: mobilization, egress, maintenance and re-entry. As a Response Action, the first phase of evacuation--mobilization--may be initiated for an incident classified as an Alert, a Site Area Emergency or a General Emergency. The decision to proceed with the second phase of the plan--egress--will be made as the status of the incident is assessed. The final phases of the plan--maintenance and re-entry--are applicable only after an evacuation has occurred.

Indian Point Energy Center Emergency Plan

Appendix 5 **EVACUATION PLANS**

Protective Action Areas

The plume exposure Emergency Planning Zone (EPZ) for the Indian Point Nuclear Power Station (IPNPS) has been subdivided into 40 discrete Protective Action Areas as shown in Figure 1. 2000 US Census population estimates for each Protective Action Areas are shown in Table 1. The boundaries of the various Protective Action Areas are described below:

PROTECTIVE ACTION AREA 1

The Village of Briarcliff Manor.

PROTECTIVE ACTION AREA 2

Central part of the Town of Clarkstown, bounded on the south by (west to east) West Clarkstown Road, a short segment of the Palisades Interstate Parkway (PIP), Church Road, Germonds Road, Parrott Road McCarthy Way, a short segment of Strawtown Road, and Hillcrest Road; on the east by the western edge of DeForest Lake; on the north by (east to west) Congers Road, Goebel Road northward, State Route 304, Squadron Boulevard, Main Street northward, West Phillips Hill Road, Old Phillips Hill Road, Buena Vista Road northward, and Conklin Road; and an eastern portion of the Town of Ramapo, east of the PIP and south of Conklin Road and a short section of State Route 45 connecting Conklin Road to the PIP.

PROTECTIVE ACTION AREA 3

The Town of Ramapo west of the Palisades Interstate Parkway and north of Viola and Eckerson Roads, including the Villages of Wesley Hills, New Hempstead and New Square and the Hamlet of Hillcrest.

PROTECTIVE ACTION AREA 4

Northeastern and Eastern-central parts of the Town of Clarkstown, excepting High Tor State Park, bounded on the south by Crusher and Christian Herald Roads and Nyack Beach State Park and on the west by Lake DeForest, including the Hamlets of Congers and Valley Cottage and Rockland Lake and Hook Mountain State Parks.

Indian Point Energy Center Emergency Plan

Appendix 5

EVACUATION PLANS

PROTECTIVE ACTION AREA 5

Northwestern part of the Town of Clarkstown, excepting High Tor State Park, bounded on the east by the western boundary of Lake De Forest, and on the south by (east to west) Congers Road, Goebel Road northward, State Route 304, Squadron Boulevard, Main Street northward, West Phillips Hill Road, Old Phillips Hill Road, Buena Vista Road northward, and Conklin Road; and the northeastern part of the Town of Ramapo, bounded on the west by the Palisades Interstate Parkway, and on the south by Conklin Road and a short section of State Route 45.

PROTECTIVE ACTION AREA 6

The Town and Village of Ossining.

PROTECTIVE ACTION AREA 7

In the Town of Haverstraw, the Village of Haverstraw.

Indian Point Energy Center Emergency Plan

Appendix 5
EVACUATION PLANS

PROTECTIVE ACTION AREA 8

The Town of New Castle west of Hardscrabble Road.

PROTECTIVE ACTION AREA 9

In the Town of Haverstraw, the Village of West Haverstraw.

PROTECTIVE ACTION AREA 10

The unincorporated areas of the Town of Haverstraw including the Hamlets of Thiells and Mount Ivy.

PROTECTIVE ACTION AREAS 11, 20

The Town of Tuxedo east of the NYS Thruway from the Rockland County line to the Town of Woodbury town line (not in Harriman State Park). This PROTECTIVE ACTION AREAS consists of 2 discontinuous areas.

PROTECTIVE ACTION AREA 12

In the Towns of Haverstraw and Ramapo, the Village of Pomona and the unincorporated portions of the Hamlet of Pomona.

