**Entergy Nuclear Operations, Inc.**
1340 Echelon Parkway
Jackson, MS 39213
Tel 601-368-5573

**Mandy K. Halter**
Director, Nuclear Licensing

10 CFR 50.54(q)(4)
10 CFR 50.90

NL-19-001

April 15, 2019

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: License Amendment Request to Revise the Indian Point Energy Center Site Emergency Plan to Address the Permanently Shut Down and Defueled Condition

Indian Point Nuclear Generating Units 1, 2, and 3
Docket Nos. 50-003, 50-247, and 50-286
Facility Operating License No. DPR-5
Renewed Facility Operating License Nos. DPR-26, and DPR-64

Reference: Entergy Nuclear Operations, Inc. (Entergy) letter to U.S. Nuclear Regulatory Commission (NRC), "Notification of Permanent Cessation of Power Operations," dated February 8, 2017 (Letter NL-17-021) (ADAMS Accession No. ML17044A004)

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.90, "Application for amendment of license or construction permit," Entergy Nuclear Operations, Inc. (Entergy) requests an amendment to Facility Operating License No. DPR-5 for Indian Point Nuclear Generating Unit 1 (IP1) and Renewed Facility Operating License Nos. DPR-26 and DPR-64 for IP2 and IP3, collectively referred to as the Indian Point Energy Center (IPEC). The proposed amendment would revise the IPEC Site Emergency Plan (SEP) for the permanently defueled condition. The proposed SEP revision is being submitted to the U.S. Nuclear Regulatory Commission (NRC) for review and approval, as required by 10 CFR 50.54(q)(4).

In the Referenced letter, Entergy certified to the NRC, in accordance with 10 CFR 50.82(a)(1)(i), that it plans to permanently cease power operations at IP2 and IP3 by April 30, 2020 and April 30, 2021, respectively. In accordance with 10 CFR 50.82(a)(1)(ii) and (a)(2), once certification of permanent removal of fuel from the reactor vessel is submitted to the NRC, and docketed, the 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement of fuel in the reactor vessel. Accordingly, this license amendment request proposes to revise the IPEC SEP for the planned permanent shut down and defueled condition of IP2 and IP3.

Specifically, this license amendment request proposes to revise the on-shift and augmented Emergency Response Organization (ERO) staffing in response to the reduced spectrum of credible accidents, given the permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels.

Due to the planned one year staggered shutdown dates for IP2 and IP3, the proposed changes to the IPEC SEP address the interim Stage I period during which IP2 will be permanently shut down and defueled, and IP3 will remain in operation. The proposed Stage I changes will only affect the IP1 and IP2 on-shift staffs; there are no changes to the augmented ERO staffing. The proposed Stage II changes to the IPEC SEP address the period following IP3 permanent shut down and defuel, which results in no reactors authorized to operate at the IPEC site. The Stage II changes will affect the IP2 and IP3 on-shift staffs, as well as the augmented ERO staffing. The proposed changes have been reviewed against the planning standards in 10 CFR 50.47(b) and the requirements in 10 CFR Part 50, Appendix E, and it was concluded that the standards and requirements will continue to be met.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and Entergy has determined that this change involves no significant hazards consideration. The proposed changes have also been determined to satisfy the criteria for categorical exclusion from an environmental review in accordance with 10 CFR 51.22(c)(9) and do not require an environmental review. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is required.

The description and evaluation of the proposed changes to the IPEC SEP are provided in Attachment 1. Attachment 2 provides a tabular summary of the proposed Stage I changes, and Attachments 3 and 4 provide a mark-up version and clean version, respectively, of the revised IPEC SEP for Stage I. Attachment 5 provides a tabular summary of the proposed Stage II changes, and Attachments 6 and 7 provide a mark-up version and clean version, respectively, of the revised IPEC SEP for Stage II. The Stage II ERO staffing task analysis is provided in Attachment 8 for informational purposes to show the ERO tasks that will be transferred to the remaining ERO positions.

Approval of the proposed license amendments is requested by April 16, 2020, with the approved amendments to become effective following submittal of the required 10 CFR 50.82(a)(1)(ii) certification that the IP2 reactor vessel has been permanently defueled. It is further requested that 90 days be allowed for implementation of the Stage I changes to the IPEC SEP. In addition, a 90-day implementation period is requested for the Stage II changes to the IPEC SEP, with the Stage II implementation period to commence following submittal of the required 10 CFR 50.82(a)(1)(ii) certification that the IP3 reactor vessel has been permanently defueled.

This submittal contains two new regulatory commitments, which are described in Attachment 9 to this letter.

Should you have any questions or require additional information, please contact
Mr. Robert Walpole, Manager, Regulatory Assurance, at 914-254-6710.

In accordance with 10 CFR 50.91, "Notice of public comment: State consultation," paragraph b, a copy of this application, with attachments, is being provided to the designated New York State official.

I declare under penalty of perjury, the foregoing is true and correct. Executed on April 15, 2019.

Respectfully,

Mandy K. Halter

MKH/cdm

Attachments:
1. Description and Evaluation of the Proposed Changes
2. Tabular Summary of the Proposed Stage I Changes to the Indian Point Energy Center Site Emergency Plan
3. Proposed Stage I Revision to the Indian Point Energy Center Site Emergency Plan (Mark-Up Version)
4. Proposed Stage I Revision to the Indian Point Energy Center Site Emergency Plan (Clean Version)
5. Tabular Summary of the Proposed Stage II Changes to the Indian Point Energy Center Site Emergency Plan
6. Proposed Stage II Revision to the Indian Point Energy Center Site Emergency Plan (Mark-Up Version)
7. Proposed Stage II Revision to the Indian Point Energy Center Site Emergency Plan (Clean Version)
8. Emergency Response Organization Task Analysis (Provided for Information)
9. List of Regulatory Commitments

cc: Regional Administrator, NRC Region I
NRC Senior Resident Inspector, Indian Point Energy Center
President and CEO, NYSERDA
New York State Public Service Commission
NRC Senior Project Manager, NRC/NRR/DORL

# ATTACHMENT 1

# NL-19-001

# Description and Evaluation of the Proposed Changes

**SUBJECT: Description and Evaluation of the Proposed Changes**

**1.0 SUMMARY DESCRIPTION**

**2.0 DETAILED DESCRIPTION**

- **2.1 Description of Proposed Changes**
- **2.2 Proposed Stage I On-Shift Staffing Changes**
- **2.3 Proposed Stage II On-Shift Staffing Changes**
- **2.4 Additional On-Shift Staffing Considerations**
- **2.5 Proposed Stage II Augmented Emergency Response Organization Changes**

**3.0 TECHNICAL EVALUATION**

- **3.1 On-Shift and ERO Staffing Regulations and Guidance**
- **3.2 IPEC-Specific Background**
- **3.3 Accident Analysis**
- **3.4 Functional Area Technical Evaluation**
- **3.5 Emergency Response Organization Changes – Emergency Response Facility Evaluation**
- **3.6 Assessment of Proposed Staffing Changes on Off-Site Response Organization Interfaces**
- **3.7 Validation and Training**
- **3.8 Conclusion**

**4.0 REGULATORY EVALUATION**

- **4.1 Applicable Regulatory Requirements/Criteria**
- **4.2 Precedent**
- **4.3 No Significant Hazards Consideration**
- **4.4 Conclusion**

**5.0 ENVIRONMENTAL CONSIDERATION**

**6.0 REFERENCES**

## 1.0 SUMMARY DESCRIPTION

Pursuant to Title 10 of the Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), Entergy Nuclear Operations, Inc. (Entergy) requests U.S. Nuclear Regulatory Commission (NRC) review and approval of a series of revisions to the Indian Point Energy Center (IPEC) Site Emergency Plan (SEP). The proposed changes would revise the IPEC SEP on-shift and augmented Emergency Response Organization (ERO) staffing to support the pending permanent cessation of power operations at IPEC Unit 2 (IP2) and Unit 3 (IP3). By letter dated February 8, 2017 (Reference 1), Entergy certified to the NRC that it has decided to permanently cease power operations at IP2 and IP3 by April 30, 2020, and April 30, 2021, respectively.

Specifically, the proposed changes in this license amendment request would eliminate the on-shift positions not needed for the safe storage of spent fuel in the Spent Fuel Pools (SFPs) during the initial decommissioning period and eliminate the ERO positions not necessary to effectively respond to credible accidents. The proposed changes to the on-shift and augmented ERO staffing are commensurate with the reduced spectrum of credible accidents for a permanently shutdown and defueled power reactor facility.

Entergy has reviewed the proposed changes against the planning standards in 10 CFR 50.47(b) and the requirements in 10 CFR Part 50, Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities,” and has concluded that the standards and requirements would continue to be met. Therefore, no exemption from 10 CFR 50.47 or 10 CFR 50, Appendix E, is requested.

## 2.0 DETAILED DESCRIPTION

### 2.1 Description of Proposed Changes

On January 9, 2017, Entergy, the Attorney General of the State of New York, and Riverkeeper, Inc. (among other related corporate and governmental entities) entered into a settlement agreement regarding the continued operation of IP2 and IP3 (Reference 2). Under the agreement, IP2 will shut down by April 30, 2020, and IP3 will shut down by April 30, 2021, subject to operating extensions through, but not beyond, 2024 and 2025, respectively, under circumstances specified in the agreement.

The on-shift and augmented ERO staffing is being revised to respond to the reduced spectrum of credible accidents for a permanently shutdown and defueled power reactor facility. To address the planned staggered shutdown dates for IP2 and IP3, this amendment request proposes changes to the SEP and describes an interim post-shutdown period following permanent cessation of operations, and permanent removal of fuel from the IP2 reactor vessel, while IP3 remains in operation. This timeframe is referred to as Stage I in this submittal. Specifically, the changes proposed for Stage I would eliminate certain on-shift positions currently identified in the IPEC SEP, that are not needed for the safe storage of spent fuel in the IP2 SFP and safe operation of IP3 following the docketing of the certifications for permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel. This amendment request does not include any proposed changes to IP3 on-shift staff or the augmented ERO during Stage I. Specifically, in Stage I, the resulting SEP would eliminate certain on-shift positions not necessary to effectively respond to credible accidents with IPEC Unit 1 (IP1) and IP2 in a permanently shut down and defueled condition, while IP3 remains in operation.

This amendment request also proposes changes to the SEP following docketing of the certifications for permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel. This timeframe is referred to as Stage II in this submittal. Specifically, in Stage II, the resulting Post-Shutdown Emergency Plan (PSEP) would eliminate certain on-shift and augmented ERO positions not necessary to effectively respond to credible accidents with IP1, IP2, and IP3 in a permanently shut down and defueled condition.

This amendment request is structured to address changes to the SEP for the planned, staggered shutdown of IP2 and IP3, as follows:

- Stage I – Interim post-shutdown period following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, while IP3 remains in operation.

- Stage II - Permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel. In this configuration, there are no units authorized to operate at IPEC.

Following permanent cessation of IP2 and IP3 power operations, all fuel assemblies will be removed from the reactor vessels and placed in the IPEC SFPs. Irradiated fuel will be stored in the SFPs and in the Independent Spent Fuel Storage Installation (ISFSI) until it is permanently removed from the site. Upon docketing of the certifications for permanent cessation of power operations (10 CFR 50.82(a)(1)(i)) and permanent removal of fuel from the reactor vessels (10 CFR 50.82(a)(1)(ii)), pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 licenses will no longer authorize operation of the reactors or emplacement or retention of fuel into the reactor vessels. The Operations staff will no longer be required to implement emergency operating procedures and the scope of applicable abnormal response procedures will be significantly reduced. Most of the accident scenarios postulated in the IP2 and IP3 Final Safety Analysis Reports (FSARs) will no longer be applicable with the reactors in the permanently shutdown and defueled condition.

Attachments 2, 3, and 4 address changes to the IPEC SEP during Stage I. Specifically, Attachment 2 provides a tabular summary of the proposed Stage I changes to the IPEC SEP, Attachment 3 provides the revised IPEC SEP with the proposed changes shown in markup format, and Attachment 4 provides a clean version of the revised IPEC SEP. The changes to the SEP following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel incorporate changes in the IP2 on-shift staffing to reflect the reduction in hazards associated with the permanently shut down and defueled condition of IP2.

Attachments 5, 6, and 7 address changes to the IPEC SEP during Stage II. Specifically, Attachment 5 provides a tabular summary of the proposed Stage II changes to the IPEC SEP, Attachment 6 provides the revised IPEC SEP with the proposed changes shown in markup format, and Attachment 7 provides a clean version of the revised IPEC SEP. The changes to the SEP following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel incorporate changes in the IP3 on-shift staffing and the augmented ERO to reflect the reduction in hazards associated with the permanently shut down and defueled condition of IP2 and IP3.

It is noted that IP1 is permanently shutdown and defueled, and only those areas 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) are considered in evaluating the radiological hazards for the IPEC SEP. All fuel associated with IP1 is stored in the IPEC ISFSI and there are no Emergency Action Levels (EALs) specific to IP1.

IPEC SEP Table B-1, "Comparison of NUREG-0654 to Indian Point Emergency Center," outlines the minimum staffing for emergency response required to be on-shift at IP1, IP2, and IP3 and other key responders capable of responding within 60 minutes (i.e., augmented ERO) of a declared emergency to support the on-shift organization in the following Major Functional Areas:

- Plant Operations and Assessment
- Emergency Direction and Control
- Notification/Communication
- Radiological Accident Assessment and Support of Operational Accident Assessment
- Plant System Engineering, Repair and Corrective Action
- Protective Actions (In-Plant)
- Fire Fighting
- Rescue Operations and First-Aid
- Site Access Control and Personnel Accountability

The minimum required on-shift staffing for IP1, IP2, and IP3, as detailed in Table B-1 of the IPEC SEP, is described in the following sections. The proposed post-shutdown on-shift and augmented ERO staff will continue to satisfactorily address the Major Functional Areas of NUREG-0654 during Stage I and Stage II.

## 2.2 Proposed Stage I On-Shift Staffing Changes

### 2.2.1 Stage I IP1 On-Shift Staffing

The current minimum required on-shift staffing for IP1, as detailed in Table B-1 of the IPEC SEP consists of one (1) Nuclear Plant Operator (NPO). Following docketing of the certification for permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, the IPEC SEP will be revised to eliminate this position.

### 2.2.2 Stage I IP2 On-Shift Staffing

The current minimum required on-shift staff for IP2, as detailed in Table B-1 of the IPEC SEP consists of:

- One (1) Shift Manager
- One (1) Control Room Supervisor
- One (1) Field Support Supervisor or Shift Technical Advisor
- Two (2) Reactor Operators
- Five (5) Nuclear Plant Operators
- One (1) Radiation Protection Technician
- One (1) Chemistry Technician

Part 2, Section B and Table B-1, of the IPEC SEP currently states that IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units. In Table B-1 of the IPEC SEP, the on-shift Communicator has been counted in the Unit 3 total. However, this position can be provided by either unit, as described in Note 5 of Table B-1 of the IPEC SEP.

Following docketing of the certification for permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, the IPEC SEP will be revised to eliminate the following IP2 on-shift positions:

- One (1) Control Room Supervisor
- One (1) Field Support Supervisor or Shift Technical Advisor
- Two (2) Reactor Operators
- Four (4) Nuclear Plant Operators

The proposed Stage I IP2 on-shift staff will continue to satisfactorily address the Major Functional Areas identified in SEP Table B-1 and will consist of:

- One (1) Shift Manager (qualified as a Certified Fuel Handler (CFH))
- One (1) Nuclear Plant Operator (Non-Certified Operator)
- One (1) Radiation Protection Technician
- One (1) Chemistry Technician

### 2.2.3 Stage I IP3 On-Shift Staffing

There are no proposed changes to the IP3 on-shift staff following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

### 2.2.4 Stage I Augmented ERO Staffing

There are no proposed changes to the IPEC augmented ERO staff following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

### 2.2.5 Evaluation of Proposed Stage I On-Shift Staffing

The proposed Stage I changes to the IPEC on-shift organization are identified in the proposed changes to the IPEC SEP Table B-1, included in Attachments 3 and 4. The proposed changes to the IPEC SEP are summarized in Attachment 2.

To support the reduction in on-shift staffing following docketing of the certifications for permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, the IPEC staffing levels have been evaluated by reviewing NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” (NUREG-0654) (Reference 3) and validating the conclusion, in part, by using the methodology in NEI 10-05, “Assessment of On-Shift Emergency Response Organization Staffing and Capabilities,” (NEI 10-05) (Reference 4), which evaluates the postulated accidents that will be applicable to IP2 in the permanently shutdown and defueled condition. The evaluation also considers the current postulated accidents that will remain applicable to IP3. Section 3.5.1.1 contains a summary of the results of the on-shift staffing analysis performed to address the permanent shutdown of IP2.

The required IP1, IP2, and IP3 on-shift staff following permanent removal of fuel from the IP2 reactor vessel is commensurate with the need to safely store spent fuel in a manner that is protective of public health and safety. The proposed changes to the IP1 and IP2 on-shift staffing following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel do not have any impact on the IP3 staff to operate the IP3 reactor or implement the IPEC SEP. The required staffing is addressed in detail in Section 3.0.

## 2.3 Proposed Stage II On-Shift Staffing Changes

### 2.3.1 Stage II IP2 On-Shift Staffing

Following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel (prior to permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel), the IP2 on-shift staff will consist of:

- One (1) Shift Manager (qualified as a CFH)
- One (1) Nuclear Plant Operator (Non-Certified Operator)
- One (1) Radiation Protection Technician
- One (1) Chemistry Technician

Following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the IPEC SEP will be revised to eliminate the IP2 on-shift Chemistry Technician.

The proposed Stage II IP2 on-shift staff will continue to satisfactorily address the Major Functional Areas identified in SEP Table B-1 and will consist of:

- One (1) Shift Manager (qualified as a CFH)
- One (1) Nuclear Plant Operator (Non-Certified Operator)
- One (1) Radiation Protection Technician

### 2.3.2 Stage II IP3 On-Shift Staffing

The current minimum required on-shift staff for IP3 is detailed in Table B-1 of the IPEC SEP. During Stage I, the IP3 on-shift staff will be maintained as detailed in Table B-1 of the IPEC SEP, and will consist of:

- One (1) Shift Manager
- One (1) Control Room Supervisor
- One (1) Field Support Supervisor or Shift Technical Advisor
- Two (2) Reactor Operators
- Four (4) Nuclear Plant Operators
- One (1) Senior Reactor Operator
- One (1) Nuclear Plant Operator
- One (1) Chemistry Technician
- One (1) Radiation Protection Technician

As previously described, the IPEC SEP currently states that IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units. In Table B-1 of the IPEC SEP, the on-shift Communicator has been counted in the Unit 3 total and this position is accounted for in the above list. However, this position can be provided by either unit, as described in Note 5 of Table B-1 of the IPEC SEP.

Following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the IPEC SEP will be revised to eliminate the following IP3 on-shift positions:

- One (1) Control Room Supervisor
- One (1) Field Support Supervisor or Shift Technical Advisor

- Two (2) Reactor Operators
- Four (4) Nuclear Plant Operators
- One (1) Senior Reactor Operator
- One (1) Chemistry Technician

The proposed Stage II IP3 on-shift staff will continue to satisfactorily address the Major Functional Areas identified in SEP Table B-1 and will consist of:

- One (1) Shift Manager (qualified as a CFH)
- One (1) Nuclear Plant Operator (Non-Certified Operator)
- One (1) Radiation Protection Technician

2.3.3 Evaluation of Proposed Stage II On-Shift Staffing

The proposed Stage II changes to the on-shift organization are identified in the proposed changes to the IPEC SEP Table B-1, included in Attachments 6 and 7. The proposed Stage II changes to the IPEC SEP are summarized in Attachment 5.

To support the reduction in on-shift staffing following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the Stage II staffing levels have been evaluated by reviewing NUREG-0654 (Reference 3) and validating the conclusion, in part, by using the methodology in NEI 10-05, (Reference 4), which evaluates the postulated accidents that will be applicable to IP2 and IP3 with IP1, IP2, and IP3 in the permanently shutdown and defueled condition. Section 3.5.1.2 contains a summary of the results of the on-shift staffing analysis performed to address the permanent shutdown of IP2 and IP3.

The required on-shift staff following permanent removal of fuel from the IP3 reactor vessel is commensurate with the need to safely store spent fuel at the facility in a manner that is protective of public health and safety. The required staffing is addressed in detail in Section 3.0.

## 2.4 Additional On-Shift Staffing Considerations

2.4.1 Fire Brigade Staffing

The Fire Brigade staffing is described in Section 3.4.7. The Fire Brigade complement during Stage I and Stage II will continue to consist of five (5) trained and qualified responders, including a Fire Brigade Leader (FBL) and four (4) trained and qualified Fire Brigade Members in accordance with the Fire Protection Program Plan.

2.4.2 Position Titles

Proposed changes to the IPEC Technical Specifications (Reference 5) revise the minimum shift staffing requirements by replacing references to licensed and non-licensed operators with references to CFHs and Non-Certified Operators. The term Nuclear Plant Operator is being retained in the IPEC SEP. The term Non-Certified Operator is used to differentiate from CFH and refers to the shutdown unit's Non-Certified Operators that are not qualified as CFHs.

An individual qualified as a CFH will supervise/perform fuel handling operations when the unit is in the permanently defueled condition. Shift Managers will be qualified as CFHs. The Shift Manager requires additional qualification for Emergency Director beyond the CFH training. Command and Control will remain with the Shift Manager, regardless of location of the individual designated as

the Shift Manager, until relieved by the Emergency Director in the Emergency Operations Facility (EOF). Any reference to the Shift Manager of a permanently shutdown unit throughout this submittal is considered to encompass the CFH position. Reference 6 submitted a CFH training program for NRC approval.

The Non-Certified Operator position combines the duties of the current licensed Reactor Operator and the non-licensed Nuclear Plant Operator that remain applicable in the permanently shutdown and defueled condition. Non-Certified Operators will perform duties typically associated with those formerly performed by non-licensed Nuclear Plant Operators, such as manipulation and monitoring of plant equipment. Non-Certified Operators will also be assigned to monitor SFP indications and communications. Any reference to Non-Certified Operator and Nuclear Plant Operator of a permanently shutdown unit throughout this submittal is considered to encompass the Non-Certified Operator position.

The Non-Certified Operator training program will be developed in accordance with 10 CFR 50.120, “Training and qualification of nuclear power plant personnel,” using a systematic approach to training with an emphasis on systems and processes important to maintaining SFP cooling and monitoring and controlling SFP parameters, such as SFP water level and temperature. Consequently, the Non-Certified Operators will be trained on pertinent indications and controls that will be monitored and operated to maintain SFP cooling and SFP water level, in addition to monitoring plant radiological conditions. The Non-Certified Operator training program will include training on applicable aspects of the IPEC SEP-related Non-Certified Operator duties.

Personnel assigned to fill the Non-Certified Operator positions at IP2 during Stage I, and at IP2 and IP3 during Stage II could include both previously licensed and non-licensed operators. Much of the required training for the Non-Certified Operator position will already have been completed by the formerly licensed operators that have previously been trained and qualified as licensed Reactor Operators to support power operations. The current non-licensed Nuclear Plant Operators assigned as Non-Certified Operators have been trained and qualified as non-licensed operators.

## 2.5 Proposed Stage II Augmented Emergency Response Organization Changes

Following docketing of the certification for permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel (Stage II), the IPEC SEP will be revised to modify the augmented ERO commensurate with the reduced spectrum of credible accidents for the permanently shutdown and defueled reactors and the need to safely store spent fuel at the facility in a manner that is protective of public health and safety.

The proposed changes to the IPEC SEP would eliminate augmented ERO positions currently identified in Part 2, Section B of the IPEC SEP; IPEC SEP Table B-1, and Emergency Plan Implementing Procedures (EPIPs) describing the activation and operation of the Control Room (supplemental staff to support Operations), Technical Support Center (TSC), Emergency Operations Facility (EOF), Operations Support Center (OSC), and Joint Information Center (JIC). The augmented ERO positions proposed for elimination are identified in Table 2.5-1. Proposed changes to the Augmented ERO staff are discussed in Section 3.5.2.

**Table 2.5-1**

| Current IPEC Augmented ERO Positions | Proposed Stage II Augmented ERO Positions[1,2] |
|---|---|
| **Control Room** | |
| Plant Operations Manager | -- |
| Facility Communicator | -- |
| **Technical Support Center** | |
| Emergency Plant Manager | Emergency Plant Manager |
| TSC Manager | -- |
| Operations Coordinator | -- |
| Radiological Coordinator | Radiological Coordinator |
| Engineering Coordinator | Engineering Coordinator |
| TSC Communicator | -- |
| ENS Communicator | Filled by available personnel in the Control Room |
| TSC Reactor Engineer | -- |
| TSC Engineers (Electrical, I&C, Mechanical) | --<br>Available to respond on an as-needed basis as determined by the TSC Engineering Coordinator |
| TSC IT Specialist | -- |
| Security Coordinator | Security Coordinator |
| **Operations Support Center** | |
| OSC Manager | OSC Manager |
| Work Control Coordinator | -- |
| OSC Log Keeper | -- |
| Rad/Chem Coordinator | -- |
| Mechanical and I&C/Electrical Coordinators | -- |
| OSC Operations Support | -- |
| Technicians (Electrical, I&C, Mechanical Maintenance, RP/HP, Chemistry) | Reduced numbers - Available to respond on an as-needed basis |
| **Emergency Operations Facility** | |
| Emergency Director | Emergency Director |
| Radiological Assessment Coordinator | Radiological Assessment Coordinator |
| Offsite Communicator | Offsite Communicator |
| EOF Technical Advisor | EOF Technical Advisor |
| EOF Manager | -- |
| EOF Communicator | -- |
| Lead Offsite Liaison | Lead Offsite Liaison |
| Administration and Logistics Coordinator | -- |
| IT Specialist | -- |
| Dose Assessor | Dose Assessor |
| Offsite Team Coordinator | Offsite Team Coordinator |
| Offsite Liaisons (5) | Offsite Liaisons (5) |

| Current IPEC Augmented ERO Positions | Proposed Stage II Augmented ERO Positions[1,2] |
|---|---|
| Monitoring Teams | Monitoring Teams |
| Public Information Liaison | -- |
| **Joint Information Center** | |
| Company Spokesperson | Company Spokesperson |
| JIC Manager | JIC Manager |
| Technical Advisor | Technical Advisor |
| Media Liaison | Media Liaison |
| Press Release Writer | -- |
| JIC Admin & Logistics Coordinator | -- |
| Inquiry Response Coordinator | -- |
| Media Monitoring | Media Monitoring |
| Rad Advisor | -- |
| Documenter | -- |
| Support Staff | -- |
| IT Specialist | -- |
| AV Coordinator | -- |
| AV Graphics Support (2) | -- |

1 A dash (--) indicates the position is proposed for elimination upon implementation of the Stage II Post-Shutdown Emergency Plan.

2 Detailed information regarding the proposed elimination of each position is provide in Sections 3.4 and 3.5.

The intent of Table 2.5-1 is to compare the current augmented ERO positions against the proposed Stage II augmented ERO positions. As an example, the TSC Reactor Engineer is a position that is proposed for elimination in the Stage II augmented ERO, because in a permanently shutdown and defueled condition the responsibilities associated with a reactor core no longer need to be maintained. The proposed elimination of augmented ERO positions are described in greater detail in the following sections. Those augmented ERO positions identified in procedures as typical minimum staffing positions to declare the Emergency Response Facilities (ERFs) operational are described in greater detail. Other augmented ERO positions proposed for elimination, but not identified in procedure as typical minimum staffing positions to declare the ERFs operational, are also addressed in the following sections.

Attachment 8, provided for informational purposes, identifies the current augmented ERO and contains an analysis of the augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions in Stage II. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post-shutdown augmented ERO can continue to satisfactorily perform their existing Emergency Plan responsibilities as well as any transferred responsibilities.

Attachment 8 contains the details regarding the disposition of each task. Some of the duties are identified as being eliminated because they become unnecessary following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. Other

duties are identified as eliminated because the duties are performed redundantly by other positions in the ERO and will continue to be performed by these positions in the Stage II augmented ERO.

IPEC plans to revise the procedures and training materials consistent with the changes presented in Attachment 8 to align with the revised task assignments. These procedures can then be used to support training of Stage II augmented ERO staff and during the conduct of drills to validate the staffing and assignment of tasks.

IPEC SEP Table B-1 specifies the on-shift and augmented staffing for certain positions in the Major Functional Areas identified in Section 2.1 of this attachment. The proposed changes to the IPEC SEP would eliminate the following augmenting positions identified in Table B-1:

- TSC Communicator
- Chemistry Technician
- Four (4) Radiation Protection (RP) Technicians
- Reactor Engineer
- Electrical Engineer
- Mechanical Engineer
- OSC Craft (one (1) Mechanical Maintenance Technician, one (1) Electrical Maintenance Technician, and one (1) Instrument and Control (I&C) Technician)

## 3.0 TECHNICAL EVALUATION

The changes proposed within this submittal reflect the pending permanent cessation of power operations of IP2, which is anticipated to occur no later than April 30, 2020, the pending permanent cessation of power operations of IP3, which is anticipated to occur no later than April 30, 2021 (Reference 1), and the planned permanent defueling of both units following each unit's permanent shutdown. After the reactors are shut down, all fuel assemblies will be removed from the reactor vessels and placed in the SFPs. Upon docketing of the certifications for permanent cessation of power operations (10 CFR 50.82(a)(1)(i)) and permanent removal of fuel from the reactor vessels (10 CFR 50.82(a)(1)(ii)), pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 licenses for IP2 and IP3 will no longer authorize operation of the reactors or emplacement or retention of fuel in the reactor vessels.

The proposed revisions to the IPEC SEP are commensurate with the reduction in hazards associated with the permanently shut down and defueled condition of each unit and will allow IPEC to transition from an appropriate staffing level required for a dual-unit operating facility. The proposed changes are required to properly reflect the conditions of the facility while continuing to preserve the IPEC Decommissioning Trust Fund and maintain the effectiveness of the IPEC SEP.

### 3.1 <u>On-Shift and ERO Staffing Regulations and Guidance</u>

The on-site emergency plan planning standards in 10 CFR 50.47(b)(2) state, in part, that "on-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, [and] timely augmentation of response capabilities is available."

NUREG-0654 (Reference 3), Section II.B, "Onsite Emergency Organization," provides guidance for meeting the planning standards and requirements of 10 CFR 50.47(b) and 10 CFR 50, Appendix E, Section IV.A. The guidance describes the onsite emergency organization, including the staffing requirements found in Table B-1, "Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies." This table specifies a minimum of ten on-shift responders in four Major Functional Areas. It also specifies seven on-shift response functions where the duties may be performed by shift personnel who are assigned other functions (i.e., there are no dedicated responders to perform these functions). Table B-1 specifies two Major Functional Areas (i.e., firefighting and site access control/personnel accountability) which must be staffed on a site-specific basis.

The on-shift staff must be able to cope with a spectrum of events until augmenting personnel arrive in accordance with the site's emergency plan and site-specific commitments. The augmenting responders assume managerial, engineering, and administrative duties from the on-shift personnel, allowing on-shift personnel to focus on their assigned functions.

On November 23, 2011, the NRC published a final rule in the Federal Register amending certain emergency preparedness requirements in its regulations that govern domestic licensing of production and utilization facilities (Reference 7). This final rule amended 10 CFR Part 50, Appendix E, Section IV.A, "Organization," to address the assignment of tasks or responsibilities to on-shift ERO personnel that could potentially overburden them and prevent the timely performance of their emergency plan functions. Specifically, Section IV.A.9 states that licensees shall perform "…a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan."

Coincident with the rule change in 10 CFR Part 50, Appendix E, Section IV.A.9, the NRC issued Interim Staff Guidance (ISG) NSIR/DPR-ISG-01, "Interim Staff Guidance – Emergency Planning for Nuclear Power Plants" (ISG-01) (Reference 8). This ISG provides information relevant to performing the on-shift staffing analysis. The ISG states that the NEI developed NEI 10-05 (Reference 4) to establish a standard methodology for a licensee to perform the required staffing analysis, and that the NRC reviewed NEI 10-05 and found it to be an acceptable methodology for this purpose. The ISG also indicates that the completed staffing analyses are required to be part of the emergency plan and the results documented and submitted to the NRC in accordance with 10 CFR 50.54(q)(5).

## 3.2 IPEC-Specific Background

### 3.2.1 On-Shift Staffing

IPEC has conducted an analysis of its current on-shift staff in accordance with the guidance provided in NEI 10-05 to satisfy the requirements of Appendix E to 10 CFR Part 50, Section IV.A.9. This analysis examined the capability of the minimum on-shift staff provided in Table B-1 of the IPEC SEP to perform the key emergency response actions for events described in NSIR/DPR-ISG-01 until augmenting staff arrive.

IPEC SEP Table B-1 specifies the minimum staffing requirements for the IPEC on-shift staff, defines the positions initially responsible for satisfying key functions, and specifies positions that will augment the on-shift staff.

In support of this amendment request, post-shutdown staffing analyses were conducted to address the Stage I and Stage II post-shutdown on-shift staffing using the guidance in NEI 10-05. For the Stage I analysis, the IP2 scenarios considered included the fuel handling accident (FHA), Control Room fire requiring evacuation, a General Emergency with release and protective action recommendation (PAR), a Design Basis Threat (DBT), and aircraft probable threat. The IP3 scenarios considered in this Stage I analysis were unchanged from IPEC's current analysis. A summary of the results is presented in Section 3.5.1.1.

For the Stage II analysis, the scenarios considered for IP2 and IP3 included the FHA, Control Room fire requiring evacuation, a General Emergency with release and PAR, a DBT, and aircraft probable threat. A summary of the results of this Stage II analysis is presented in Section 3.5.1.2.

### 3.2.2 Augmented Emergency Response Organization Staffing

The IPEC SEP defines four classes of emergency events: Notification of Unusual Event (UE), Alert, Site Area Emergency (SAE) and General Emergency (GE). Because on-shift personnel can normally address an emergency response to UEs without additional support, select portions of the ERO are notified and can be activated at the discretion of the Shift Manager in response to an UE declaration. The Shift Manager maintains command and control responsibility during UEs, unless the EOF has been activated. An Alert declaration results in the activation of the ERO. This includes the normal on shift watchstanders and personnel needed to staff the EOF, TSC, OSC, and JIC. When declared operational, overall responsibility for the emergency is assumed by the Emergency Director in the EOF.

IPEC SEP Part 2, Section B, "Station Emergency Response Organization," describes the IPEC ERO, the key ERO positions and their associated responsibilities. The section outlines the on-shift staffing requirements, which provide initial emergency response actions and provisions for timely augmentation of on-shift personnel when required. Section B also describes interfaces among IPEC response personnel and specifies offsite support available to respond to the site.

The IPEC ERO, including each unit's normal on-shift organization is described in Section B.1.a, "Normal Plant Organization," and the on-call (augmenting) ERO is described in Section B.1.b of the IPEC SEP. If initiating conditions exist that result in the declaration of an emergency, the Shift Manager (or the Control Room Supervisor in his/her absence) assumes the role of Emergency Director and is responsible for emergency direction and coordination. The normal operating organization assumes their pre-assigned emergency response roles. This is considered to be a short-term response organization that will be augmented within one hour after call-out of additional plant personnel.

Each unit's normal watch organization is presented in Figure B-1.1 of the IPEC SEP and functions twenty-four (24) hours per day, seven (7) days per week. The augmented ERO is illustrated in Figures B-1.2a – d of the IPEC SEP. If an Alert, SAE, or GE is declared, or if the minimum on-shift crew requires assistance during an UE, the onsite emergency organization will be augmented by additional plant personnel as described in Part 2, Section B of the IPEC SEP. The IPEC SEP describes the augmented emergency organization that will staff and operate the EOF, TSC, OSC, and JIC within the facility-specific response time following the request for activation.

Plans and procedures are in place to ensure the timely activation of ERFs. IPEC SEP Part 2, Section B describes the interfaces among the various emergency organizations.

## 3.3 Accident Analysis

Chapter 14 of the IP2 and IP3 Final Safety Analysis Reports (FSARs) describe Abnormal Operational Transients and DBAs that are applicable to each unit during plant operations. Upon docketing of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii), the 10 CFR Part 50 license for IPEC will no longer authorize operation of the reactors or emplacement or retention of fuel into the reactor vessels, as specified in 10 CFR 50.82(a)(2). Therefore, most of the accident scenarios postulated in the FSARs will no longer be applicable once IP2 and IP3 are in their respective permanently shut down and defueled condition.

The postulated DBA that will remain applicable to IP2 and IP3 in the permanently shut down and defueled condition is a FHA in the SFP. Upon shutdown and defueling of the units, Section 14 of the IP2 and IP3 FSARs will be revised to eliminate the DBAs that will not be applicable in the permanently shut down and defueled condition.

During Stage I and Stage II, each of the shutdown units will be required to respond to events that involve the loss of SFP cooling and/or water inventory, or external events (e.g. fire, flooding, earthquake, high winds, or hostile actions) that would lead to a loss of SFP cooling and/or water inventory. In addition, IPEC will continue to implement the emergency response actions necessary to respond to potential aircraft impacts required by 50.54(hh)(1). These strategies will be in place for the protection of the SFP. The strategies will continue to address restoring core cooling and containment for IP3 during Stage I and will transition to only address protection of the SFPs following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel (Stage II).

In the permanently shut down and defueled condition, the IPEC Fire Brigade will be responsible for implementing the SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). IPEC will continue to maintain a trained and qualified Fire Brigade responsible for implementation of the SFP inventory makeup strategies. The Fire Brigade personnel identified in the IPEC SEP are separate and distinct from those responsible for implementing the major elements of the emergency plan including command and control, emergency classification, offsite notifications, and dose assessment/protective action recommendation development. Therefore, sufficient staffing is available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.

As described in Section 3.4.5.3, events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). These strategies will continue to be maintained to satisfy applicable portions of License Condition 2.N of the IP2 Facility Operating License (FOL) and License Condition 2.AC of the IP3 FOL.

## 3.4 Functional Area Technical Evaluation

The following sections provide an evaluation of the proposed changes to the Major Functional Areas found in Table B-1 of NUREG-0654. The analysis addresses on-shift staff for IP2 and IP3 and the augmented ERO for each function. The current IPEC SEP Table B-1 lists the following functional areas:

- Plant Operations and Assessment
- Emergency Direction and Control
- Notification/Communication

- Radiological Accident Assessment and Support of Operational Accident Assessment
- Plant System Engineering, Repair and Corrective Action
- Protective Actions (In-Plant)
- Fire Fighting
- Rescue Operations and First-Aid
- Site Access Control and Personnel Accountability

An analysis of the proposed on-shift and augmented ERO staffing changes associated with IPEC SEP Table B-1 is provided for each major functional area in Sections 3.4.1 through 3.4.9.

3.4.1 Major Functional Area: Plant Operations and Assessment

3.4.1.1 On-Shift Staffing

Table 3.4-1 identifies the current on-shift staff for IP1, IP2, and IP3, as defined in IPEC SEP Table B-1 and the proposed Stage I and Stage II on-shift staffing, in the major functional area of Plant Operations and Assessment.

**Table 3.4-1**

| **Major Functional Area:** Plant Operations and Assessment | **Current On-Shift Staffing Requirement** | | | **Stage I On-Shift Staffing** | | | **Stage II On-Shift Staffing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| Shift Manager* | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Control Room Supervisor | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Reactor Operators/Field Support Supervisor | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| Nuclear Plant Operators* | 1 | 5 | 4 | 0 | 1 | 4 | 0 | 1 | 1 |

* Proposed changes to the IPEC Technical Specifications (Reference 5) revise the minimum shift staffing requirements by replacing references to licensed and non-licensed operators with references to CFHs and Non-Certified Operators. The term Nuclear Plant Operator is being retained in the IPEC SEP. The term Non-Certified Operator is used to differentiate from CFH and refers to the shutdown unit's Non-Certified Operators that are not qualified as CFHs.

*Proposed Changes*

The proposed changes to the IPEC SEP eliminate certain on-shift positions following permanent cessation of power operations if IP2 and IP3, as identified below.

*Stage I (Permanent Cessation of Power Operations and Removal of Fuel from Unit 2)*

Unit 1

Upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, the IP1 on-shift staff in the major functional area of Plant Operations and Assessment will be revised to eliminate:

- One (1) Nuclear Plant Operator

Unit 2

Upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, the IP2 on-shift staff in the major functional area of Plant Operations and Assessment will be revised to eliminate:

- One (1) Control Room Supervisor
- Two (2) Reactor Operators or Field Support Supervisor
- Four (4) Nuclear Plant Operators

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Plant Operations and Assessment following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II (Permanent Cessation of Power Operations and Removal of Fuel from Unit 3)*

Unit 1

Following implementation of the IP1 staffing change described in Stage I, above, there will be no IP1 staff identified in IPEC SEP Table B-1. There are no additional proposed changes to the IP1 on-shift staff in the major functional area of Plant Operations and Assessment following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in the major functional area of Plant Operations and Assessment following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 3

Upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the IP3 on-shift staff in the major functional area of Plant Operations and Assessment will be revised to eliminate the following positions:

- One (1) Control Room Supervisor
- Two (2) Reactor Operators or Field Support Supervisor
- Four (4) Nuclear Plant Operators

3.4.1.2 Augmented ERO

*Stage I*

There are no proposed changes to the IPEC augmenting ERO upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II*

Table B-1 of the IPEC SEP does not identify augmented ERO in the major functional area of Plant Operations and Assessment. There are no proposed changes to the augmented ERO in this major functional area.

3.4.1.3 Analysis

Unit 1

There are limited operating systems remaining in IP1. The limited operating systems combined with the reduced radioactive source term result in a limited potential impact to a possible radiological release resulting from an event at IP1. Additionally, there are no Emergency Action Levels specific to IP1 that would challenge the on-shift staffing beyond what would be in place for IP2 and IP3. As stated in Part 2, Section B.1.a of the IPEC SEP, one (1) IP2 NPO is assigned to IP1 and Safe Shutdown (SSD) for IP2. IP2 SSD is no longer a required function following certification of permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel. Therefore, this position can be eliminated following certification of permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel without impacting IPEC's ability to respond to the spectrum of credible accidents and operational events for IP2 and IP3 or cause undue impact to the performance of the IPEC Emergency Plan.

Unit 2

Plant operations shift staffing, as implemented for an operating nuclear power reactor, is based on the philosophy of defense-in-depth. Because of the reduced number of possible events requiring mitigating actions and the limited number of actions to be performed by the Control Room positions in IP2's permanently shut down and defueled condition, the monitoring and control responsibilities of the on-shift staff is limited to the operation of SFP support systems.

The requirement for licensed Reactor Operators (ROs) and Control Room Supervisor, who holds a Senior Reactor Operator's (SRO) license is eliminated. Per Technical Specifications, the minimum shift crew composition requires ROs and SROs who are licensed by the NRC. The Shift Manager and the Control Room Supervisor fulfill the requirements for the SROs, and the Control Room Operator fulfills the requirement for the RO. In accordance with the IPEC SEP, the Shift Manager, the Control Room Supervisor and the Control Room Operators support the major functional area of Plant Operations and Assessment. Consistent with proposed changes to the IP2 Technical Specifications (Reference 5) that revise the minimum shift staffing requirements, the positions associated with the SRO and RO will be fulfilled by individuals qualified as CFHs and Non-Certified Operators. Because of the reduced number of possible events requiring mitigating actions in the permanently shutdown and defueled condition and the limited number of actions to be performed by the Control Room positions, the Shift Manager (CFH) and Non-Certified Operator positions would provide the resources needed.