Indian Point Energy Center Emergency Plan

Appendix 5
EVACUATION PLANS

PROTECTIVE ACTION AREA 13

Grassy Point east of the Penny Bridge, Minisceongo Yacht Club, Haverstraw Marina, Haverstraw Bay County Park, Bowline Park.

PROTECTIVE ACTION AREA 14

The Village of Croton-on-Hudson.

PROTECTIVE ACTION AREA 15

The Town of Stony Point east of Bear Mountain and Harriman State Parks, south of Tompkins Cove and west of Grassy Point.

PROTECTIVE ACTION AREA 16

The Hamlet of Verplanck.

PROTECTIVE ACTION AREA 17

Tompkins Cove zip code area.

PROTECTIVE ACTION AREA 18

The Village of Buchanan.

PROTECTIVE ACTION AREA 19

The Hamlet of Montrose.

PROTECTIVE ACTION AREA 20

See PROTECTIVE ACTION AREAS 11.

PROTECTIVE ACTION AREA 21

Eastern part of Bear Mountain State Park and the Jones Point and Dunderberg areas, south of Salisbury Meadow and Ring Meadow and east of U.S. Route 9W/202, and including the non-park areas east and south of Dunderberg Mountain, north of the main southern boundary of Bear Mountain State Park.

PROTECTIVE ACTION AREA 22

The Village of Harriman east of the NYS Thruway.

PROTECTIVE ACTION AREA 23

The City of Peekskill.

PROTECTIVE ACTION AREA 24

The Town of Cortlandt excluding the Hamlets of Verplanck and Montrose, and the Villages of Buchanan and Croton-on-Hudson; including Camp Smith and the FDR VA Hospital.

Indian Point Energy Center Emergency Plan

Appendix 5
EVACUATION PLANS

PROTECTIVE ACTION AREA 25

The eastern part of Harriman State Park and Bear Mountain State Park, bounded on the west and north by the Palisades Interstate Parkway northbound and U.S. Route 6 to the Bear Mountain Bridge, and south of Salisbury Meadow and Ring Meadow, on the east by U.S. Route 9W/202 and the Park boundary, where the boundary is west of Route 9W/202.

PROTECTIVE ACTION AREAS 26, 30, 37

The Town of Highlands excluding the Village of Highland Falls. This PROTECTIVE ACTION AREA consists of 3 discontinuous areas.

PROTECTIVE ACTION AREA 27

Harriman State Park.

PROTECTIVE ACTION AREA 28

The Town of Yorktown.

PROTECTIVE ACTION AREA 29

The Town of Somers west of State Route 118 and Wood Street.

PROTECTIVE ACTION AREA 30

See PROTECTIVE ACTION AREA 26.

PROTECTIVE ACTION AREA 31

The southwestern corner of the Town of Carmel; that is, the portion south of Lake Secor Road (County Route 30), and west of State Route 6N, including the area known as Secor.

PROTECTIVE ACTION AREA 32

The Village of Highland Falls.

PROTECTIVE ACTION AREA 33

The most southern part of the Town of Philipstown; that is, south of Canopus Hollow Road; Old West Point Road east, east of US Route 9, south of State Route 403, Lower Station Road and a short line from Lower Station Road as it nears the river to the boat basin just south of Garrison. This part includes the area known as Continental Village.

PROTECTIVE ACTION AREA 34

The Village of Woodbury east of the NYS Thruway from the Town of Tuxedo to the Town of Cornwall.

PROTECTIVE ACTION AREA 35

The United States Military Academy.

Indian Point Energy Center Emergency Plan

Appendix 5

EVACUATION PLANS

PROTECTIVE ACTION AREA 36

The southern portion of the Town of Putnam Valley; that is, the portion south of Clarence Fahnestock Memorial State Park and west of Sunken Mine Road, south of Northshore Road, west of Lake Road (County Route 20), south of Tinker Hill Road, Peekskill Hollow Road, Bryant Pond Road and Lake Secor Road. This portion includes the areas known as Gilbert Corners, Sunnybrook, Oscawana Corners, Crofts Corners, Adams Corners, and Lake Peekskill.