With IP2 in a permanently shutdown and permanently defueled condition, the operations staff will only have to respond to events regarding loss of SFP cooling and/or water inventory or external events that could lead to a challenge to maintaining SFP cooling and/or water inventory. The on-shift staff has the ability to monitor SFP parameters.

The Stage I on-shift staffing analysis, summarized in Section 3.5.1.1, indicated that with IP2 in a permanently shutdown and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions. The evaluation also considers the current postulated accidents that will remain applicable to IP3.

The proposed on-shift staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR 50, commensurate with the reduced spectrum of credible accidents with IP2 in the permanently shutdown and defueled condition, and ensures that IPEC retains the ability to promptly implement the IP2 SFP mitigation actions.

Unit 3

For the same reasons cited above, the IP3 on-shift staffing in the major functional area of Plant Operations and Assessment will be modified consistent with IP2 following certification of permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

The Stage II on-shift staffing analysis, summarized in Section 3.5.1.2, indicated that with IP2 and IP3 in a permanently shutdown and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions.

The proposed on-shift staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and ensures that IPEC retains the ability to promptly implement the SFP mitigation actions.

### 3.4.2 Major Functional Area: Emergency Direction and Control

#### 3.4.2.1 On-Shift Staffing

Table 3.4-2 identifies the current on-shift staff for IP1, IP2, and IP3, as defined in IPEC SEP Table B-1 and the proposed Stage I and Stage II on-shift staffing, in the major functional area of Emergency Direction and Control.

**Table 3.4-2**

| **Major Functional Area:** Emergency Direction and Control | **Current On-Shift Staffing Requirement** | | | **Stage I On-Shift Staffing** | | | **Stage II On-Shift Staffing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| Shift Manager or Control Room Supervisor* | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |

* The Control Room Supervisor position is proposed for elimination at IP2 in Stage I and at IP3 in Stage II.

*Proposed Changes*

The proposed changes to the IPEC SEP eliminate certain on-shift positions at each Stage of the IPEC shutdown, as identified below.

*Stage I (Permanent Cessation of Power Operations and Removal of Fuel from Unit 2)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Emergency Direction and Control. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 2

The IP2 position of Control Room Supervisor is proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Emergency Direction and Control following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II (Permanent Cessation of Power Operations and Removal of Fuel from Unit 3)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Emergency Direction and Control. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in the major functional area of Emergency Direction and Control following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 3

The IP3 position of Control Room Supervisor is proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

3.4.2.2 Augmented ERO

*Stage I*

There are no proposed changes to the IPEC augmented ERO upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II*

Table B-1 of the IPEC SEP does not identify augmented ERO in the major functional area of Emergency Direction and Control. There are no proposed changes to the augmented ERO in this major functional area.

3.4.2.3 Analysis

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Emergency Direction and Control. There are no proposed changes to the IP1 on-shift staff in the major functional area of Emergency Direction and Control following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels.

Units 2 and 3

The position of Control Room Supervisor is proposed for elimination following permanent cessation of power operations and permanent removal of fuel from each unit. However, the responsibility of command and control will continue to reside with the unit-specific Shift Manager. The Shift Manager assumes the responsibility of the Emergency Director and implements the IPEC SEP in response to an emergency at the respective unit. When the EOF becomes operational, the on-call Emergency Director relieves the Shift Manager of Emergency Director responsibilities, and overall command and control of the emergency is transferred to the EOF.

The Stage I and II on-shift staffing analyses, summarized in Sections 3.5.1.1 and 3.5.1.2, respectively, indicated that with IP2 and IP3 in a permanently shutdown and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions.

The proposed on-shift staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR 50, commensurate with the reduced spectrum of credible accidents in Stage I and II, and ensures that IPEC retains the ability to promptly implement the SFP mitigation actions.

### 3.4.3 Major Functional Area: Notification/Communication

#### 3.4.3.1 On-Shift Staffing

Table 3.4-3 identifies the current on-shift staff for IP1, IP2, and IP3, as defined in IPEC SEP Table B-1 and the proposed Stage I and Stage II on-shift staffing, in the major functional area of Notification/Communication.

**Table 3.4-3**

| **Major Functional Area:** Notification/Communication | **Current On-Shift Staffing Requirement** | | | **Stage I On-Shift Staffing** | | | **Stage II On-Shift Staffing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| Nuclear Plant Operator | 0 | 0 | 1* | 0 | 0 | 1* | 0 | ** | |

* Table B-1 of the IPEC SEP currently states that IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units. In Table B-1, the on shift Communicator has been counted in the Unit 3 total, but can be provided by either unit.

** This function is typically assigned to each unit's Nuclear Plant Operator. But the function can be performed by any on-shift position qualified as a Communicator. Once designated, the individual will have no other assigned responsibilities.

*Proposed Changes*

The proposed changes to the IPEC SEP eliminate certain on-shift positions at each Stage of the IPEC shutdown, as identified below.

*Stage I (Permanent Cessation of Power Operations and Removal of Fuel from Unit 2)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Notification/Communication. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in the major functional area of Notification/Communication following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Notification/Communication following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II (Permanent Cessation of Power Operations and Removal of Fuel from Unit 3)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Notification/Communication. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in the major functional area of Notification/Communication following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel. This function is typically assigned to the Nuclear Plant Operator. However, the IPEC SEP is revised such that this function can be performed by any qualified individual on shift upon declaration of an emergency. Once designated, the individual will have no other assigned responsibilities.

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Notification/Communication following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel. This function is typically assigned to the Nuclear Plant Operator. However, the IPEC SEP is revised such that this function can be performed by any qualified individual on shift upon declaration of an emergency. Once designated, the individual will have no other assigned responsibilities.

3.4.3.2 Augmented ERO

*Stage I*

There are no proposed changes to the IPEC augmented ERO upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II*

Table B-1 of the IPEC SEP is revised to remove reference to the Control Room Communicator and the TSC Communicator in the major functional area of Notification/Communication.

Table B-1 of the IPEC SEP is revised to remove one of the three 60-minute augmented ERO positions. This function will be provided by the EOF Offsite Communicator and one additional augmenting position (Offsite Team Coordinator).

3.4.3.3 Analysis

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Notification/Communication. There are no proposed changes to the IP1 on-shift staff in the major functional area of Notification/Communication following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels.

Units 2 and 3

The regulations in Section IV.D.3 of Appendix E to 10 CFR 50 require that IPEC have the capability to notify responsible State and local government agencies within 15 minutes after declaration of an emergency. The regulations in 10 CFR 50.72(a)(3) require that IPEC notify the NRC immediately after notification of the appropriate State or local agencies and not later than 60 minutes after the time IP2 or IP3 declares one of the emergency classes. IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units. In Table B-1, the on-shift Communicator has been counted in the Unit 3 total. But, this function can be provided by either unit. This function can be performed by any on-shift position qualified as a Communicator. Once designated, the individual will have no other assigned responsibilities. This function is currently augmented by any two of the following positions: Offsite Team Coordinator (EOF), Control Room Communicator, or TSC Communicator.

IPEC uses the Radiological Emergency Communications System (RECS) located in the Control Rooms and EOF to support the State and Local Notification function. The RECS is a system of dedicated phone circuits independent of the normal land-line phone system that utilizes an auto-ring feature. It is used to transmit information to New York State; Westchester, Rockland, Putnam and Orange Counties; the City of Peekskill, and the West Point Military Police Desk for UEs, Alerts, Site Area Emergencies, and General Emergencies. This system is available on a 24-hour basis and incorporates each principal emergency response centers into a single dedicated network. In addition, each organization can be reached via normal commercial lines as a backup to the RECS.

NRC notifications were treated as a continuous action in accordance with 10 CFR 50.72(c)(3), meaning that once the initial NRC communications are established, it was assumed that the NRC will request an open line to be continuously maintained with the NRC Operations Center using the dedicated Emergency Notification System (ENS) network. The use of dedicated phone circuits and wireless headsets enables these notifications to be performed by the same on-shift communicator who performs the State and local notifications.

The Stage I and II on-shift staffing analyses, summarized in Sections 3.5.1.1 and 3.5.1.2, respectively, indicated that with IP2 and IP3 in a permanently shutdown and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions.

The proposed on-shift staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR 50, commensurate with the

reduced spectrum of credible accidents in Stage I and Stage II, and ensures that IPEC retains the ability to promptly implement the SFP mitigation actions.

Augmented ERO

Table B-1 of the IPEC SEP currently identifies three (3) 60-minute augmenting Communicators. The on-shift notification function is currently augmented by the EOF Offsite Communicator. The additional 60-minute augmenting Communicators are identified as the TSC Communicator and the Offsite Team Coordinator (IPEC SEP Table B-1, Note 5). The augmented staff assumes the function once their respective facility is activated and are managed by the applicable Emergency Director (ED) in the EOF or the Emergency Plant Manager in the TSC.

The proposed changes to the augmented ERO following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels include the elimination of the TSC Communicator position. The elimination of the TSC Communicator position does not impact the capabilities of the on-shift staffing or augmented response. The position can be eliminated without placing an undue burden on the remaining ERO positions, without impacting the ability of the EOF to provide the necessary information to offsite organizations, and without increasing the risk to public health and safety.

Attachment 8 evaluates and dispositions tasks currently assigned to the TSC Communicator following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessel. The ERFs will continue to be activated at an Alert or higher declaration. Functional responsibilities of the TSC Communicator position are either currently performed by other positions or will be reassigned to remaining positions. The proposed ERO staffing reductions continue to address the risks to public health and safety, comply with the IPEC SEP, site commitments, and applicable regulations.

In the post-shutdown condition, the task of initially notifying and communicating with offsite authorities will be assigned to a qualified on-shift individual. This is not an additional on-shift individual. This function is typically assigned to the Nuclear Plant Operator. But, the function can be performed by any on-shift position qualified as a Communicator. Once designated, the individual will have no other assigned responsibilities. This is acceptable because the analysis of proposed post-shutdown on-shift staffing concluded that with both units in a permanently defueled condition, there are Communicator-qualified individuals that can perform this required IPEC SEP action in a timely manner with no collateral duties that would prevent the timely performance of this emergency plan function.

### 3.4.4 Major Functional Area: Radiological Accident Assessment and Support of Operational Accident Assessment

#### 3.4.4.1 On-Shift Staffing

Table 3.4-4 identifies the current on-shift staff for IP1, IP2, and IP3, as defined in IPEC SEP Table B-1 and the proposed Stage I and Stage II on-shift staffing, in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment.

**Table 3.4-4**

| **Major Functional Area:** Radiological Accident Assessment and Support of Operational Accident Assessment | **Current On-Shift Staffing Requirement** | | | **Stage I On-Shift Staffing** | | | **Stage II On-Shift Staffing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| Radiation Protection Technicians | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Chemistry Technicians | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1* | 1* |

* These are not additional on-shift individuals. Following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the IPEC SEP is revised to remove the Chemistry Technician position. This function will continue to be performed by other trained and qualified on-shift personnel (e.g., Radiation Protection Technicians).

*Proposed Changes*

The proposed changes to the IPEC SEP eliminate certain on-shift positions at each Stage of the IPEC shutdown, as identified below.

*Stage I (Permanent Cessation of Power Operations and Removal of Fuel from Unit 2)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II (Permanent Cessation of Power Operations and Removal of Fuel from Unit 3)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment. There are no proposed changes to the IP1 on-shift staff in this major

functional area following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 2

Upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the IP2 on-shift staff in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment will be revised to remove the on-shift Chemistry Technician. Any required duties will be retained as a collateral duty of other qualified on-shift staff.

Unit 3

Upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the IP3 on-shift staff in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment will be revised to remove the on-shift Chemistry Technician. Any required duties will be retained as a collateral duty of other qualified on-shift staff.

3.4.4.2 Augmented ERO

*Stage I*

There are no proposed changes to the IPEC augmented ERO upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II*

Table B-1 of the IPEC SEP is revised to remove two (2) augmenting Radiation Protection Technicians.

Table B-1 of the IPEC SEP is revised to remove the augmenting Chemistry Technician.

3.4.4.3 Analysis

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Radiological Accident Assessment and Support of Operational Accident Assessment. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels.

Units 2 and 3

The IP2 and IP3 on-shift Chemistry Technicians are proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

The on-shift Chemistry Technician performs chemistry/radiochemistry tasks in support of the Functional Area Radiological Accident Assessment and Support of Operational

Accident Assessment. The Chemistry Technician is responsible for performing all post-accident chemistry samples and analyses and supporting operations in the area of chemistry as directed by the Shift Manager. However, the current shift staffing analysis states that no chemistry job tasks were noted as being required within the first 90 minutes of any of the analyzed events. The two Chemistry Technicians on-shift (one each at IP2 and IP3) are qualified to work either unit.

Currently, the Chemistry Technician is an on-shift position so that a technician is always available to immediately collect and analyze a liquid sample if the applicable radiation monitor is not available during a release, or as directed by the Shift Manager. When the on-shift Chemistry Technician position is eliminated, the function will be maintained by having trained and qualified personnel on-shift to perform sampling and analysis at various locations, so as to not delay information potentially needed by the Shift Manager to determine if an emergency declaration is required.

Specific knowledge requirements would include how to obtain specific liquid samples. The initial training requirements for the designated on-shift person will include all training modules to ensure they are equipped with the required skills and knowledge to perform the required liquid sampling and analysis. These training modules will be specifically identified in their training program description for the designated on-shift person position. This training is currently being developed in accordance with the requirements of 10 CFR 50.120.

For gaseous releases, the only credible scenario for releasing gas would be to mechanically damage spent fuel during handling or by impact of a heavy object. Plant activities that could cause mechanical damage will require that the radiation monitor listed in gaseous effluent EALs is in service or that a Chemistry Technician be on-site, thereby alleviating any reliance on a potentially delayed sample analysis to determine EAL applicability. Applicable fuel handling procedures will be revised to incorporate this as a prerequisite prior to fuel handling activities. Additionally, the Stage II shift staffing analysis validated that no chemistry job tasks were noted as being required within the first 90 minutes of any of the analyzed events.

The NRC requires that the IPEC SEP maintain a level of effectiveness commensurate with the potential consequences to public health and safety and common defense and security. With the permanent cessation of operations and the permanent removal of the fuel from the IP2 and IP3 reactor vessels, most of the accident scenarios postulated for an operating power reactor are no longer possible. The reactors, Reactor Coolant Systems (RCS), and reactor support systems are no longer in operation and have no function related to the storage of the irradiated fuel. Therefore, postulated accidents involving failure or malfunction of the reactor, RCS, or reactor support systems are no longer applicable.

The on-shift Chemistry Technicians are currently responsible for performing initial dose assessment activities. The purpose of conducting the off-site dose assessment is to review radiological conditions using data from available instrumentation, assess the impact of changing radiological conditions on emergency classification, assist in accident assessments based upon those changing radiological conditions, and recommend appropriate off-site protective measures. Dose assessment will no longer be required to evaluate the Condenser Off-gas, Reactor Building, and Steam Generator release paths, because the permanent defueled status will prohibit operation of the reactor, and these paths are only applicable to an operating unit. The only path that will be required to be

assessed is the Fuel Storage Building Ventilation path in which the SFP source term potentially could be discharged.

The Stage II on-shift staffing evaluation employs the unaffected unit's RP Technician to perform the dose assessment function. The use of the unaffected unit's RP Technician to support the on-shift dose assessment is appropriate for a permanently shutdown and defueled condition because many of the potential initiating conditions that would lead to an emergency declaration are no longer credible. The set of plant equipment required in this condition is also greatly reduced, which also reduces the need for assessments and mitigation activities for an emergency.

The proposed change to eliminate the on-shift Chemistry Technicians maintains the chemistry sampling and dose assessment functions and continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and ensures that IPEC retains the ability to promptly implement the SFP mitigation actions.

Based on the above, the proposed changes in on-shift operations staffing and elimination of the on-shift IP2 and IP3 Chemistry Technicians are appropriate given the permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels.

Augmented ERO

The proposed changes to the augmented ERO following permanent cessation of power operations and removal of fuel from the IP2 and IP3 reactor vessels include the elimination of the augmenting Chemistry Technician position and two (2) augmenting Radiation Protection Technicians in the Major Functional Area of Radiological Accident Assessment and Support of Operational Accident Assessment.

The need to perform complex chemistry sampling is greatly reduced with the permanent cessation of power operation of the IP2 and IP3 reactors and the source term confined to the SFPs. There is no need to dispatch a Chemistry Technician to support sampling. The on-shift staffing will be adequate to perform sampling of the SFPs. Upon activation of the ERO, the dose assessment responsibilities placed on the unaffected unit's RP Technician would be transferred to augmenting personnel and the unaffected unit's RP Technician would be available to provide support in the Major Functional Area of Radiological Accident Assessment and Support of Operational Accident Assessment. Note 11 of Table B-1 of the IPEC SEP indicates that credit may be taken for the opposite unit's on-shift Radiation Protection Technician. Additionally, if conditions warrant, Radiation Protection and Chemistry personnel are available to be called in by the OSC Manager.

Implementation of these changes does not impact the overall effectiveness to perform the necessary Emergency Planning Functions and will not cause undue impact to the performance of the IPEC SEP.

### 3.4.5 Major Functional Area: Plant System Engineering, Repair and Corrective Actions

#### 3.4.5.1 On-Shift Staffing

Table 3.4-5 identifies the current on-shift staff for IP1, IP2, and IP3, as defined in IPEC SEP Table B-1 and the proposed Stage I and Stage II on-shift staffing, in the major functional area of Plant System Engineering, Repair and Corrective Actions.

**Table 3.4-5**

| **Major Functional Area:** Plant System Engineering, Repair and Corrective Action | **Current On-Shift Staffing Requirement** | | | **Stage I On-Shift Staffing** | | | **Stage II On-Shift Staffing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| Field Support Supervisor or Shift Technical Advisor | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Mechanical Maintenance* | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Electrical Maintenance* | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |

* Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, this function will continue to be performed by other trained and qualified on-shift personnel.

*Proposed Changes*

The proposed changes to the IPEC SEP eliminate certain on-shift positions at each Stage of the IPEC shutdown, as identified below.

*Stage I (Permanent Cessation of Power Operations and Removal of Fuel from Unit 2)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Plant System Engineering, Repair and Corrective Action. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 2

Upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, the IP2 on-shift staff in the major functional area of Plant System Engineering, Repair and Corrective Action will be revised to eliminate the on-shift Shift Technical Advisor.

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Plant System Engineering, Repair and Corrective Action following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II (Permanent Cessation of Power Operations and Removal of Fuel from Unit 3)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Plant System Engineering, Repair and Corrective Action. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 2

Following implementation of the IP2 staffing change described in Stage I, above, there are no additional proposed changes to the IP2 on-shift staff in the major functional area of Plant System Engineering, Repair and Corrective Action following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 3

Upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, the IP3 on-shift staff in the major functional area of Plant System Engineering, Repair and Corrective Action will be revised to eliminate the on-shift Shift Technical Advisor.

3.4.5.2 Augmented ERO

*Stage I*

There are no proposed changes to the IPEC augmented ERO upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II*

Table B-1 of the IPEC SEP is revised to reduce the augmenting Mechanical Maintenance Technicians from two (2) to one (1).

Table B-1 of the IPEC SEP is revised to reduce the augmenting Electrical Maintenance Technicians from two (2) to (1).

Table B-1 of the IPEC SEP is revised to eliminate the augmenting Instrument & Control Technician.

3.4.5.3 Analysis

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Plant System Engineering, Repair and Corrective Action. There are no proposed changes

to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels.

Units 2 and 3

The Shift Technical Advisor performs independent assessments of plant operating concerns, technical support, appropriate corrective actions, analysis of events and their effects, effectiveness of response(s) to emergent conditions, classifications of emergencies, protection of the public, and any other actions related to critical safety functions and plant safety during abnormal and emergency situations. The Shift Technical Advisor also contributes to operations during normal plant conditions. By routine monitoring of equipment and plant operations, the Shift Technical Advisor can focus on preventative actions to mitigate the consequences of an accident.

Because of the permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the Shift Technical Advisor position is no longer necessary for technical and analytical assistance. The Technical Support function will be assumed by the remaining Control Room personnel.

The Stage I and Stage II analysis of proposed post-shutdown on-shift staffing concluded that the IP2 and IP3 on-shift Shift Manager and Non-Certified Operator can perform any required technical analysis, until augmented by the TSC, in a timely manner and there are no collateral duties that would prevent the timely performance of this task.

Augmented ERO

The proposed changes to the augmented ERO following permanent cessation of power operations and removal of fuel from the IP2 and IP3 reactor vessels include the elimination of one (1) augmenting Mechanical Maintenance position and one (1) augmenting Electrical Maintenance position.

IPEC proposes to maintain the OSC Manager position, and a pool of one (1) Mechanical Maintenance Technician and one (1) Electrical Maintenance Technician, to support repair and corrective actions.

The IPEC ERO staffing is intended to address the risks to public health and safety inherent in an operating reactor. The risk with IP2 and IP3 in the permanently shutdown and defueled condition is significantly reduced. Many of the potential initiating conditions that would lead to an emergency declaration will no longer be credible. The set of plant equipment required in the permanently shutdown and defueled condition is also greatly reduced, which reduces the assessments and mitigation activities that the OSC must perform. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for safe storage of spent fuel is reduced, as compared to an operating power reactor. Restoration of equipment supporting SFP cooling and inventory will be the primary focus of emergency mitigation actions for the TSC/OSC with IP2 and IP3 in a permanently shutdown and defueled condition.

In the permanently shutdown and defueled condition there are no longer any complex automatic control systems in service, and dedicated Instrument & Control maintenance technicians are no longer required. If conditions warrant, the OSC Manager can call out Instrument & Control support as necessary. The OSC Manager will continuously evaluate

the need for resources and coordinate with the EOF Technical Advisor to call in additional qualified personnel. OSC resources will continue to be augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program.

The primary events of concern in the immediate post-shutdown and defueled condition will be a fuel handling accident and a loss of SFP cooling and/or water inventory. Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of the SFP inventory makeup strategies, as required under License Condition 2.N of the IP2 FOL and License Condition 2.AC of the IP3 FOL, and 10 CFR 50.54(hh)(2). OSC staff is not relied upon to implement SFP inventory makeup. As such, elimination of the augmenting Mechanical Maintenance, Electrical Maintenance, and Instrument & Control Technician positions do not impact the ability of the ERO to perform the required function based on the permanent shutdown and defueled condition of the IP2 and IP3.

The proposed change to the ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents in the permanently defueled condition, and ensures that IPEC retains the ability to promptly implement SFP mitigation actions.

3.4.6 Major Functional Area: Protective Actions (In-Plant)

3.4.6.1 On-Shift Staffing

Table 3.4-6 identifies the current on-shift staff for IP1, IP2, and IP3, as defined in IPEC SEP Table B-1 and the proposed Stage I and Stage II on-shift staffing, in the major functional area of Plant System Engineering, Repair and Corrective Actions.

**Table 3.4-6**

| **Major Functional Area:** Protective Actions (In-Plant) | **Current On-Shift Staffing Requirement** | | | **Stage I On-Shift Staffing** | | | **Stage II On-Shift Staffing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| RP Technicians or other qualified personnel | 2 | | | 2 | | | 2 | | |

*Proposed Changes*

The proposed changes to the IPEC SEP eliminate certain on-shift positions at each Stage of the IPEC shutdown, as identified below.

*Stage I (Permanent Cessation of Power Operations and Removal of Fuel from Unit 2)*

Unit 1

There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in the major functional area of Protective Actions (In-Plant) following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Protective Actions (In-Plant) following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II (Permanent Cessation of Power Operations and Removal of Fuel from Unit 3)*

Unit 1

There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in the major functional area of Protective Actions (In-Plant) following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 3

There are no proposed changes to the IP2 on-shift staff in the major functional area of Protective Actions (In-Plant) following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

3.4.6.2 Augmented ERO

*Stage I*

There are no proposed changes to the IPEC augmented ERO upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II*

Table B-1 of the IPEC SEP is revised to reduce the augmenting Radiation Technician Technicians or other qualified personnel from four (4) to one (1).

3.4.6.3 Analysis

Units 1, 2, and 3

IPEC proposes no changes to the IPEC SEP Table B-1, Protective Actions (In-Plant) staffing.

Augmented ERO

The proposed changes to the augmented ERO following permanent cessation of power operations and removal of fuel from the IP2 and IP3 reactor vessels include eliminating three (3) of the four (4) augmenting Radiation Protection Technicians in the Major Functional Area of Protective Actions (In-Plant). The function of these resources is to provide radiation protection oversight of the complement of personnel for damage repair, corrective actions, search and rescue, first aid, firefighting and personnel monitoring. Once the ERO is activated, the two (2) on-shift Radiation Protection technicians will join the augmented Radiation Protection Technician providing three (3) personnel to support station emergency plan activities in this Major Functional Area. If conditions warrant, Radiation Protection and Chemistry personnel are available to be called in by the OSC Manager.

During a declared emergency, Radiation Work Permits (RWPs) and dose set points will change depending on the emergency and plant conditions. Both systems have been used by plant workers for several years. Worker dose margins and training qualifications are also automatically verified when the RWP access control system is used. If a worker's dose margin is inadequate or training is expired, the worker's access would be precluded and the access control system would not allow issuance of an electronic dosimeter. In an emergency, approval to exceed dose margins is required. During the log-in process, workers acknowledge their electronic dosimeter alarm set points and that they have read and understand their RWP. The electronic dosimeter provides the worker with a continuous status of dose received and work area dose rates and will alarm at preset dose and dose rates. Worker use of electronic dosimeters facilitates more efficient use of Radiation Protection Technicians to provide Radiation Protection coverage while preserving the As Low As Reasonably Achievable (ALARA) concept.

Access control is maintained because the worker must obtain an electronic dosimeter and enter a radiation work permit number into the access control computer system prior to being allowed access into the Radiologically Controlled Area (RCA). No setup is required for the RWP access control computers, which allows Radiation Protection Technicians to be used for more critical tasks during emergency response. Personnel are required to self-monitor for radioactive contamination whenever they exit the RCA. No Radiation Protection involvement is necessary for this contamination monitoring activity because workers are trained to perform this task without supervision or oversight. However, contaminated personnel exiting the RCA will require Radiation Protection oversight.

For a permanently shutdown and defueled condition, the evaluated DBAs are limited to the SFP area. Because entry is expected to be limited to those areas where maintenance necessary to maintain SFP cooling is required and the areas potentially affected by an accident involving the SFP are limited, there is a significant decrease in the areas potentially requiring Radiation Protection coverage in a permanently shutdown and defueled condition. Multiple repair teams can be covered by the on-shift Radiation Protection personnel. If Radiation Protection coverage is not provided (for entry into areas with low radiological risk or known radiological status), work protection is still ensured since emergency workers are required to wear electronic dosimeters (which will alarm at preset dose and dose rate set points) and because of the installed area radiation monitors that alarm locally and remotely at preset dose rates located throughout the plant.

Additionally, closed-circuit television, and remote reading radiation telemetry that is installed in the areas required to perform mitigation activities to the SFP and areas containing SFP-

related equipment augment the monitoring capability provided by installed radiation monitors. The output of these monitoring systems is available to personnel in the Control Room, TSC, and OSC. This technology allows for real time monitoring of the radiological conditions in these areas. Use of this technology can significantly reduce the exposure and time necessary to implement corrective measures.

Therefore, three (3) Radiation Protection personnel will be capable to providing adequate protective actions to support plant activities with IP2 and IP3 in the permanently shutdown and defueled conditions.

The proposed change to the ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents in the permanently defueled condition and ensures that IPEC retains the ability to promptly implement SFP mitigation actions.

3.4.7 Major Functional Area: Fire Fighting

3.4.7.1 On-Shift Staffing

Table 3.4-7 identifies the current on-shift staff for IP1, IP2, and IP3, as defined in IPEC SEP Table B-1 and the proposed Stage I and Stage II on-shift staffing, in the major functional area of Fire Fighting.

**Table 3.4-7**

| **Major Functional Area:** Fire Fighting | **Current On-Shift Staffing Requirement** | | | **Stage I On-Shift Staffing** | | | **Stage II On-Shift Staffing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| Fire Brigade | 0 | 0 | 1* | 0 | 0 | 1* | 0 | ** | |

* This position is the FBL. Table B-1 of the IPEC SEP accounts for this position in the Unit 3 total. However, this position can be provided by either unit, as described in Table B-1 of the IPEC SEP. The IPEC Fire Brigade will be staffed by five (5) trained and qualified Fire Brigade members in accordance with the Fire Protection Program Plan.
** Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the IPEC Fire Brigade will be staffed by five (5) trained and qualified Fire Brigade members in accordance with the Fire Protection Program Plan. This function will continue to be performed by trained and qualified personnel.

*Proposed Changes*

The proposed changes to the IPEC SEP eliminate certain on-shift positions at each Stage of the IPEC shutdown, as identified below.

*Stage I (Permanent Cessation of Power Operations and Removal of Fuel from Unit 2)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Fire Fighting. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

Unit 2

Upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel, there are no proposed changes to the IP2 on-shift staff in the major functional area of Fire Fighting.

The role of FBL can be filled by any qualified on-shift individual in accordance with the Fire Protection Program Plan.

Unit 3

There are no proposed changes to the IP3 on-shift staff in the major functional area of Fire Fighting following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel. The role of FBL can be filled by any qualified on-shift individual in accordance with the Fire Protection Program Plan.

*Stage II (Permanent Cessation of Power Operations and Removal of Fuel from Unit 3)*

Unit 1

The IPEC SEP does not identify any IP1 staff responsibilities in the major functional area of Fire Fighting. There are no proposed changes to the IP1 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

Unit 2

There are no proposed changes to the IP2 on-shift staff in this major functional area following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel. The role of FBL can be filled by any qualified on-shift individual in accordance with the Fire Protection Program Plan.

Unit 3

Upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel, there are no proposed changes to the IP3 on-shift staff in the major functional area of Fire Fighting. Required duties will be retained and performed by trained and qualified personnel. The role of FBL can be filled by any qualified on-shift individual in accordance with the Fire Protection Program Plan.

3.4.7.2 Augmented ERO

*Stage I*

There are no proposed changes to the IPEC augmented ERO upon permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel.

*Stage II*

There are no proposed changes to the IPEC augmented ERO in the major functional area of Fire Fighting upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

3.4.7.3 Analysis

The Fire Brigade complement during Stage I and Stage II will continue to consist of five (5) trained and qualified responders, including a FBL and four (4) trained and qualified Fire Brigade Members in accordance with the Fire Protection Program. The role of FBL can be filled by any qualified on-shift individual in accordance with the Fire Protection Program Plan.

All Fire Brigade training and qualification requirements will be maintained using the Fire Hazards Analysis requirements. The Fire Brigade will continue to perform the task of firefighting with IP2 and IP3 in the permanently shut down and defueled condition. The Fire Brigade will be available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.

3.4.8 Major Functional Area: Rescue Operations and First Aid

IPEC proposes no changes to the Rescue Operations and First Aid staffing.

3.4.9 Major Functional Area: Site Access Control and Personnel Accountability

IPEC proposes no changes to the Site Access Control and Personnel Accountability staffing.

## 3.5 Emergency Response Organization Changes – Emergency Response Facility Evaluation

NUREG-0654 (Reference 3), Section II.B, “Onsite Emergency Organization,” presents guidance for meeting the planning standards and requirements of 10 CFR 50.47(b) and 10 CFR Part 50, Appendix E, Section IV.A. The guidance describes the onsite emergency organization, including the staffing requirements found in Table B-1, “Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies.” Additional analysis for each of the augmented ERO staffing changes that impact the content of IPEC SEP Table B-1 was previously addressed by Major Functional Area in Sections 3.4.1 through 3.4.9.

Part 2, Section H of the IPEC SEP describes the ERFs identified in the IPEC SEP. These facilities include the Control Rooms (IP2 and IP3), the TSC, OSC, EOF, and JIC. Each unit’s Control Room contains the necessary instrumentation for operating the plant under normal and accident conditions. The Control Room is continuously staffed, and Control Room personnel make the initial declaration and classification of an emergency and perform activities of other ERFs until those facilities are 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 Control Room.

The proposed Stage I and Stage II on-shift staffing changes were evaluated as described in the Functional Area Technical Evaluation presented in Section 3.4 of this attachment. With the

permanent cessation of operations and the permanent removal of the fuel from the IP2 and IP3 reactor vessels, most of the accident scenarios postulated for an operating power reactor are no longer possible.

Irradiated fuel will be stored in the SFPs and in the ISFSI until it is permanently removed from the site. Upon docketing of the certifications for permanent cessation of power operations (10 CFR 50.82(a)(1)(i)) and permanent removal of fuel from the reactor vessels (10 CFR 50.82(a)(1)(ii)), pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 licenses will no longer authorize operation of the reactors or emplacement or retention of fuel into the reactor vessels. The reactors, RCS, and reactor support systems, no longer in operation, will have no function related to the storage of the irradiated fuel. Therefore, postulated accidents involving a failure or malfunction of the reactor, RCS, or reactor support systems are no longer applicable. During facility decommissioning, the principal public safety concerns involve the radiological risks associated with the storage of spent fuel on-site. The proposed level of on-site operations staff will continue to provide for communication and coordination capabilities with off-site organizations for the level of support required for the remaining DBAs and the prompt implementation of mitigative actions in response to an SFP accident.

The Functional Area Technical Evaluation, presented in Section 3.4 of this attachment, concluded that the proposed on-shift staffing changes do not impact the capabilities of the IP2 and IP3 on-shift staff to respond to an emergency and continues to comply with the Emergency Plan, site commitments and regulations during Stage I and Stage II.

### 3.5.1 On-Shift Staffing – Control Room

To support the reductions in on-shift staffing following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the proposed Stage I and Stage II post-shutdown on-shift staffing levels were evaluated in conjunction with the postulated accidents previously evaluated using NEI 10-05 methodology.

**Table 3.5-1**

| Position | Current On-Shift Staffing | | | Proposed Stage I Staffing | | | Proposed Stage II Staffing | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 1** | **Unit 2** | **Unit 3** |
| Shift Manager | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Control Room Supervisor | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Reactor Operators/Field Support Supervisor | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| Nuclear Plant Operators | 1 | 5 | 4 | 0 | 1 | 4 | 0 | 1 | 1 |
| Communicator* | 0 | 0 | 1 | 0 | 0 | 1 | 0 | ** | ** |
| RP Technicians | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Chemistry Technician | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| Shift Technical Advisor | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Fire Brigade (Per Fire Protection Program Plan) | -- | 0 | 1*** | -- | 0 | 1*** | 1**** | | |
| Security | Per Security Plan | | | Per Security Plan | | | Per Security Plan | | |
| **TOTAL** | **1** | **12** | **13** | **0** | **4** | **13** | **0** | **3** | **3** |

* IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units. The on-shift Communicator has been counted in the Unit 3 total, but can be provided by either unit. This function can be performed by any qualified individual on shift.
** This function is typically assigned to each unit's Nuclear Plant Operator. But, the function can be performed by any on-shift position qualified as a Communicator. Once designated, the individual will have no other assigned responsibilities
*** This position is the FBL. Table B-1 of the IPEC SEP accounts for this position in the Unit 3 total. However, this position can be provided by either unit, as described in Table B-1 of the IPEC SEP. The IPEC Fire Brigade will be staffed by five (5) trained and qualified Fire Brigade members in accordance with the Fire Protection Program Plan.
****This person is qualified as the FBL. Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the IPEC Fire Brigade will be staffed by five (5) trained and qualified Fire Brigade members in accordance with the Fire Protection Program Plan. This function will continue to be performed by trained and qualified personnel.

3.5.1.1 Stage I On-Shift Staffing Analysis

The Stage I post-shutdown on-shift staffing analysis evaluated the ability of the proposed post-shutdown on-shift staff to implement the IPEC SEP following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel. The proposed post-shutdown on-shift staffing was evaluated in conjunction with the postulated accidents that could occur with IP2 in the permanently shut down and defueled condition and IP3 continuing to operate. The analysis assumed that the applicable accident scenarios considered for IP3 were identical to those considered for IP3 with both units in operation. Additionally, the analysis assumed that the current on-shift staff present at IP3, while the unit is in operation, remains in place following permanent shutdown of IP2.

IPEC will ensure a sufficient number of personnel are initially trained to support the on-shift positions prior to implementation of the Stage I SEP changes.

Consistent with the methodology of NEI 10-05, the current on-shift staffing analysis evaluated postulated accident scenarios. Chapter 14 of IPEC's FSARs describe the Abnormal Operational Transients and DBA scenarios that are applicable during plant operations. Upon docketing of the certifications required by 10 CFR 50.82(a)(1), the 10 CFR Part 50 license for IP2 will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel, as

specified in 10 CFR 50.82(a)(2). Therefore, most of the accident scenarios postulated in the FSAR will no longer be applicable once IP2 is permanently shutdown and defueled.

The postulated DBA that will remain applicable to IP2 in its permanently shutdown and defueled condition is the FHA in the SFP. Section 14 of the IP2 FSAR will be revised to eliminate the DBAs that will not be applicable in the permanently shut down and defueled condition.

The following accident scenarios were evaluated for IP2 in the Stage I analysis:

Design Basis Threat

Land and/or waterborne Hostile Action directed against the Protected Area by a Hostile Force. This event assumes the threat is neutralized immediately when inside the protected area fence, no significant damage to equipment or systems that require corrective actions before the ERO is staffed, no radiological release, and no fire that requires firefighting response before the ERO is staffed. EAL is based on the event.

Fuel Handling Accident

The FHA assumes the drop of a spent fuel assembly onto the spent fuel racks within the SFP resulting in breaking the fuel rods.

Aircraft Probable Threat (50.54(hh))

Notification is received from the NRC that a probable aircraft threat exists (>5 minutes, <30 minutes). EAL is based on the event.

Control Room Fire Requiring Evacuation and Maintain SFP Cooling

A fire occurs in the main control room requiring the evacuation and the procedures implemented to ensure SFP cooling is maintained.

General Emergency (GE) with radioactive release and PAR (assumed for analysis purposes)

This event is based on the same initial conditions as the FHA, but assumes a dose that exceeds the Environmental Protection Agency's Protective Action Guides beyond the site boundary, and thus necessitates promulgation of a PAR.

The Station Blackout (SBO) and Appendix R fire were not considered in the analysis of proposed Stage I on-shift staffing. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, IP2 will no longer be licensed to operate and 10 CFR 50.63 (the SBO Rule) will no longer be applicable pursuant to 10 CFR 50.63(a)(1). Similarly, 10 CFR Part 50, Appendix R is applicable to licensed nuclear power generating stations. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, IP2 will no longer be licensed to generate power. These analyses were considered for IP3.

As indicated above, the Stage I analysis did evaluate the fire requiring evacuation of the IP2 Control Room.

The spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant. The primary events of concern in the immediate post-shutdown and defueled condition will be a FHA and a loss of SFP cooling and/or water inventory.

During fuel handling activities, there will ordinarily be extra personnel onsite to assist with fuel movement, in addition to minimum on-shift staff; if a FHA were to occur during fuel movement, these additional personnel would be able to respond to the event. Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of normal and emergency SFP inventory makeup strategies and mitigating strategies required under License Condition 2.N of the IP2 FOL and License Condition 2.AC of the IP3 FOL, and 10 CFR 50.54(hh)(2).

The Stage I assessment indicated that with IP2 in a permanently shutdown and defueled condition the on-shift staffing presented in Table 3.5-1 can perform all required Emergency Plan actions in a timely manner and there are no collateral duties that would prevent the timely performance of Emergency Plan functions. The proposed on-shift staffing changes do not impact the capabilities of the on-shift staff to respond to an emergency and continues to comply with the IPEC SEP, site commitments, and applicable regulations.

3.5.1.2 Stage II On-Shift Staffing Analysis

The Stage II post-shutdown on-shift staffing analysis evaluated the ability of the proposed post-shutdown on-shift staff to implement the IPEC SEP following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel. The proposed post-shutdown on-shift staffing was evaluated in conjunction with the postulated accidents that could occur with IP2 and IP3 in the permanently shut down and defueled condition. The analysis assumed that the applicable accident scenarios considered for IP3 were identical to those considered for IP2 with both units permanently defueled. Additionally, the analysis assumed that the on-shift staff present at IP3 would be reduced, consistent with the staffing in place at IP2.

IPEC will ensure a sufficient number of personnel are initially trained to support the on-shift positions prior to implementation of this change to the SEP.

Consistent with the methodology of NEI 10-05, the current on-shift staffing analysis evaluated postulated accident scenarios. Chapter 14 of IPEC's FSARs describe the Abnormal Operational Transients and DBA scenarios that are applicable during plant operations. Upon docketing of the certifications required by 10 CFR 50.82(a)(1), the 10 CFR Part 50 license for IP3 will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2). Therefore, most of the accident scenarios postulated in the FSAR will no longer be applicable once IP3 is permanently shutdown and defueled.

The postulated DBA that will remain applicable to IP3 in its permanently shutdown and defueled condition is consistent with those applicable to IP2 and include the FHA in the SFP. Section 14 of the IP3 FSAR will be revised to eliminate the DBAs that will not be applicable in the permanently shut down and defueled condition.

The following accident scenarios were evaluated for IP2 and IP3 in the Stage II analysis:

Design Basis Threat

Land and/or waterborne Hostile Action directed against the Protected Area by a Hostile Force. This event assumes the threat is neutralized immediately when inside the protected area fence, no significant damage to equipment or systems that require corrective actions before the ERO is staffed, no radiological release, and no fire that requires firefighting response before the ERO is staffed. EAL is based on the event.

Fuel Handling Accident

The FHA assumes the drop of a spent fuel assembly onto the spent fuel racks within the SFP resulting in breaking the fuel rods.

Aircraft Probable Threat (50.54(hh))

Notification is received from the NRC that a probable aircraft threat exists (>5 minutes, <30 minutes). EAL is based on the event.

Control Room Fire Requiring Evacuation and Maintain SFP Cooling

A fire occurs in the main control room requiring the evacuation and the procedures implemented to ensure SFP cooling is maintained.

General Emergency (GE) with radioactive release and PAR (assumed for analysis purposes)

This event is based on the same initial conditions as the FHA, but assumes a dose that exceeds the Environmental Protection Agency's Protective Action Guides beyond the site boundary, and thus necessitates promulgation of a PAR.

As stated above, the SBO and Appendix R fire were not considered in the analysis of proposed Stage II on-shift staffing. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, IP2 and IP3 will no longer be licensed to operate and 10 CFR 50.63 (the SBO Rule) will no longer be applicable pursuant to 10 CFR 50.63(a)(1). Similarly, 10 CFR Part 50, Appendix R is applicable to licensed nuclear power generating stations. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, IP2 and IP3 will no longer be licensed to generate power.

Consistent with the Stage I analysis, the Stage II analysis did evaluate the fire requiring evacuation of the IP2 and IP3 Control Rooms, separately.

The spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant. The primary events of concern in the immediate post-shutdown and defueled condition will be a FHA and a loss of SFP cooling and/or water inventory.