PROTECTIVE ACTION AREA 37

See PROTECTIVE ACTION AREA 26.

PROTECTIVE ACTION AREA 38

The Hudson River.

PROTECTIVE ACTION AREA 39

The Town of Cornwall from the Woodbury Town Line east of Route 32 and south of Angola Rd to Route 9W west of Route 9W to the Town of Highlands town line.

PROTECTIVE ACTION AREA 40

The southern half of Philipstown, not including the area defined as Lower Philipstown; that is, the Village of Garrison and the Village of Nelsonville except for the portion of Hudson Highlands State Park, and the portion of Philipstown south of Moffett Road, Lane Gate Road, Old Albany Post Road, Indian Brook Road and south of Clarence Fahnestock Memorial State Park, and including the areas known as Nelson Corners, Garrison, Travis Corners, South Highland, Four Corners, and Forsonville.

Indian Point Energy Center Emergency Plan

Appendix 5
EVACUATION PLANS

TABLE 1

EPZ Permanent Population
2000 Census¹

MAP ID NUMBER	Protective Action Area	Orange	Putnam	Rockland	Westchester
1	Briarcliff Manor				7,844
2	Central Town of Clarkstown			22,933	
3	Northwestern Town of Ramapo			21,421	
4	Northeastern & Eastern Town of Clarkstown			15,433	
5	Northwestern Town of Clarkstown			7,584	
6	Ossining				29,440
7	Village of Haverstraw			10,117	
8	Town of New Castle				4,777
9	Village of West Haverstraw			10,309	
10	Unincorporated Areas of the Town of West Haverstraw			10,888	
12	Village of Pomona			4,087	
13	Grassy Point			202	
14	Croton-on-Hudson				7,589
15	Stony Point			12,198	
16	Verplanck				1,273
17	Tompkins Cove			1,766	
18	Buchanan				2,184
19	Montrose				3,534
21	Jones Point			79	
22	Village of Harriman	3			
23	City of Peekskill				22,446
24	Town of Cortlandt				23,890
25	Bear Mountain State Park	0			
27	Harriman State Park	5		3	
28	Town of Yorktown				36,333

Indian Point Energy Center Emergency Plan

Appendix 5
EVACUATION PLANS

TABLE 1 (cont.)

**EPZ Permanent Population
2000 Census¹**

29	Town of Somers				3,972
31	Southwest Carmel		2,610		
32	Village of Highland Falls	3,655			
33	Lower Philipstown		2,466		
34	Village and Town of Woodbury	2,206			
35	West Point	7,134			
36	Southern Putnam Valley		9,202		
38	Hudson River	Hudson River			
39	Town of Cornwall	1,035			
40	Southern Philipstown		4,324		
11, 20	Town of Tuxedo	113			
26, 30, 37	Town of Highlands	1,698			
Total Population:		15,849	18,602	117,020	143,282

1. *Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for New Protective Action Areas*, KLD Associates, Inc., Appendix B

Indian Point Energy Center Emergency Plan
 Appendix 5
 EVACUATION PLANS

Table 2-A. Evacuation Percentiles for the 2-Mile, 5-Mile Rings and the EPZ Boundary										
Summer Scenarios										
	Summer					Midweek				
	(1)					(2)				
Region	Midday									
	Good Weather					Rain				
	Percentile					Percentile				
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry
R1 (2 Mile)	1:45	3:50	4:15	5:00	5:30	1:55	4:10	4:35	5:20	5:50
R2 (5 Mile)	2:05	4:30	5:00	5:50	6:20	2:15	4:55	5:30	6:20	7:10
R3 (10 Mile)	2:30	5:20	6:00	7:40	7:40	2:45	5:50	6:40	8:30	8:30
	Summer					Weekend				
	(3)					(4)				
Region	Midday									
	Good Weather					Rain				
	Percentile					Percentile				
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry
R1 (2 Mile)	1:35	3:10	3:30	4:30	4:50	1:45	3:25	3:45	4:50	5:10
R2 (5 Mile)	1:55	4:00	4:30	6:30	6:50	2:05	4:20	4:50	7:00	7:20
R3 (10 Mile)	2:15	4:50	5:30	8:30	8:30	2:30	5:20	6:00	9:10	9:10
	Summer					Midweek, Weekend				
	(5)									
Region	Evening									
	Good Weather									
	Percentile									
	50	90	95	100	EPZ Bdry					
R1 (2 Mile)	1:15	2:40	3:00	3:50	4:20					
R2 (5 Mile)	1:40	3:25	3:50	4:30	4:50					
R3 (10 Mile)	1:55	4:10	4:50	6:30	6:30					