During fuel handling activities, there will ordinarily be extra personnel onsite to assist with fuel movement, in addition to minimum on-shift staff; if a FHA were to occur during fuel movement, these additional personnel would be able to respond to the event. Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of normal and emergency SFP

inventory makeup strategies and mitigating strategies required under License Condition 2.N of the IP2 FOL and License Condition 2.AC of the IP3 FOL, and 10 CFR 50.54(hh)(2).

The Stage II assessment indicated that with IP2 and IP3 in a permanently shutdown and defueled condition the IP1, IP2, and IP3 staffing presented in Table 5.3-1 can perform all required Emergency Plan actions in a timely manner and there are no collateral duties that would prevent the timely performance of Emergency Plan functions. The proposed on-shift staffing changes do not impact the capabilities of the on-shift staff to respond to an emergency and continues to comply with the IPEC SEP, site commitments, and applicable regulations.

3.5.2 Augmented Emergency Response Organization

IPEC is not proposing to make any changes to the augmented ERO following permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel. The augmented ERO changes proposed within this submittal would only be implemented following certification of permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels (Stage II).

Prior to an emergency declaration, the normal plant operating organization is in place. The initial classification of an off-normal event and declaration are performed by the on-shift Shift Manager of the affected unit. Upon classification and declaration of an emergency, the Shift Manager assumes the role of Emergency Director and retains that role until another designated Emergency Director can assume control. The onsite emergency organization is activated by personnel notification or when the station alarm is sounded and the emergency is announced over the public address system. Initially, the ERO consists of the normal operating shift personnel who function as the emergency team members. The normal operating staff is augmented by qualified plant personnel. Those personnel onsite respond when the station alarm is sounded and the announcement is made or when individuals are notified by another means. Personnel not onsite during off-hours operations will be notified via an ERO notification system. A designated on-shift plant employee completes the notifications.

In the permanently shut down and defueled condition, IPEC will maintain multiple ERO teams to respond to an emergency declaration, with one complete team on duty at any given time. When the Shift Manager directs the activation of the ERO call out system, all ERO members are notified to ensure adequate coverage of ERO positions at each ERF. ERO members not on-call are expected to respond unless they are unavailable.

IPEC requires ERO personnel to act promptly in reporting to their assigned ERF even when not on duty. During duty periods, procedures further require that team members respond within the required response time for their ERF (unless a longer time frame is specified for their specific ERO position) and that they remain fit for duty throughout the duty assignment. Individuals are trained to respond to their ERF even if they are not on duty. Excess personnel that respond may be assigned support responsibilities or be designated as a relief shift. This conservative policy ensures timely activation because some off-duty personnel may respond sooner than the on-duty personnel.

The proposed revisions to the IPEC SEP will not change the requirements described above. Management's continued expectation is that duty and support ERO members report to their respective ERF as quickly as possible. ERO personnel are expected to respond when notified by the ERO notification system. Procedures identify ERO positions assigned to each ERF and the minimum staffing required before each facility can be declared operational and is available to perform its designed functions. The procedures will continue to assign responsibilities to ERO

responders, with the purposes of removing the responsibilities of coordinating with offsite responders and delivering information to the public from the Control Room, allowing operations personnel to focus on returning the plant to a safe condition.

The risk in the permanently defueled condition is significantly reduced. Many of the potential initiating conditions that would lead to an emergency declaration will no longer be credible. The set of plant equipment required in the permanently defueled condition is also greatly reduced, which reduces the assessments and mitigation activities the ERO staff (TSC/OSC/EOF) must perform. Restoration of equipment supporting spent fuel cooling and inventory will be the primary focus of emergency mitigation actions for the TSC/OSC staff in a permanently shutdown and defueled condition. Although ERO activation/response time requirements will be unchanged, the elimination of credible accidents involving operating reactors provides additional time to plan and execute assessment and mitigation actions.

3.5.2.1 Control Room Augmenting Positions

IPEC SEP Part 2, Section B describes the IPEC ERO, their key positions and associated responsibilities, including augmented ERO positions that respond to the Control Room. Table 3.5-2 identifies those augmented ERO positions that respond to the Control Room following an emergency declaration and the proposed changes to the post-shutdown augmented ERO responding to the Control Room.

**Table 3.5-2**

| Current IPEC Augmented ERO Positions | Proposed Post-Shutdown Augmented ERO Position[1] |
|---|---|
| **Control Room** | |
| Plant Operations Manager | -- |
| Facility Communicator | -- |

[1] A dash (--) indicates the position is proposed for elimination upon implementation of the Stage II Post-Shutdown Emergency Plan.

Upon arrival at the affected Control Room, the Plant Operations Manager (POM) relieves the Shift Manager of the Emergency Director responsibilities and takes charge of the overall emergency response, thus freeing the Shift Manager to direct his/her attention towards the mitigation of the accident. Overall control of the onsite ERO is maintained by the Emergency Plant Manager (EPM) in the TSC. After command and control is transferred to the ED in the EOF, it remains there until the event is terminated.

The Facility Communicator responds to the Control Room and is responsible for providing data to the other ERFs.

After permanent cessation of power operations and certification of permanent removal of fuel from the IP2 and IP3 reactor vessels, in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently shut down and defueled condition is also greatly reduced. Therefore, augmented ERO positions responding to the Control Room are no longer necessary in the permanently shut down and defueled condition.

3.5.2.2 Technical Support Center Augmenting Positions

IPEC SEP Part 2, Section B describes the IPEC ERO, their key positions and associated responsibilities, including augmented ERO positions that respond to the TSC. Table 3.5-3 identifies those augmented ERO positions that respond to the TSC following an emergency declaration and the proposed changes to the post-shutdown augmented ERO responding to the TSC.

**Table 3.5-3**

| Current IPEC Augmented ERO Positions | Proposed Post-Shutdown Augmented ERO Position[1] |
|---|---|
| **Technical Support Center** | |
| Emergency Plant Manager | Emergency Plant Manager |
| TSC Manager | -- |
| Operations Coordinator | -- |
| Radiological Coordinator | Radiological Coordinator |
| Engineering Coordinator | Engineering Coordinator |
| TSC Communicator | -- |
| ENS Communicator | Filled by available personnel in the Control Room |
| TSC Reactor Engineer | -- |
| TSC Engineers (Electrical, I&C, Mechanical) | Available to respond on an as-needed basis as determined by the TSC Engineering Coordinator |
| TSC IT Specialist | -- |
| Security Coordinator | Security Coordinator |

[1] A dash (--) indicates the position is proposed for elimination upon implementation of the Stage II Post-Shutdown Emergency Plan.

The TSC has been designed to meet the intent of the guidance in NUREG-0696, “Functional Criteria for Emergency Response Facilities,” and the clarification in NUREG-0737, Supplement 1, “Clarification of TMI Action Plan Requirements,” as applicable. Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the TSC will continue to be located in the area immediately adjacent to the Control Room. The changes proposed to the IPEC SEP do not involve any physical modifications to, or layout/configuration changes in, the TSC.

The current IPEC SEP is intended to address the risks to public health and safety inherent with an operating reactor. The risk in the permanently shut down and defueled condition is significantly reduced because many of the potential initiating conditions that would lead to an emergency declaration will no longer be possible.

The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently shut down and defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the TSC must perform. Therefore, the TSC Manager, Operations Coordinator, TSC Reactor Engineer, TSC Engineers, TSC Communicator, and the TSC IT Specialist positions can be eliminated without placing an undue burden on the remaining ERO positions in the TSC and without increasing the risk to public health and safety. The proposed augmented ERO staffing reductions continue to

address the risks to public health and safety, comply with the IPEC SEP, site commitments, and applicable regulations.

The proposed staffing changes to the TSC eliminate the following ERO positions in the TSC described in procedures as typical minimum staffing that could be considered necessary to declare the TSC operational: TSC Manager, TSC Reactor Engineer, and the TSC Engineers (Electrical, I&C, and Mechanical).

TSC Manager

The TSC Manager is currently responsible for ensuring the TSC is activated in accordance with applicable procedures and ensuring notification of the ERO has been made. This position also advises the Emergency Plant Manager on proposed corrective actions and emergency classification from a technical standpoint (i.e., plant system damage, core damage, etc.). The TSC Manager does not directly perform actions necessary to accomplish Planning Standard functions under NUREG-0654, but rather supports other personnel at the TSC and therefore can be eliminated. Functional responsibilities of the TSC Manager position that remain applicable in a permanently shut down and defueled condition will be reassigned to remaining positions in the TSC.

TSC Reactor Engineer

The primary duties of the TSC Reactor Engineer include: monitoring plant conditions for any indication of core damage, assisting in clarifying core parameter information to the Engineering Team, and assisting in the implementation of Severe Accident Management Guidelines. As indicated in Table B-1 of the IPEC SEP, the current TSC Reactor Engineer position satisfies the technical support Core Thermal Hydraulics position included in Table B-1 of NUREG-0654. The current TSC Reactor Engineer position assists with implementation of those portions of the Severe Accident Management Guidelines related to the recovery of SFP level. However, this assistance can be provided by other trained members of the ERO. In a permanently shut down and defueled condition, responsibilities associated with a reactor core no longer need to be maintained. The TSC Reactor Engineer position can be eliminated without increasing the risk to public health and safety because the major task of evaluating core/thermal hydraulics is not necessary or possible in a permanently shut down and defueled condition, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor is reduced, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant.

TSC Engineers (Electrical, I&C, and Mechanical)

The primary duties of the TSC Engineer positions include responding to engineering requests from the Engineering Coordinator, evaluating the implementation of Severe Accident Management Guidelines, and assisting the OSC in preparing to send repair teams into the plant. These duties are either no longer necessary in a permanently shut down and defueled condition or will be performed by the Engineering Coordinator. The Engineering Coordinator is tasked with performing an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant.

After permanent cessation of power operations and certification of permanent removal of fuel from the IP2 and IP3 reactor vessels, in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 licenses will no longer authorize reactor operation or

emplacement or retention of fuel in the reactor vessels. Thus, the need for augmenting engineers is reduced. The TSC Engineering Coordinator, tasked with performing engineering assessments of plant conditions and actions needed to mitigate damage to the plant, will provide technical support in the Major Functional Area of Plant System Engineering, Repair, and Corrective Action in IPEC SEP Table B-1. The TSC Engineering Coordinator will have the necessary qualifications, expertise, and capabilities to perform an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant in response to a fuel handling accident or an event resulting in damage to the SFP integrity or the loss of SFP cooling or inventory.

With respect to responding to engineering requests from the Engineering Coordinator, this function will continue to be performed by augmenting qualified engineering resources. The Engineering Coordinator will continuously evaluate the need for engineering resources and coordinate with the EOF Technical Advisor to call in qualified engineering personnel. These individuals may be tasked with activities to be completed at engineering offices external to the TSC, called to report to the TSC, or directed to other facilities.

Engineering resources will continue to be available as supplemental positions with specific training and qualification requirements for assigned personnel in accordance with the site training program. However, these positions will no longer be identified as on-call positions. The elimination of the TSC Engineer positions is justified because the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently shut down and defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the TSC must perform.

In addition to the positions described above, the following TSC positions are also proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels:

- Operations Coordinator
- TSC Communicator
- TSC IT Specialist

The primary duties of the Operations Coordinator are to monitor plant data communications between the Control Room and other ERFs, inform the TSC of the overall plant condition and significant changes to system and equipment status, provide technical assistance to the Shift Manager, monitor fission product barrier and plant status, and coordinate TSC efforts in support of Control Room actions. These duties are either no longer necessary in a permanently shut down and defueled condition, or they will be performed by other members of the post shutdown ERO, including the Emergency Plant Manager and the Engineering Coordinator.

The elimination of the augmenting TSC Communicator position was previously evaluated in Section 3.4.3, which evaluated the Major Functional Area of Notification/Communication. The elimination of the TSC Communicator and TSC IT Specialist positions does not impact the capabilities of the on-shift staffing or augmented response. The TSC will continue to be activated at an Alert or higher declaration. Functional responsibilities of the positions eliminated as a result of the changes will be reassigned to remaining positions, as necessary. The proposed augmented ERO staffing reductions continue to address the risks to public health and safety, comply with the IPEC Emergency Plan, site commitments, and applicable regulations.

Attachment 8 identifies the TSC augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post-shutdown augmented ERO can continue to satisfactorily perform their existing Emergency Plan responsibilities as well as any transferred responsibilities.

3.5.2.3 Operations Support Center Augmenting Positions

IPEC SEP Part 2, Section B describes the IPEC ERO, their key positions and associated responsibilities, including augmented ERO positions that respond to the OSC. Table 3.5-4 identifies those augmented ERO positions that respond to the OSC following an emergency declaration and the proposed changes to the post-shutdown augmented ERO responding to the OSC.

**Table 3.5-4**

| Current IPEC Augmented ERO Positions | Proposed Post-Shutdown Augmented ERO Position[1] |
|---|---|
| **Operations Support Center** | |
| OSC Manager | OSC Manager |
| Work Control Coordinator | -- |
| OSC Log Keeper | -- |
| Rad/Chem Coordinator | -- |
| Mechanical and I&C/Electrical Coordinators | -- |
| OSC Operations Support | -- |
| Technicians (Electrical, I&C, Mechanical Maintenance, RP/HP, Chemistry) | Reduced numbers - Available to respond on an as-needed basis |

[1] A dash (--) indicates the position is proposed for elimination upon implementation of the Stage II Post-Shutdown Emergency Plan.

The OSC has been designed to meet the intent of the guidance in NUREG-0696, “Functional Criteria for Emergency Response Facilities,” and the clarification in NUREG-0737, Supplement 1, “Clarification of TMI Action Plan Requirements,” as applicable. Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the OSC will continue to be located in the Unit 1 Superheater Building, 53’ elevation, adjacent to the TSC. The proposed changes to the IPEC SEP do not involve any physical modifications to, or layout/configuration changes in, the OSC.

The OSC Manager is responsible for ensuring adequate staffing of the OSC to support the emergency; working with the Emergency Plant Manager to set priorities for the OSC; and directing the activities of the OSC to support the emergency response. If at any time the OSC Manager determines additional manpower is necessary to accomplish the mission of the OSC, the OSC Manager will contact the EOF Technical Advisor to arrange for augmentation by additional personnel to support the emergency response functions of the OSC.

In the permanently shut down and defueled condition, the primary functions of the OSC will remain dispatching of, and accounting for, Repair and Corrective Action Teams and dispatching of Onsite Monitoring Teams. The OSC Manager is responsible for ensuring adequate staffing of the OSC and continuously evaluating the need for resources. The OSC Manger will coordinate with the EOF Technical Advisor to call in additional assistance, if necessary. OSC resources will continue to be

augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program.

The proposed staffing changes to the OSC eliminate the Work Control Coordinator, described in procedures as typical minimum staffing that could be considered necessary to declare the OSC operational. The Work Control coordinator is responsible for assembling, briefing, dispatching, tracking, and debriefing OSC teams sent to the field. Functional responsibilities of the OSC Work Control Coordinator position that remain applicable in a permanently shut down and defueled condition will be reassigned to the OSC Manager.

The proposed staffing changes do not eliminate any ERO positions in the OSC described in procedure as typical minimum staffing that could be considered necessary to declare the OSC operational. The following OSC positions are proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels:

- OSC Log Keeper
- Rad/Chem Coordinator
- Mechanical and I&C/Electrical Coordinators
- OSC Operations Support
- Technicians (Electrical, I&C, Mechanical Maintenance, Radiation Protection, Chemistry)

The proposed staffing changes eliminate one (1) augmenting Mechanical Maintenance Technician, one (1) augmenting Electrical Maintenance Technician, and the augmenting I&C Technician. These positions are included in IPEC SEP Table B-1 as 60-minute augmenting responders. The elimination of these augmented ERO positions was previously evaluated in Section 3.4.5, which evaluated the Major Functional Area of Plant System Engineering, Repair and Corrective Actions.

The proposed augmented ERO staffing continues to address the risks to public health and safety, comply with the IPEC Emergency Plan, site commitments, and applicable regulations.

In the permanently shut down and defueled condition, the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The primary events of concern in the immediate post-shutdown and defueled condition will be a FHA and a loss of SFP cooling and/or water inventory. Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). These strategies will continue to be maintained as a license condition. OSC staff is not relied upon to implement SFP inventory makeup.

Restoration of equipment supporting SFP cooling and inventory will be the primary focus of emergency mitigation actions for the TSC and OSC in a permanently shut down and defueled condition. Although ERO activation/response time requirements will be unchanged, the elimination of credible accidents involving an operating reactor provides additional time to plan and execute assessment and mitigation actions. The proposed changes do not impact the capability to assess and monitor actual or potential offsite consequences of a radiological emergency or provide information to offsite authorities in a timely manner. Therefore, the OSC Log Keeper, Rad/Chem Coordinator, Mechanical and I&C/Electrical Coordinators, and OSC Operations Support positions can be eliminated without placing an undue burden on the remaining ERO positions in the OSC and without increasing the risk to public health and safety.

Attachment 8 identifies the OSC augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post-shutdown augmented ERO can continue to satisfactorily perform their existing Emergency Plan responsibilities as well as any transferred responsibilities.

3.5.2.4 Emergency Operations Facility Augmenting Positions

IPEC SEP Part 2, Section B describes the IPEC ERO, their key positions and associated responsibilities, including augmented ERO positions that respond to the EOF. Table 3.5-5 identifies those augmented ERO positions that respond to the EOF following an emergency declaration and the proposed changes to the post-shutdown augmented ERO responding to the EOF.

**Table 3.5-5**

| Current IPEC Augmented ERO Positions | Proposed Post-Shutdown Augmented ERO Position[1] |
|---|---|
| **Emergency Operations Facility** | |
| Emergency Director | Emergency Director |
| Radiological Assessment Coordinator | Radiological Assessment Coordinator |
| Offsite Communicator | Offsite Communicator |
| EOF Technical Advisor | EOF Technical Advisor |
| EOF Manager | -- |
| EOF Communicator | -- |
| Lead Offsite Liaison | Lead Offsite Liaison |
| Administration and Logistics Coordinator | -- |
| IT Specialist | -- |
| Dose Assessor | Dose Assessor |
| Offsite Team Coordinator | Offsite Team Coordinator |
| Offsite Liaisons (5) | Offsite Liaisons (5) |
| Monitoring Teams | Monitoring Teams |
| Public Information Liaison | -- |

[1] A dash (--) indicates the position is proposed for elimination upon implementation of the Stage II Post-Shutdown Emergency Plan.

The EOF functions to maintain overall management of Entergy's emergency response and recovery resources; evaluate, coordinate, and communicate emergency response activities with Federal, State, and County emergency response organizations; evaluate offsite accident conditions; and make recommendations to offsite agencies regarding protective actions. Federal, State, and County representatives are provided space and communications at the EOF and staff this facility at an Alert or higher classification.

The EOF has been designed to meet the intent of the guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities," and the clarification in NUREG-0737, Supplement 1, "Clarification of TMI Action Plan Requirements," as applicable. Following permanent cessation of power operations, the EOF will continue to be located inside the main gate at IPEC. The proposed changes to the IPEC SEP do not involve any physical modifications to, or layout/configuration changes in, the EOF.

The EOF maintains extensive communications capability with all ERFs and direct links are established between the EOF, the State and County Emergency Operations Centers (EOCs), and the JIC to provide up-to-date emergency status reports. The proposed changes to the IPEC SEP do not involve changes to the ability of offsite authorities to report to the EOF or the JIC, and as a result, do not impact the ability of the offsite authorities to mobilize to, or operate from, the EOF and JIC.

When activated, the Emergency Director reports to the EOF and directs the activities of the augmented ERO throughout the emergency and until the recovery activities have been terminated. The Emergency Director, or a designated alternate, issues periodic status reports of the event to offsite representatives located in the EOF. The Radiological Assessment Coordinator and EOF Technical Advisor will provide and interpret plant information to the offsite representatives in the EOF. Additionally, technical support staff are dispatched to the State and County EOCs when requested and appropriate, or generally, during an Alert or higher declaration to act as a liaison with the plant technical staff so the magnitude of the emergency can be more clearly conveyed to the EOCs staff. The proposed changes do not reduce the ability of IPEC to provide the necessary information regarding the status and progression of an event or in the frequency at which event information updates are provided. Nor do the changes impact the ability to dispatch additional technical support to the EOCs. As a result, the proposed changes do not impact the ability of IPEC to communicate with the offsite response organizations.

Centralized coordination of the offsite radiological assessment effort with all organizations interested in, and/or performing, assessments is necessary to ensure that the data and its interpretation are reviewed by IPEC and offsite response organizations with monitoring and assessment responsibilities. The number and type of organizations performing this effort vary with time and following emergency declarations and offsite notification. Initially, plant emergency response personnel are the only organization performing this function and they are directed from, and their results evaluated, at the EOF. State and Federal response agencies would augment plant assessment efforts. The proposed changes to the IPEC SEP do not impact the ability of offsite response organizations to monitor and assess a potential release and effectively implement their emergency plans. Additionally, the proposed changes to the EOF staff do not impact the capability to assess and monitor actual or potential offsite consequences of a radiological emergency. Appropriate assessment and mitigation are well within the capabilities of the proposed EOF staff provided in Table 3.5-5.

IPEC will continue to maintain the capability to display plant and meteorological data in the EOF, maintain offsite monitoring equipment at the EOF and maintain the current dose assessment capabilities at the EOF. Additionally, IPEC will maintain a goal of sixty (60) minutes after declaration of an emergency to activate the EOF.

The proposed staffing changes do not eliminate any ERO positions in the EOF described in procedure as typical minimum staffing that could be considered necessary to declare the EOF operational. The following EOF positions are proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels:

- EOF Manager
- EOF Communicator
- Administration and Logistics Coordinator
- IT Specialist
- Public Information Liaison

The proposed elimination of the EOF staffing listed above does not impact the capabilities of the on-shift staffing or augmented response. The positions can be eliminated without placing an undue burden on the remaining ERO positions in the EOF and without increasing the risk to public health and safety. The EOF will continue to be activated at an Alert or higher declaration. Functional responsibilities of the positions proposed for elimination will be reassigned to remaining positions. The proposed augmented ERO staffing continue to address the risks to public health and safety, comply with the IPEC SEP, site commitments, and applicable regulations. The proposed changes to the ERO staffing in the EOF do not impact the ability of the State and County response organizations to effectively implement their FEMA-approved REP Plans. Additional discussion of the potential impact on offsite response organizations is included in Section 3.6.

Attachment 8 identifies the EOF augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post-shutdown augmented ERO can continue to satisfactorily perform their existing Emergency Plan responsibilities as well as any transferred responsibilities.

3.5.2.5 Joint Information Center Augmenting Positions

IPEC SEP Part 2, Section B describes the IPEC ERO, their key positions and associated responsibilities, including augmented ERO positions that respond to the JIC. Table 3.5-6 identifies those augmented ERO positions that respond to the JIC following an emergency declaration and the proposed changes to the post-shutdown augmented ERO responding to the JIC.

**Table 3.5-6**

| Current IPEC Augmented ERO Positions | Proposed Post-Shutdown Augmented ERO Position[1] |
|---|---|
| **Joint Information Center** | |
| Company Spokesperson | Company Spokesperson |
| JIC Manager | JIC Manager |
| Technical Advisor | Technical Advisor |
| Media Liaison | Media Liaison |
| Press Release Writer | -- |
| JIC Admin & Logistics Coordinator | -- |
| Inquiry Response Coordinator | -- |
| Media Monitoring | Media Monitoring |
| Rad Advisor | -- |
| Documenter | -- |
| Support Staff | -- |
| IT Specialist | -- |
| AV Coordinator | -- |
| AV Graphics Support (2) | -- |

[1] A dash (--) indicates the position is proposed for elimination upon implementation of the Stage II Post-Shutdown Emergency Plan.

The IPEC JIC is located at the Hudson Valley Transportation Management Center, 200 Bradhurst Avenue, Hawthorne, NY. The JIC provides a location for the news media to receive information from all involved agencies and companies during an emergency and provide it to the public. The

JIC is equipped to accommodate the news media for large briefings and conferences and contains extensive communications systems. Media monitoring and rumor control are also accomplished at the JIC, allowing Entergy, State representatives, and representatives from the four counties of Westchester, Orange, Putnam, and Rockland to address incorrect information or rumors. Responses to media telephone inquiries are also addressed at the JIC.

The JIC meets the intent of the guidance in Planning Standard G of NUREG-0654. Following permanent cessation of operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the JIC will continue to be located in Hawthorne. The proposed changes to the IPEC SEP do not involve any physical modifications to, or layout/configuration changes, in the JIC.

The following JIC positions are proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels:

- Press Release Writer
- JIC Admin & Logistics Coordinator
- Inquiry Response Coordinator
- Rad Advisor
- Documenter
- Support Staff
- IT Specialist
- AV Coordinator
- AV Graphics Support (2)

In the permanently shut down and defueled condition, media briefings and rumor control will continue to be conducted regularly during an emergency to provide accurate and timely information to the public. The proposed JIC staffing changes described above do not impact the capabilities of the on-shift staffing or augmented response. The positions can be eliminated without placing an undue burden on the remaining ERO positions in the JIC and without increasing the risk to public health and safety. Functional responsibilities of the positions proposed for elimination will be reassigned to remaining positions. The proposed augmented ERO staffing reductions continue to address the risks to public health and safety, comply with the IPEC SEP, site commitments, and applicable regulations.

Attachment 8 identifies the JIC augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post-shutdown augmented ERO can continue to satisfactorily perform their existing Emergency Plan responsibilities as well as any transferred responsibilities.

### 3.6 Assessment of Proposed Staffing Changes on Off-Site Response Organization Interfaces

Because of the location of IPEC, the planning and responsibilities at the State and local level involve coordination with the State of New York, Westchester, Orange, Putnam, and Rockland Counties, the City of Peekskill, and the United States Military Academy at West Point. Part 2, Section A, Figure A-1 of the IPEC SEP describes the interrelationships between the IPEC and offsite emergency response organizations.

Part 2, Section F of the IPEC SEP describes the extensive communications network maintained between IPEC, Federal, State, and local organizations as a means of promptly notifying and maintaining communications with appropriate authorities. The coordination effort with offsite authorities is initiated using the RECS with phones in the Control Rooms and EOF as the primary means for Indian Point Energy Center personnel to simultaneously notify the State and County Warning Points, Emergency Operations Centers, West Point and the City of Peekskill of an emergency. The proposed changes to the IPEC SEP do not involve changes to this communications network, and as a result, do not impact the ability of IPEC to promptly notify and initiate coordination with the offsite authorities.

Formal offsite REP plans, approved by the FEMA in accordance with 44 CFR 350, are required to be maintained in effect until the NRC approves an exemption from formal offsite emergency preparedness requirements. Because the changes proposed by Entergy, specifically in regards to ERO staffing of the EOF and JIC, have the potential to adversely impact the effective implementation of the State and County REP plans, the proposed changes to the IPEC SEP were evaluated for impacts on the ability of the State and County response organizations to effectively implement their FEMA-approved REP Plans.

IPEC technical support staff are dispatched to the State and County EOCs when requested and appropriate, or generally, during an Alert or higher emergency declaration to act as a liaison with the plant technical staff to clearly convey the magnitude of the emergency to the EOC's staff. These positions are retained in the Stage II augmented ERO. The proposed changes do not reduce the ability of IPEC to provide the necessary information regarding the status and progression of an event or in the frequency at which event information updates are provided. Nor do the changes impact the ability to dispatch additional technical support to the EOCs. As a result, the proposed changes do not impact the ability of IPEC to communicate with the offsite response organizations or the ability of the State and County response organizations to effectively implement their FEMA-approved REP Plans.

### 3.7 Validation and Training

To validate the results of the proposed changes to the augmented ERO described within this amendment request, a drill will be developed and conducted prior to implementation of the Stage II augmented ERO changes described within this LAR. The drill will be conducted to confirm the ability of the post-shutdown augmented ERO to perform the necessary functions of each ERF. The drill will evaluate and validate the ability to accomplish the stated mission of each ERF and ensure that the planning standard functions are preserved with no degradation in time sensitive activities or in the ability to communicate with offsite response organizations. The drill will also validate that the Stage II augmented ERO continues to address the risks to public health and safety and comply with the IPEC Emergency Plan, site commitments, and applicable regulations. Implementing procedures will be revised to address the permanently shutdown and defueled conditions. The

revised procedures will be used to support training of the ERO staff and the conduct of drills described above.

Training and procedures will be developed and in place prior to performing the Stage II augmented ERO validation drill. The drill scenarios will include SFP events and will be designed to test the major elements of the IPEC SEP. Major elements to be tested will include communications and coordination with offsite response organizations, including the JIC. State, local, and Federal response organizations will be provided the opportunity to participate in or observe the drills.

As specified in Attachment 9 of this submittal, Entergy has committed to conduct a validation drill under this amendment request to demonstrate that no loss of emergency planning function will result from the proposed changes. The drill will include each ERF.

In addition, other training drills will be conducted to train Stage II augmented ERO members. These drills may not involve all ERFs or State/local participation. However, all ERO members will participate in at least one training drill. The post shutdown procedures which support the defueled condition will be available in draft form to support the drills. Final implementation of the procedures will occur concurrent with implementation of the requested SEP changes.

### 3.8 Conclusion

Entergy performed an evaluation of the proposed reduction in IP2 and IP3 on-shift staff and completed Stage I and Stage II post-shutdown on-shift staffing analyses to validate the ability of the proposed post-shutdown on-shift staffing to implement emergency plan functions in conjunction with the postulated accidents that will be applicable in the permanently shut down and defueled condition. Additionally, an analysis of the proposed augmented ERO positions was performed to analyze the transfer of tasks from those positions proposed for elimination to remaining augmented ERO positions following permanent cessation of power operations and permanent removal of fuel from the reactor.

The proposed augmented ERO staffing changes do not impact the capabilities of the on-shift staffing or augmented response. The ERFs will continue to be activated at an Alert or higher declaration.

Functional responsibilities of the positions eliminated as a result of the changes described within are being reassigned to remaining positions or eliminated if no longer applicable to the permanently defueled condition. The proposed augmented ERO staffing reductions continue to address the risks to public health and safety and comply with the IPEC SEP, site commitments, and applicable regulations.

The proposed changes do not impact the capability to assess and monitor actual or potential off-site consequences of a radiological emergency and the ability to promptly implement mitigation actions for a loss of SFP cooling or inventory. Appropriate assessment and mitigating actions are within the capabilities of the reduced ERO staff.

## 4.0 REGULATORY EVALUATION

### 4.1 Applicable Regulatory Requirements/Criteria

On-Shift and Augmented ERO Staffing

The specific standards for establishing an onsite emergency organization to respond to emergency events appears in 10 CFR 50.47(b) and 10 CFR 50, Appendix E, Section IV.A. Specifically:

- 10 CFR 50.47(b)(1): Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

- 10 CFR 50.47(b)(2): On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

- 10 CFR 50, Appendix E Section IV.A.1: [Emergency Plans must contain] "A description of the normal plant operating organization."

- 10 CFR 50, Appendix E Section IV.A.2: [Emergency Plans must contain] "A description of the onsite emergency response organization with a detailed discussion of:

    - Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;

    - Plant staff emergency assignments;

    - Authorities, responsibilities, and duties on an onsite emergency coordinator who shall be in charge of the exchange of information with offsite authorities responsible for coordinating and implementing offsite emergency measures;"

- 10 CFR Part 50, Appendix E, Section IV.A.9 states that licensees shall perform "…a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan."

Guidance

NUREG-0654 (Reference 3), Section II.B, "Onsite Emergency Organization," presents guidance for meeting these requirements. The guidance describes the onsite emergency organization, including the staffing requirements found in Table B-1, "Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies."

NSIR/DPR-ISG-01, "Interim Staff Guidance – Emergency Planning for Nuclear Power Plants" (Reference 8) provides information relevant to performing the on-shift staffing analysis. The ISG states that NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and

Capabilities," is an acceptable methodology for performing the staffing analysis. The ISG also indicates that the completed staffing analyses are required to be part of the emergency plan and the results documented and submitted to the NRC in accordance with 10 CFR 50.54(q)(5).

NRC Regulatory Guide 1.101, "Emergency Response Planning and Preparedness for Nuclear Power Reactors," (Reference 9) Section C, states in part "The criteria and recommendations in Revision 1 of NUREG-0654/FEMA-REP-1, 'Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (November 1980),' are methods acceptable to the NRC staff for complying with the standards in 10 CFR 50.47 that must be met in onsite and offsite emergency response plans. These criteria provide a basis for NRC licensees and State and local governments to develop acceptable radiological emergency plans and improve emergency preparedness."

Regulatory Guide 1.219, "Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors," July 2016 (Reference 10), describes a method that the NRC considers to be acceptable to implement the requirements in 10 CFR 50.54(q).

Regulatory Issue Summary 2005-02, "Clarifying the Process for Making Emergency Plan Changes," Revision 1 (Reference 11) was issued by the NRC to clarify the meaning of "decrease in effectiveness" and the process for making changes to emergency plans, and to provide some examples of changes that are considered to be a decrease in effectiveness.

### 4.2 Precedent

The requested changes to the on-shift staffing and augmented ERO staffing are similar in nature to the post-shutdown changes approved by the NRC and implemented by Vermont Yankee Nuclear Power Station (Reference 12), Ft. Calhoun Station (Reference 13), and Oyster Creek Nuclear Generating Station (Reference 14). The requested changes are also similar in nature to the post-shutdown staffing changes recently approved by the NRC for Pilgrim Nuclear Power Station (Reference 15).

### 4.3 No Significant Hazards Consideration

Pursuant to 10 CFR 50.92, Entergy Nuclear Operations, Inc. (Entergy) has reviewed the proposed changes and concludes that the changes do not involve a significant hazards consideration because the proposed changes satisfy the criteria in 10 CFR 50.92(c). These criteria require that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The proposed changes would revise the Indian Point Energy Center (IPEC) Site Emergency Plan (SEP) to reduce the number of on-shift and augmented emergency response organization (ERO) positions commensurate with the hazards associated with a permanently shut down and defueled facility.

The discussion below addresses each of these criteria and demonstrates that the proposed amendment does not constitute a significant hazard.

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed changes to the IPEC SEP do not impact the function of plant structures, systems, or components (SSCs). The proposed changes do not affect accident initiators or precursors, nor does it alter design assumptions. The proposed changes do not prevent the ability of the on-shift staff and augmented ERO to perform their intended functions to mitigate the consequences of any accident or event that will be credible in the permanently shut down and defueled condition. The proposed changes only remove positions that will no longer be credited in the IPEC SEP.

   Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed changes reduce the number of on-shift and augmented ERO positions commensurate with the hazards associated with a permanently shut down and defueled facility. The proposed changes do not involve installation of new equipment or modification of existing equipment, so that no new equipment failure modes are introduced. Also, the proposed changes do not result in a change to the way that the equipment or facility is operated so that no new accident initiators are created.

   Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

   Response: No.

   Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed changes are associated with the IPEC SEP and do not impact operation of the plant or its response to transients or accidents. The change does not affect the Technical Specifications. The proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Safety analysis acceptance criteria are not affected by the proposed changes. The revised IPEC SEP will continue to provide the necessary response staff with the proposed changes.

   Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

   Based on the above, Entergy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

### 4.4 Conclusion

In conclusion, based on the considerations discussed above, Entergy concludes that 1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, 2) such activities will be conducted in compliance with Commission's regulations, and 3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 5.0 ENVIRONMENTAL CONSIDERATION

This amendment request meets the eligibility criteria for categorical exclusion from environmental review set forth in 10 CFR 51.22(c)(9) as follows:

(i) The amendment involves no significant hazards consideration.

As described in Section 4.3 of this evaluation, the proposed changes involve no significant hazards consideration.

(ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

The proposed changes do not involve any physical alterations to the plant configuration or any changes to the operation of the facility that could lead to a change in the type or amount of effluent release offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes do not involve any physical alterations to the plant configuration or any changes to the operation of the facility that could lead to a significant increase in individual or cumulative occupational radiation exposure.

Based on the above, Entergy concludes that the proposed change meets the eligibility criteria for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

## 6.0 REFERENCES

1. Letter, Entergy to USNRC, NL-17-021, “Notification of Permanent Cessation of Power Operations,” dated February 8, 2017 (ADAMS Accession Number ML17044A004)

2. Settlement Agreement by Entergy Nuclear Operations, Inc, the State of New York, and Riverkeeper, Inc. concerning Indian Point Energy Center (Jan. 9. 2017) (available at http://www.riverkeeper.org/wp-content/uploads/2017/01/Indian-Point-Closure-Agreement-January-8-2017.pdf)

3. 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, published November 1980.

4. NEI 10-05, Rev. 0, “Assessment of On-Shift Emergency Response Organization Staffing and Capabilities” (ADAMS Accession Number ML111751698)

5. Letter, Entergy to USNRC, NL-19-013, “Technical Specifications Proposed Change - Administrative Controls for a Permanently Defueled Condition,” dated April 15, 2019

6. Letter, Entergy to USNRC, NL-19-012 “Request for Approval of a Certified Fuel Handler Training and Retraining Program,” dated April 15, 2019

7. Federal Register Volume 76, Number 226, Wednesday, November 23, 2011, Rules and Regulations, “Enhancements to Emergency Preparedness Regulations; Final Rule.”

8. NSIR/DPR-ISG-01, “Interim Staff Guidance – Emergency Planning for Nuclear Power Plants,” Revision 0, November 2011 (ADAMS Accession Number ML113010523)

9. NRC Regulatory Guide 1.101, “Emergency Response Planning and Preparedness for Nuclear Power Reactors,” Revision 4, July 2003 (ADAMS Accession Number ML032020276)

10. Regulatory Guide 1.219, “Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors,” Revision 1, July 2016 (ADAMS Accession Number ML16061A104)

11. Regulatory Issue Summary 2005-02, "Clarifying the Process for Making Emergency Plan Changes," Revision 1, April 19, 2011 (ADAMS Accession Number ML100340545)

12. Letter, USNRC to Entergy Nuclear Operations, Inc., “Vermont Yankee Nuclear Power Station – Issuance of Amendment to Renewed Facility Operating License Re: Changes to the Emergency Plan (TAC No. MF3668),” dated February 4, 2015 (ADAMS Accession Number ML14346A065)

13. Letter, USNRC to Omaha Public Power District, “Fort Calhoun Station – Unit 1 – Issuance of Amendment Re: Revise Emergency Plan to Address the Permanently Defueled Condition (CAC No. MF8326),” dated July 27, 2017 (ADAMS Accession Number ML17123A348)

14. Letter, USNRC to Exelon Generation Company, LLC, “Oyster Creek Nuclear Generating Station – Issuance of Amendment Re: Changes to the Emergency Plan for Permanently Defueled Condition (CAC No. MF9352; EPID L-2017-LLA-0177), dated March 7, 2018, (ADAMS Accession Number ML17356A213)

15. Letter, USNRC to Entergy Nuclear Operations, Inc., “Pilgrim Nuclear Power Station – Issuance of Amendment No. 248 Re: License Amendment Request to Revise the Pilgrim Nuclear Power Station Emergency Plan to Address the Permanently Defueled Condition (EPID L-2018-LLA-0046, dated November 30, 2018, (ADAMS Accession Number ML18284A375)