Indian Point Energy Center Emergency Plan
 Appendix 5
 EVACUATION PLANS

Table 2-B. Evacuation Percentiles for the 2-Mile, 5-Mile Rings and the EPZ Boundary
 Winter Scenarios

		Winter														
		Midweek														
Scenario:	(6)	(7)					(8)									
Region	Midday															
	Good Weather					Rain					Snow					
	Percentile					Percentile					Percentile					
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry	
R1 (2 Mile)	1:55	3:55	4:20	5:10	5:40	2:05	4:15	4:40	5:30	6:00	2:25	4:45	5:10	5:50	6:20	
R2 (5 Mile)	2:05	4:30	5:00	5:50	6:30	2:15	5:00	5:30	6:30	7:20	2:40	5:35	6:10	7:30	8:30	
R3 (10 Mile)	2:30	5:20	6:10	7:40	7:40	2:45	5:55	6:45	8:30	8:30	3:15	6:30	7:30	9:50	9:50	
		Winter														
		Weekend														
Scenario:	(9)	(10)					(11)									
Region	Midday															
	Good Weather					Rain					Snow					
	Percentile					Percentile					Percentile					
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry	
R1 (2 Mile)	1:30	3:10	3:30	4:20	4:50	1:35	3:20	3:45	4:50	5:10	2:00	3:55	4:20	5:20	5:50	
R2 (5 Mile)	1:45	3:50	4:15	5:00	5:20	1:55	4:10	4:40	5:20	5:40	2:15	4:40	5:10	6:20	6:40	
R3 (10 Mile)	2:05	4:40	5:20	7:00	7:00	2:20	5:00	5:50	7:30	7:30	2:50	5:40	6:40	9:00	9:00	
		Winter														
		Midweek, Weekend														
Scenario:	(12)															
Region	Evening															
	Good Weather															
	Percentile															
	50	90	95	100	EPZ Bdry											
R1 (2 Mile)	1:20	2:40	3:00	3:50	4:20											
R2 (5 Mile)	1:40	3:25	3:50	4:30	4:50											
R3 (10 Mile)	1:55	4:10	4:40	6:30	6:30											

Indian Point Energy Center Emergency Plan
Appendix 5
EVACUATION PLANS

Table 2-C. Evacuation Percentiles for the 2-Mile, 5-Mile Rings and the EPZ Boundary Special Events										
	Autumn					Spring				
	Weekend USMA Football					Midweek USMA Graduation				
Scenario:	(13)					(14)				
Region	Midday					Midday				
	Good Weather					Good Weather				
	Percentile					Percentile				
	50	90	95	100	EPZ Bdry	50	90	95	100	EPZ Bdry
R1 (2 Mile)	1:30	3:10	3:30	4:20	4:50	1:55	3:55	4:20	5:10	5:40
R2 (5 Mile)	2:00	4:20	5:10	7:50	8:30	2:10	4:15	4:40	5:50	6:00
R3 (10 Mile)	2:20	4:50	5:30	8:40	8:40	2:30	5:05	5:50	7:40	7:40

Indian Point Energy Center Emergency Plan

Appendix 5

EVACUATION PLANS

FIGURE 1