**ATTACHMENT 2**

**NL-19-001**

**Tabular Summary of the Proposed Stage I Changes to the Indian Point Energy Center Site Emergency Plan**

**Attachment 2**
**Indian Point Energy Center (IPEC) Site Emergency Plan (SEP) Change Summary**

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| List of Effective Pages | 19-01 | TBD | Editorial change to reflect document changes |
| Table of Contents | Page numbers will be updated as necessary to account for the proposed changes. | | Editorial revision to reflect changes described below |
| Part 1, Section A, 4th paragraph | 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. | Units 1 and 2 are permanently defueled and only those areas of Units 1 and 2 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. Unit 3 is the only unit currently licensed to operate. | IPEC Unit 2 will no longer be an operating nuclear power plant. Description of the plant and site has been revised to indicate the units in a permanently shut down and defueled condition and the remaining operating unit. |
| Part 1, Section B, Plant | Unit 1 (615 MWt, defueled), Unit 2 (3216 Mwt) and Unit 3 (3189 Mwt). | Unit 1 (615 MWt, permanently defueled), Unit 2 (3216 MWt, permanently defueled) and Unit 3 (3216 MWt). | IPEC Unit 2 will no longer be an operating nuclear power plant. Description of the plant has been revised to indicate the units in a permanently shut down and defueled condition and the remaining operating unit.<br>IPEC Unit 3 is licensed to 3216 MWt. |
| Part 1, Section B, description of Plant | The IP-2 and IP-3 units have three containment barriers that exemplify the "Defense in Depth" philosophy. | The IP-3 unit has three containment barriers that exemplify the "Defense in Depth" philosophy. | IPEC Unit 2 will no longer be an operating nuclear power plant. Description of the plant has been revised to indicate the remaining operating unit. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section A.1.d | The Shift Manager (or the Control Room Supervisor in his/her absence) is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO. | The Shift Manager (or the Unit 3 Control Room Supervisor in the absence of the Unit 3 Shift Manager) is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |
| Part 2, Figure A-1 Note 1 | Until the On-Call ERO 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. | Until the On-Call ERO is in place the Shift Manager (or the Unit 3 Control Room Supervisor if the Unit 3 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. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section B.1.a | *Current description of the Normal Plant Organization in Rev. 19-01 does not distinguish between Units 2 and 3.* | *New Text Added to distinguish between Unit 2 and Unit 3 normal watch organizations:*<br>1) <u>Unit 2</u><br>One [1] Shift Manager, who is qualified as a Certified Fuel Handler and is in charge of on-shift personnel during his/her shift and is responsible for assuring that all activities are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;<br>One [1] Nuclear Plant Operator at Unit 2 who performs plant operations, minor maintenance and monitoring under the direction of the Shift Manager.<br>One [1] Radiation Protection Technician and one [1] Chemistry Technician perform radiation monitoring, surveillance, decontamination, and water chemistry as necessary at Unit 2. The Radiation Protection Technician can perform emergency duties at the Unit 2 Spent Fuel Pool (SFP) and/or Unit 3 during emergencies.<br>2) <u>Unit 3</u> | Added description of post-shutdown Unit 2 on-shift staffing as new section B.1.a.1 and relabeled existing on-shift staffing description as Unit 3.<br>The Communicator and Fire Brigade Leader description are relocated to clarify that the functions can be performed by any qualified on-shift individual, regardless of Unit assignment. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section B.1.a | One [1] SRO is assigned as Fire Brigade Leader (FBL) for both units in accordance with the Fire Protection Program Plan;<br><br>Six [6] Nuclear Plant Operators at Unit 2 and five [5] at Unit 3 who perform plant operations, minor maintenance and monitoring under the direction of the Control Room Supervisor. One [1] Unit 2 NPO is assigned to Unit 1 and Safe Shutdown (SSD), and one NPO is the communicator for notifications for both units;<br><br>One [1] Radiation Protection Technician and one [1] Chemistry Technician perform radiation monitoring, surveillance, decontamination, and water chemistry as necessary at each unit. The Radiation Protection Technician can perform emergency duties at Unit 2 and/or Unit 3 during emergencies. | One [1] qualified individual is assigned as Fire Brigade Leader (FBL) for both units in accordance with the Fire Protection Program Plan;<br><br>Five [5] Nuclear Plant Operators at Unit 3 who perform plant operations, minor maintenance and monitoring under the direction of the Control Room Supervisor.<br><br>One [1] Radiation Protection Technician and one [1] Chemistry Technician perform radiation monitoring, surveillance, decontamination, and water chemistry as necessary at each unit. The Radiation Protection Technician can perform emergency duties at the Unit 2 SFP and/or Unit 3 during emergencies.<br><br>One qualified on-shift individual is the Communicator for notifications for both units. | Updated description of the Unit 3 minimum required operating staff to reflect Unit 2 shutdown and defueling and the redistribution of tasks. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section B.1.a, last paragraph | 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. | The Shift Manager (Unit 3 Control Room Supervisor in the absence of the Unit 3 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. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |
| Part 2, Section B.1.b, 2nd paragraph | The analysis report is available as a separate document. The analysis resulted in a total of twenty-six persons on-shift. | The analysis report is available as a separate document. The analysis resulted in a total of seventeen persons on-shift. | Updated description of the minimum required Unit 2 operating staff to reflect reduced required minimum shutdown and defueling. |
| Part 2, Section B.2 | The Shift Manager (or the Control Room Supervisor in the event that the Shift Manager is unavailable), acting as the ED, 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 ED. | The Shift Manager (or the Unit 3 Control Room Supervisor in the event that the Unit 3 Shift Manager is unavailable), acting as the ED, 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 ED. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |
| Part 2, Section B.3 | The duties and responsibilities of the ED are initially assumed by the Shift Manager (CR Supervisor in his/her absence). | The duties and responsibilities of the ED are initially assumed by the Shift Manager (the Unit 3 CR Supervisor in the absence of the Unit 3 Shift Manager). | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section B.5.d.3, 2nd Sentence | The initial notification of offsite authorities and ERO personnel is initiated by the Shift Manager and/or Control Room communicator. | The initial notification of offsite authorities and ERO personnel is initiated by the Shift Manager and/or Control Room Communicator. | Editorial change to correct title of Control Room Communicator. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Figure B-1.1 | *Figure B-1.1, "Indian Point Energy Center Station Watch Organization per Unit" in Rev. 19-01 describes the normal watch organization. But, it does not distinguish between Units 2 and 3 for the majority of watch positions.* | For clarity between the normal watch positions at Units 2 and 3 with Unit 2 permanently shutdown and defueled, Figure B-1.1 has been revised as follows:<br><br>Remove the following Unit 2 on-shift positions:<br>• Control Room Supervisor<br>• Field Support Supervisor/STA<br>• Reactor Operators (2)<br>• Nuclear Plant Operators (4)<br>• Unit 1 Nuclear Plant Operator<br><br>Added the following note:<br><br>b. A Control Room Supervisor and STA will not be assigned to Unit 2 in the permanently shut down and defueled condition.<br><br>Changed note ***** to note c. This RP Technician would assist at affected unit if needed.<br><br>Changed note **** to note *** One qualified individual would serve as FBL for both Units in accordance with Fire Protection Program Plan.<br><br>Deleted the following note:<br><br>*** Unit 2 has additional NPO who maintains watch on Unit 1 systems | Figure B-1.1 revised to reflect differing minimum required on-shift operating staff between Units 2 and 3 following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Table B-1 | *Table B-1, "Comparison of NUREG-0654 to Indian Point Energy Center" in Rev. 19-01 describes the Units 1, 2, and 3 on-shift ERO staffing and augmented ERO response (60 minutes) to an emergency at IPEC.* | Updated the Table B-1 required minimum staffing for all 3 IPEC units. | Updated Table B-1 to reflect differing minimum required on-shift operating staff between Units 1, 2 and 3 following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel.<br><br>These staffing levels have been evaluated in the IPEC analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in a permanently defueled condition. |
| Part 2, Table B-1 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. | For Emergency Response Organization purposes resources may be shared between units. Unit 2 must maintain a CFH-qualified Shift Manager and a Nuclear Plant Operator. Unit 3 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. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift complement at Unit 2 will be different than Unit 3. Note has been revised to reflect this difference. . |
| Part 2, Table B-1 Note 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. | The Emergency Coordinator (Emergency Director) position is initially filled by the Shift Manager or Control Room Supervisor (Unit 3). He is relieved of this duty by the Plant Operations Manager (POM) or the EOF Emergency Director who are one-hour responders. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Table B-1 Note 12 | One (1) Unit 1 NPO is designated for SSD. | Deleted Note [12] | The NPO assigned to Unit 1 was designated for SSD of Unit 2. With Unit 2 in the permanently shutdown and defueled condition, all fuel associated with Unit 2 is stored in the spent fuel pool and Unit 2 no longer requires an individual for shutdown cooling (SSD) tasks. |
| Part 2, Table B-1 Note 13<br>[Previously Note 14] | One (1) SRO designated FBL. This is a person on shift qualified as FBL. This person has been counted in the Unit 3 total, but can come from either unit. | One (1) designated FBL. This is a person on shift qualified as FBL. This person has been counted in the Unit 3 total, but can come from either unit. | The FBL can come from either unit. With Unit 2 in a permanently shutdown and defueled condition, the unit will not be staffed with SROs. The Fire Brigade will be staffed in accordance with the Fire Protection Program Plan. |
| Part 2, Table B-5 | Position / Assigned Location:<br><br>Control Room Supervisor (CRS)<br><br>Field Support Supervisor/Shift Technical Advisor<br><br>Reactor Operator (RO)[s]r | Position / Assigned Location:<br><br>Control Room Supervisor (CRS) (Unit 3)<br>Field Support Supervisor/Shift Technical Advisor (Unit 3)<br><br>Reactor Operator (RO)[s] (Unit 3) | Added parenthetical to reflect Unit 3 only for CRS, FSS/STA and RO positions. |
| Part 2, Table B-5 | Reports To<br>(Table Rows 3 ,4 and 5)<br><br>Shift Manger<br><br>Shift Manager<br><br>CRS | <br><br><br>Shift Manager (Unit 3)<br><br>Shift Manager (Unit 3)<br><br>CRS (Unit 3) | Editorial change to correct spelling of Manager and to illustrate that the CRS and FSS/STA are only present in Unit 3 and would report to the Unit 3 Shift Manager. RO's are only present in Unit 3 and would report to the Unit 3 CRS. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Table B-5, Nuclear Plant Operator (NPO)[s] (unit 1 only) | Reports To:<br><br>CRS<br><br>Major Functions:<br><br>Operates Unit 1 and support equipment | Deleted | The NPO assigned to Unit 1 was designated for SSD of Unit 2. With Unit 2 in the permanently shutdown and defueled condition, all fuel associated with Unit 2 is stored in the spent fuel pool and Unit 2 no longer requires an individual for shutdown cooling (SSD) tasks. |
| Part 2, Table B-5, Nuclear Plant Operator (NPO)[s] (Nuclear, Conventional, Roving) | Reports To:<br><br>CRS | Reports To<br><br>CRS (Unit 3) (Unit 2 personnel report to Unit 2 Shift Manager) | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |
| Part 2, Table B-5, Offsite (CCR) Communicator | Reports To:<br><br>CRS | Reports To:<br><br>CRS (Unit 3) or the Unit 2 Shift Manager | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |
| Part 2, Table B-5, Security Shift Supervisor | Reports To:<br><br>SM/POM | Reports To:<br><br>Shift Manager/POM | Editorial change for consistency with remainder of Table B-5. |
| Part 2, Section D.1, Statement e) | Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed technical specification limits; | Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed Technical Specification limits; | Editorial change to capitalize “Technical Specifications” |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section D.2, last paragraph | Table D-1, Summary of IPEC EAL Initiating Conditions, provides a description of the initiating conditions associated with the above categories which would cause the Plan to be implemented. Detailed emergency action levels are provided in a Plan Implementing Procedure and an associated EAL Technical Bases Administrative Procedure. | Table D-1, Summary of IPEC EAL Initiating Conditions, provides a description of the initiating conditions associated with the above categories which would cause the Plan to be implemented. Detailed emergency action levels are provided in a Plan Implementing Procedure and an associated EAL Technical Bases Administrative Procedure. It is important to note that some EALs in the NRC-approved EAL scheme are not possible for Unit 2 in the permanently shut down and defueled condition. | Added clarifying sentence to the last paragraph reflecting permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |
| Part 2, Table D-1, Category S | *Note added to page, where none previously existed.* | Added the following:<br><br>NOTE:<br><br>Category S EALs are not possible for Unit 2 in the permanently shut down and defueled condition. | Added clarifying Note reflecting that certain EALs are not possible following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |
| Part 2, Table D-1, Category F | *Note added to page, where none previously existed.* | Added the following:<br><br>NOTE:<br><br>Category F EALs are not possible for Unit 2 in the permanently shut down and defueled condition. | Added clarifying Note reflecting that certain EALs are not possible following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section E.1.a.1)<br>AND<br>Part 2, Section E.1.b.1)<br>AND<br>Part 2, Section E.1.c.1)<br>AND<br>Part 2, Section E.1.d.1) | (or Control Room Supervisor if the SM is unavailable) | (or the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |
| Part 2, Section E.1.a.2)<br>AND<br>Part 2, Section E.1.b.2<br>AND<br>Part 2, Section E.1.c.2) | Control Room Operator<br>and<br>Control Room Operators | Control Room personnel | Updated personnel description to reflect the differing makeup and qualifications of the on-shift complement at Unit 2 and Unit 3 after permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |
| Part 2, Sections H.1, H.7.b, H.7.c, and H.7.d | -- | Unit 3 | In 6 instances, added the clarifier "Unit 3" to reflect the ERF's ability to monitor or sample these items from Unit 3 only after permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |
| Part 2, Section H.9.b | The Indian Point Radiological Environmental Monitoring Program is described in each unit's Offsite Dose Calculation Manual (ODCM). | The Indian Point Radiological Environmental Monitoring Program is described in the Offsite Dose Calculation Manual (ODCM). | There is one ODCM (Document ID: IPEC-ODCM) for all three units. |
| Part 2, Section I, NOUE 1st paragraph | The existence of conditions which would be classified under this heading is brought to the attention of Control Room Operators by…. | The existence of conditions which would be classified under this heading is brought to the attention of Control Room Operators (or Control Room staff at Unit 2) by… | Updated description of the operating staff to reflect Unit 2 shutdown and defueling and the differing titles and qualifications of remaining unit staff. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section I, SAE/GE 1st paragraph | For emergency situations that are classified as Site Area Emergencies or General Emergencies, the Shift Manager/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, containment integrity and the status of safeguards equipment. | For emergency situations that are classified as Site Area Emergencies or General Emergencies, the Shift Manager/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, containment integrity and the status of safeguards equipment, if applicable. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, only Unit 3 will retain this capability for all current systems. |
| Part 2, Section I, SAE/GE 3rd paragraph | 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 source term is determined from the R-25 and R-26 accident monitor instruments, indicating radioactivity in the Unit 3 containment building released from the Unit 3 reactor core. Area radiation monitor R-5 (Fuel Storage Building Area Monitor) indicates radioactivity in the Fuel Storage Building. | Following permanent cessation of power operations and permanent removal of fuel from the Unit 2 reactor, a significant release from the Unit 2 reactor core is not possible and R-25 and R-26 will not provide appropriate indication of a release from the Unit 2 SFP. R-5 monitors radiation levels in the Fuel Storage Building. |
| Part 2, Section I.2 | -- | Unit 3 | In 3 instances, added the clarifier “Unit 3” to reflect the onsite accident assessment capabilities are only from Unit 3 after permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section I.3 | -- | Unit 3 | In 1 instance, added the clarifier "Unit 3" to reflect the determination of release source term using the Containment Monitoring System readings are only from Unit 3 after permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |
| Part 2, Section J.6.e | -- | Unit 3 | Added the clarifier "Unit 3" to reflect protective actions to protect onsite personnel during hostile action are only needed on Unit 3 to safely shutdown the reactor after permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |
| Part 2, Section K.2, 4th Bullet | Access to high radiation areas is only permitted with prior approval of the applicable Radiation Assessment Coordinator (EOF) or Rad/Chem Coordinator (OSC), and personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated. | Access to high radiation areas is only permitted with prior approval of the applicable Radiological Assessment Coordinator (EOF) or Rad/Chem Coordinator (OSC), and personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated. | Editorial change to correct position title. |
| Part 2, Section L.2 | First Aid and Decontamination facilities for both units are located just beyond the Radiation Protection Control Points. | First Aid and Decontamination facilities for Units 2 and 3 are located just beyond the Radiation Protection Control Points. | Clarify that First Aid and Decontamination facilities are provided for Unit 2 and 3 only. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section M.1, Re-entry, 1st bullet, 2nd paragraph | The Shift Manager and/or the Control Room Supervisor direct re-entry activities prior to activation of the Emergency Facilities. | The Shift Manager, and/or the Unit 3 Control Room Supervisor for an emergency involving Unit 3, direct re-entry activities prior to activation of the Emergency Facilities. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 2. |
| Part 2, Section M.1, Re-entry, 2nd bullet, 4th paragraph | 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. | 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. | There is no Technical Specification requirement for the nuclear station/review committee to approve recovery operations. |
| Part 2, Section M.1, Recovery, 6th bullet | 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. | The Unit 2 SFP and/or the Unit 3 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. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, only the condition of the Unit 2 SFP, rather than the Unit 2 reactor, should be considered prior to entry into the recovery phase. |
| Part 2, Section M.1, Recovery, 7th bullet | Containment pressure is within Technical Specification limits. | Unit 3 Containment pressure is within Technical Specification limits. | Containment pressure Technical Specifications are not applicable to Unit 2 in the permanently shutdown and defueled condition. |
| Part 2, Section M.2, Recovery Organization, 3rd bullet | For events involving major damage to systems required maintaining safe shutdown of the plant and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY | For events involving major damage to systems required for maintaining safe shutdown of Unit 3 and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, safe shutdown is only a consideration for Unit 3. |

| Emergency Plan Section | Before (Rev.19-01) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | classifications) the Indian Point and Corporate Emergency Center Manager is put in place. | classifications) the Indian Point and Corporate Emergency Center Manager is put in place. | |
| Part 2, Section N.2.b | Fire Drills: Drills for the Indian Point Fire Brigade are conducted in accordance with Technical Specifications and Station procedures. | Fire Drills: Drills for the Indian Point Fire Brigade are conducted in accordance with Station procedures. | There is no Technical Specification requirement to conduct fire drills. |
| Part 2, Section O.4.b, 1st paragraph | Licensed Operators receive routine classroom and simulator training to ensure proficiency in this area. | Licensed Operators and those individuals qualified as Certified Fuel Handlers receive routine classroom and simulator training, as applicable, to ensure proficiency in this area. | Reflects the addition of separate qualifications for the Unit 2 operating staff after the permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel. |

**ATTACHMENT 3**

**NL-19-001**

**Proposed Stage I Revision to the Indian Point Energy Center Site Emergency Plan (Markup Version)**

# Indian Point Energy Center

# Emergency Plan

| | | | |
|---|---|---|---|
| Prepared by: | Antonio Iraola | | |
| | Print Name | Signature | Date |
| Approval: | Frank J Mitchell | | |
| | Print Name | Signature | Date |

Effective Date: ~~January 31, 2019~~TBD

**Table of Contents (Cont.)**

LIST OF EFFECTIVE PAGES


| Page | Revision |
|---|---|
| Table of Contents | ~~19-01~~TBD |
| Part I | ~~19-01~~TBD |
| Part 2, Section A | ~~19-01~~TBD |
| Part 2, Section B | ~~19-01~~TBD |
| Part 2, Section C | ~~19-01~~TBD |
| Part 2, Section D | ~~19-01~~TBD |
| Part 2, Section E | ~~19-01~~TBD |
| Part 2, Section F | ~~19-01~~TBD |
| Part 2, Section G | ~~19-01~~TBD |
| Part 2, Section H | ~~19-01~~TBD |
| Part 2, Section I | ~~19-01~~TBD |
| Part 2, Section J | ~~19-01~~TBD |
| Part 2, Section K | ~~19-01~~TBD |
| Part 2, Section L | ~~19-01~~TBD |
| Part 2, Section M | ~~19-01~~TBD |
| Part 2, Section N | ~~19-01~~TBD |
| Part 2, Section O | ~~19-01~~TBD |
| Part 2, Section P | ~~19-01~~TBD |
| Appendix 1 | ~~19-01~~TBD |
| Appendix 2 | ~~19-01~~TBD |
| Appendix 3 | ~~19-01~~TBD |
| Appendix 4 | ~~19-01~~TBD |
| Appendix 5 | ~~19-01~~TBD |

Page

**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
Figure 1.B-1 10-Mile Emergency Planning Zone… ..... 7
Figure 1.B-2 50-Mile Emergency Planning Zone… ..... 8
Figure 1.B-3 Indian Point Energy Center Site Map... ..... 9

**Part 2: PLANNING STANDARDS AND CRITERIA**

**Section A: ..... Assignment of Responsibility**

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

Section B: Station Emergency Response Organization

1. Indian Point 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

Section C: Emergency Response Support and Resources

1. Federal Response Support and Resources ..... C-1
2. Liaisons ..... C-1
3. Radiological Laboratories ..... C-2

Page

4. Other Assistance ..... C-2

Section D: Emergency Classification System

1. Emergency Classification ..... D-1
2. Emergency Action Levels ..... D-7
3. Offsite Classification Systems ..... D-7
4. Offsite Emergency Procedures ..... D-8

Section E: Notification Methods and Procedures

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

Section F: Emergency Communications

1. Description of Primary Communications Systems ..... F-1

Section G: Public Education and Information

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

Section H: Emergency Facilities and Equipment

1. In-Plant Emergency Response Facilities ..... H-1
2. Emergency Operations Facilities ..... H-3
3 Joint Information Center ..... H-4
4 Alternative TSC/OSC ..... H-5
5. Offsite Emergency Operations Centers ..... H-5
6. Activation and Staffing of Emergency Response Facilities ..... H-5
7. Emergency Onsite Monitoring Systems ..... H-5
8. Offsite Emergency Data Acquisition ..... H-7
9. Facilities and Equipment for Offsite Monitoring ..... H-8

..... Page

10. Meteorological Monitoring ..... H-9
11. Facility and Equipment Readiness ..... ……H-10
12. Identification of Emergency Equipment and Supplies ..... H-10
13. Collection and Analysis of Field Monitoring Data ..... H-10

Section I: Accident Assessment

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. Offsite 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

Section J: Protective Response

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-4
8. Evacuation Time Estimates ..... J-4
9. Protective Measure Implementation ..... J-4
10. Factors Affecting Protective Measure Implementation ..... J-4
11. Ingestion Pathway Protective Measures ..... J-6
12. Monitoring of Evacuees ..... J-6

**Table of Contents (Cont.)**

Page

Section K: Radiological Exposure Control

1. Emergency Exposure Guidelines ..... K-1
2. Emergency Radiological Control 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

Section L: Medical and Public Health Support

1. Hospital Services ..... L-1
2. Onsite First Aid Capability ..... L-1
3. Medical Service Facilities ..... L-2
4. Medical Transportation ..... L-2

Section M: Re-entry and Recovery Planning

1. Re-entry and Recovery ..... M-1
2. Recovery Organization ..... M-3
3. Recovery Phase Notifications ..... M-6
4. Total Population Exposure ..... M-6

Section N: Drill and Exercise Program

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

Section O: Emergency Response Training

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

Page

Section P: Responsibility for the Maintenance of the Planning Effort

1. Emergency Planning Staff Training ..... P-1
2. Authority for Emergency Preparedness Effort ..... P-1
3. Manager of Emergency Preparedness ..... 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 ..... P-5

**APPENDIXES**

Appendix 1: References ..... Appendix-1-1
Appendix 2: Letters of Agreement ..... 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

# 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 Energy Center units and the personnel who work at the plant.

The Indian Point Energy Center Emergency Plan (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 Plan 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. Units 1 and 2 ~~is~~are permanently defueled and only those areas of Units 1 and 2 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. Unit 3 is the only unit currently licensed to operate.

This Plan is solely dedicated to Indian Point Energy Center 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).

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 2010 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 Energy Center 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.

Plant

Unit 1 (615 MWt, permanently defueled), Unit 2 (3216 ~~Mwt~~MWt, permanently defueled) and Unit 3 (~~3189~~ 3216 ~~Mwt~~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 unit~~s~~ ~~have~~ has 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 Energy Center Site during emergencies. It identifies an IPEC Emergency Response Organization (ERO), 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. Implementing Procedures have been developed to implement this Plan. These procedures identify the elements of the ERO and the interface with supporting offsite organizations. In addition to the Implementing Procedures (IP), Plan Administrative Directives (AD) have been developed to ensure proper maintenance of the program. A listing of procedures cross-referenced to sections of the Plan are contained in Appendix 3. Complete copies of the 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.

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. These agreements are listed 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 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 Corporation 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 Energy Center. 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

contained in the Plan 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 (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 (ED) 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 Energy Center.

**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-0728, "Concept of Operations: NRC Incident Response", was used in the development of the 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 Plan.

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

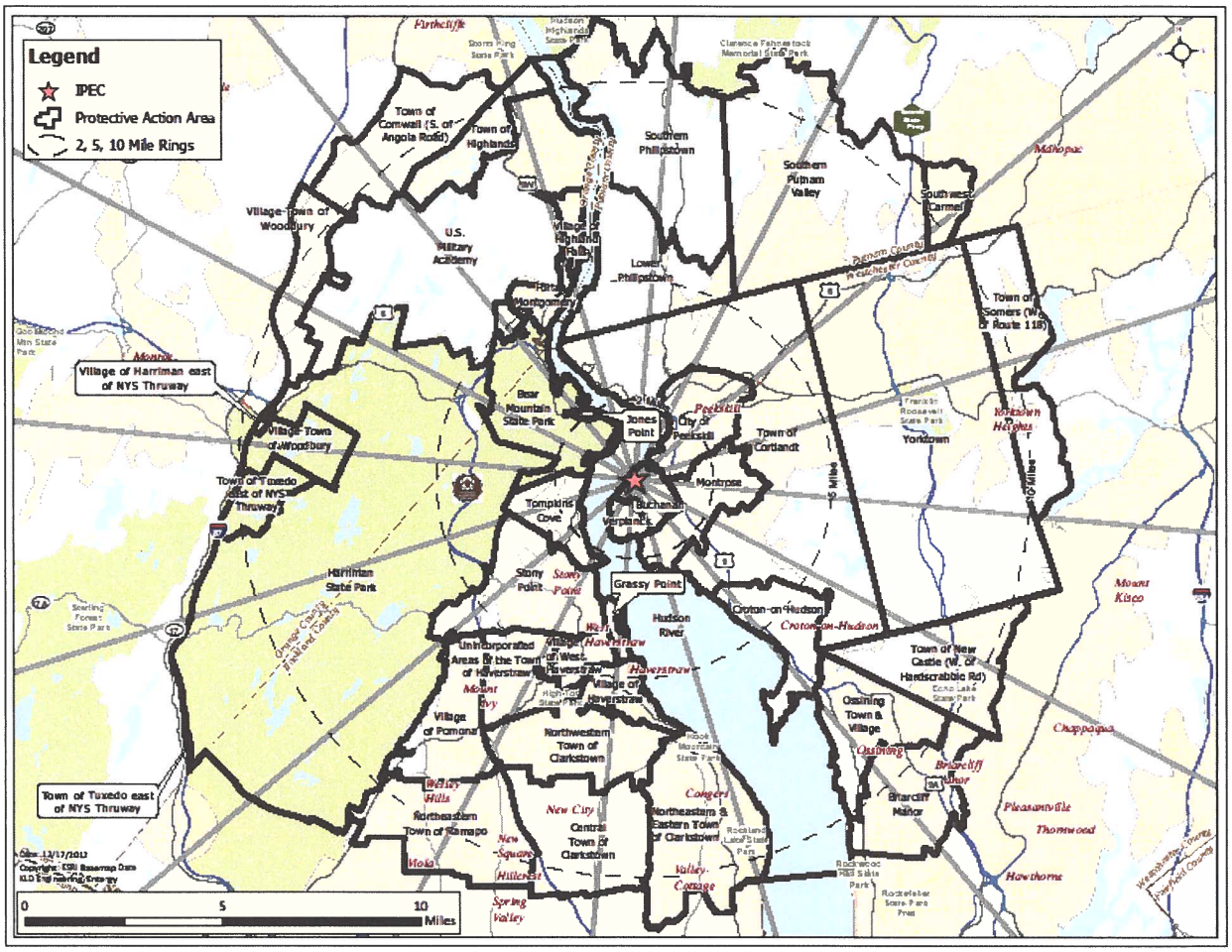
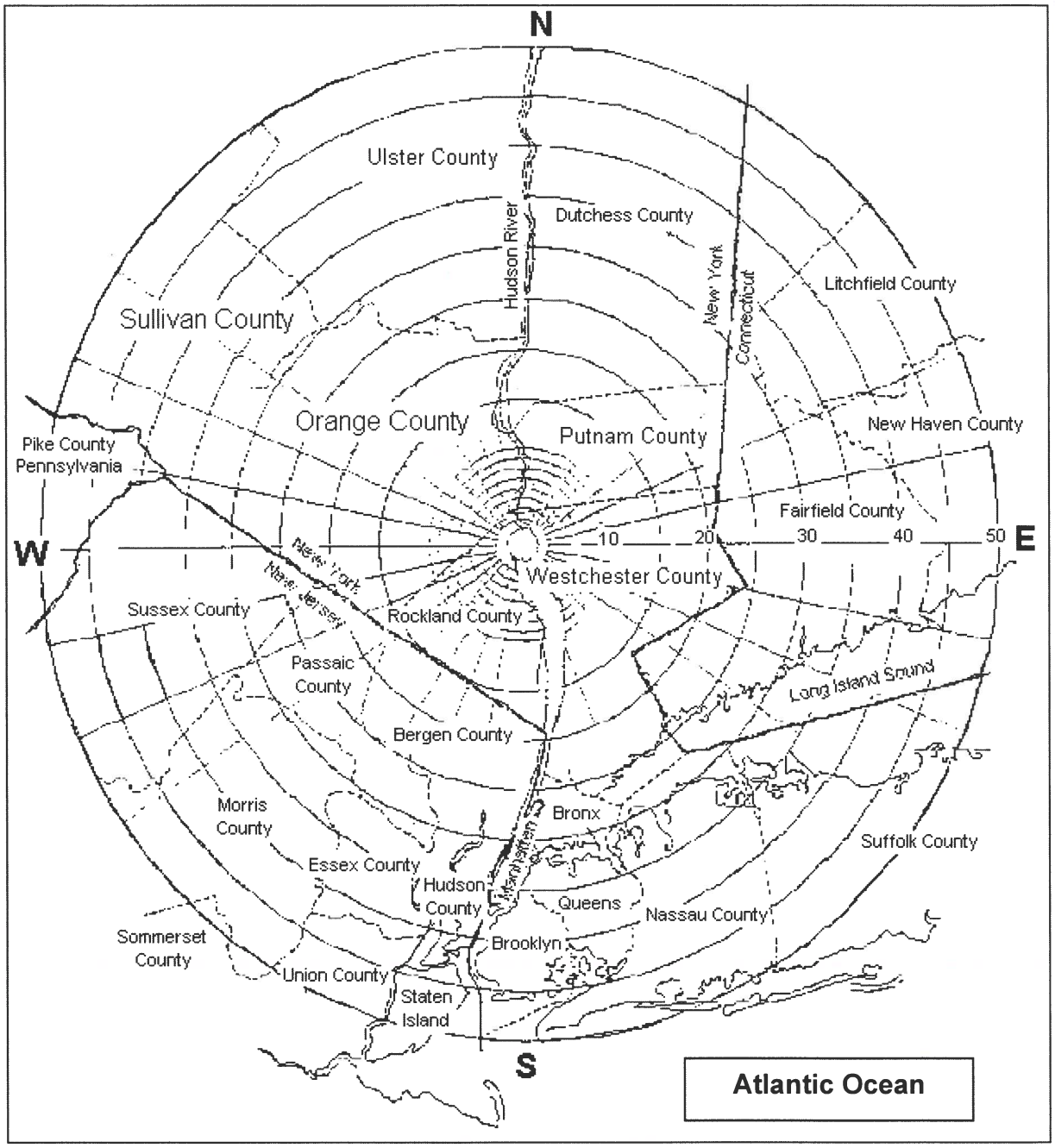
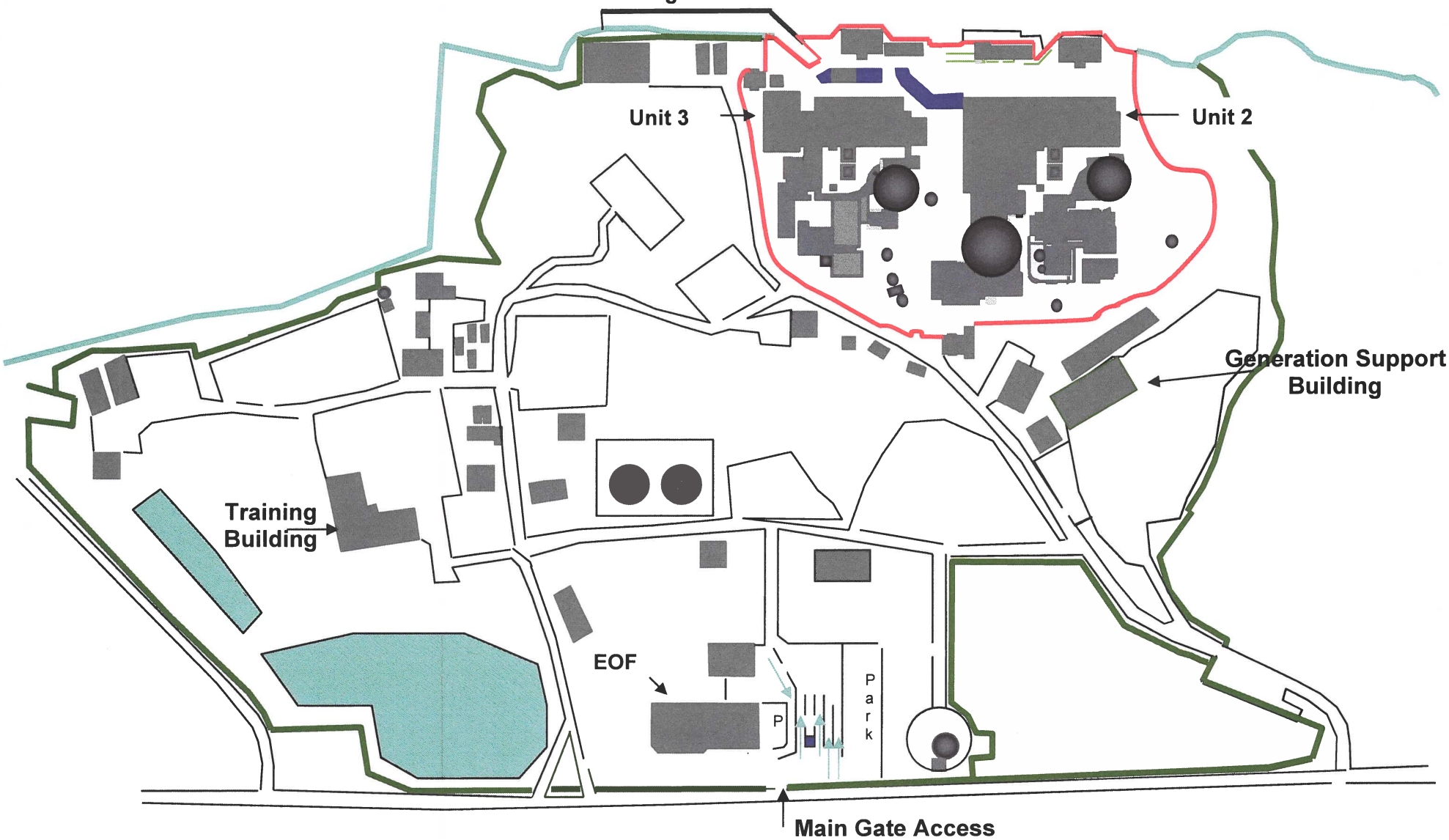


**Figure 1.B-2**
**50 Mile Emergency Planning Zone**



**INDIAN POINT ENERGY CENTER SITE MAP**

**Figure 1.B-3**



INTENTIONALLY LEFT BLANK

## Part 2: PLANNING STANDARDS AND CRITERIA

### Section A: Assignment of Responsibility

This section describes the primary responsibilities for emergency response by IPEC, 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 Energy Center.

      Federal Agencies

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

      - Nuclear Regulatory Commission (NRC), who act as technical/regulatory advisors to Indian Point Energy Center 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 Program 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 ED 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.

- 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 Energy Center 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 New York State Office of Emergency Management (NYSOEM). 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 Comprehensive Emergency Plan, Radiological Hazards Annex for Fixed Nuclear Facilities. Notification to the State of emergency conditions would be as indicated in Part 2, Section E.

- New York State has Emergency Operation Centers in Albany, Westchester and other areas in the state. All of the state EOCs are equipped with communication capability.

County Offices of Disaster and Emergency Services/Emergency Management

The four (4) counties located within the 10 mile Emergency Planning Zone (EPZ) that are involved in emergency response activities at the Indian Point Energy Center 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 Energy Center;

- 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 Energy Center.

- 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 Energy Center.

Each county has an Office of Emergency Management. The Director of each of these offices, or their designee, will act as the County Emergency Operations Manager 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 Energy Center 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 ERO replaces the normal plant organization. Indian Point Energy Center 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 Energy Center.

d. The Shift Manager (or the Unit 3 Control Room Supervisor in ~~his/her~~the absence of the Unit 3 Shift Manager) is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO.

e. Continuously manned communication points have been identified for all agencies involved in the planning effort.

2. State and Local Functions and Responsibilities

The State, and local counties 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.

3. Agreements in Planning Effort

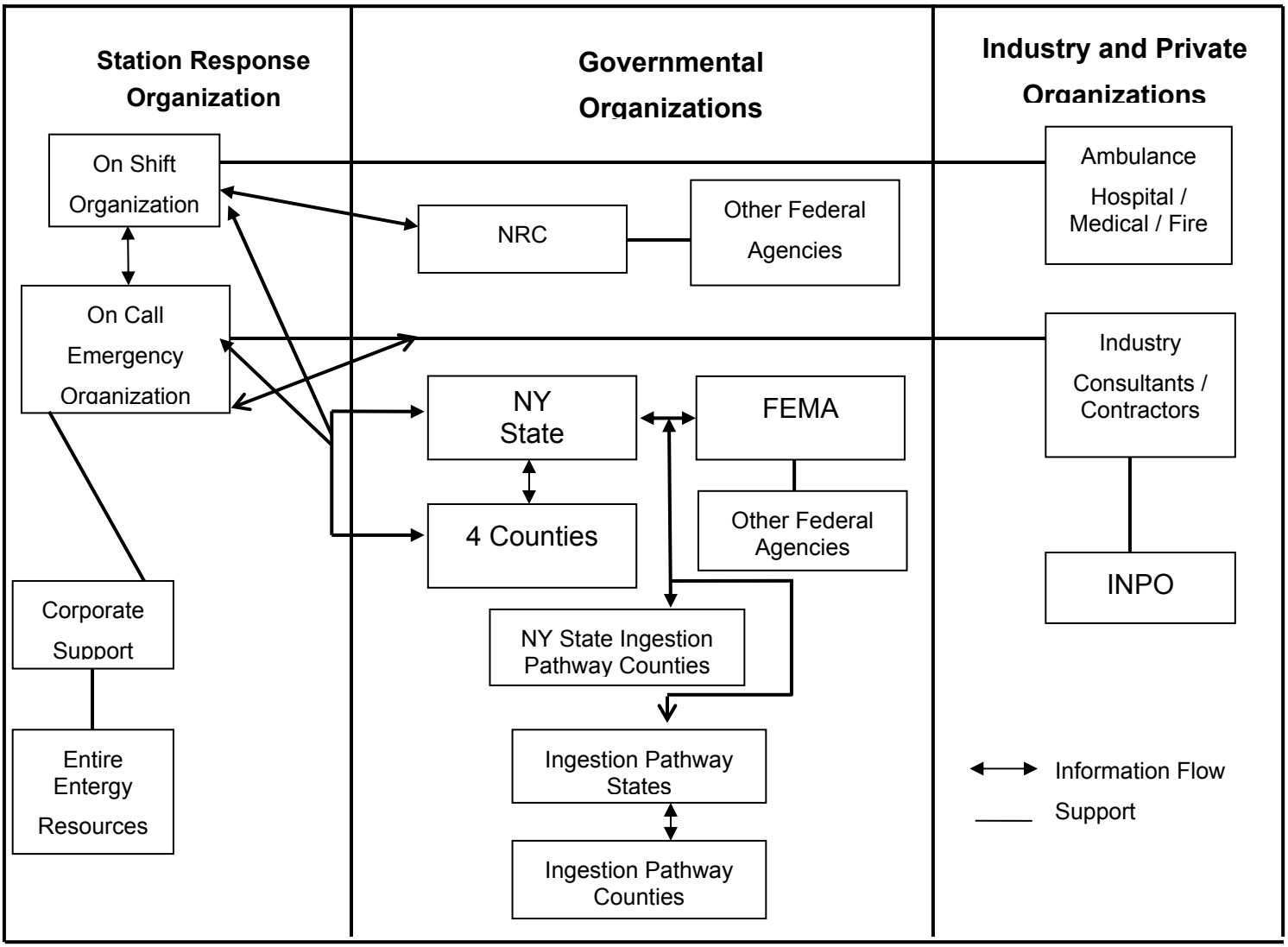
   Agreements establishing the concept of operations developed between IPEC and other support organizations having an emergency response role within the Indian Point Emergency Planning Zones (including hospitals and medical transportation) are provided in Appendix 2, "Letters of Agreement." These agreements 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 Energy Center. 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 ERO has sufficient numbers of qualified, trained personnel to provide the capability of continuous (24-hour) operations. The Manager of Emergency Preparedness administers programs to ensure availability of resources in the event of an emergency. The ED 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 ERO.

Figure A-1

Emergency Response Organizations Interrelationships




Notes:

1. Until the On-Call ERO is in place the Shift Manager (or the Unit 3 Control Room Supervisor if the Unit 3 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 ED, 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 ERO, 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 Energy Center 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 on-shift and other key responders capable of responding within 60 minutes of a declared emergency to support the on-shift 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 ERO. The full ERO will be activated at an Alert, Site Area Emergency or General Emergency.

   a. Normal Plant Organization

      The normal Indian Point Energy Center 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 Energy Center.

      Each Unit's normal watch organization [Figure B-1.1] functions twenty-four [24] hours per day, seven [7] days per week. The minimum on-shift staffing is shown in Table B-1 and includes the following qualified individuals:

      1) Unit 2

         One [1] Shift Manager, who is qualified as a Certified Fuel Handler and is in charge of on-shift personnel during his/her shift and is responsible for assuring that all activities are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;

         One [1] Nuclear Plant Operator at Unit 2 who performs plant operations, minor maintenance and monitoring under the direction of the Shift Manager.

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

      2) Unit 3

         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;

~~One [1] SRO is assigned as Fire Brigade Leader (FBL) for both units in accordance with the Fire Protection Program Plan;~~

~~Six [6] Nuclear Plant Operators at Unit 2 and~~ ~~F~~five [5] Nuclear Plant Operators at Unit 3 who perform plant operations, minor maintenance and monitoring under the direction of the Control Room Supervisor;~~. One [1] Unit 2 NPO is assigned to Unit 1 and Safe Shutdown (SSD), and one NPO is the communicator for notifications for both units;~~

One [1] Radiation Protection Technician and one [1] Chemistry Technician perform radiation monitoring, surveillance, decontamination, and water chemistry as necessary at each unit. The Radiation Protection Technician can perform emergency duties at the Unit 2 SFP and/or Unit 3 during emergencies.

One [1] qualified individual is assigned as Fire Brigade Leader (FBL) for both units in accordance with the Fire Protection Program Plan.

One [1] qualified on-shift individual is the Communicator for notifications for both units.

The watch organization is augmented during normal working hours Monday through Friday by the Indian Point Energy Center 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 (Unit 3 Control Room Supervisor in the absence of the Unit 3 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. On call Emergency Response Organization

The 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 Energy Center, 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 and on-shift staffing in accordance with guidance of NRC's NSIR/DPR-ISG-01 interim staff guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities. An analysis of the IPEC On-Shift staffing was conducted and a final analysis report was issued. The analysis report is available as a separate document. The analysis resulted in a total of ~~twenty-six~~ seventeen persons on-shift.

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

Those personnel identified to augment the Watch Force within 60 minutes of the declaration of an Alert or higher are part of the on-call ERO. These personnel are notified by an electronic notification system and public address announcements, and are immediately available during normal working hours. These personnel are notified by an electronic notification system during non-working hours. An alternate notification system using an automated telephone notification process is used in the event that the normal electronic notification system is unavailable.

The activation phase consists of 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 ED 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 illustrate 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 Unit 3 Control Room Supervisor in the event that the Unit 3 Shift Manager is unavailable), acting as the ED, 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 ED. He/she activates the ERO as necessary and continues to direct the emergency response until relieved by another qualified ED.

The relieving ED/Plant Operations Manager (POM) 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 POM holds this position until the on-call ED arrives. Overall control of the Onsite ERO is maintained by the Emergency Plant Manager (EPM) in the TSC. After command and control is transferred to the ED in the EOF/AEOF, it remains there until the event is terminated. In the event that the ED becomes unavailable or personnel at the EOF are required to transfer to the AEOF, command and control may be transferred to the CCR until such time as a new ED assumes command and control or the ED assumes command and control upon arrival at the AEOF.

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

3. Succession to Emergency Director:

The duties and responsibilities of the ED are initially assumed by the Shift Manager (the Unit 3 CR Supervisor in ~~his/her~~the absence of the Unit 3 Shift Manager). 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 ED is normally staffed by high level station management personnel.

4. Emergency Director Responsibilities:

The ED 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 EDs are designated in an Emergency Telephone Directory. The ED is stationed in the EOF 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 ED 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 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;
- Release of non-essential personnel from the site; and
- Approves information to the public prior to the JIC activation.

The ED is assisted in these activities by the entire ERO. Although the ED 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 ED. He/she directs and coordinates the operational aspects of the In-Plant ERO. He/she assures proper coordination and direction of the efforts of each element of the In-Plant ERO in returning the plant to and maintaining it in a safe and stable condition. The EPM is located in the TSC. 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 ED. Specific responsibilities of the EOF Manager include:

- Coordination of Entergy's emergency response efforts outside the Protected Area Fence;

- Assist the ED 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.

c. Company Spokesperson

The Company Spokesperson reports directly to the JIC Manager. 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 TSC under the direction of the TSC Manager. It is the central facility for the accumulation and re-transmittal of plant parameters;

Specific functions of the TSC 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 ED apprised of plant conditions; and
- Interfacing with NRC personnel in the TSC.

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.

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 ERO personnel is initiated by the Shift Manager and/or Control Room ~~c~~Communicator. Communications with offsite authorities are maintained from the Control Room until the ED takes over the responsibility at the EOF. A communicator is designated at the EOF 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 (RAC). These individuals ensure that sufficient monitoring activities are instituted, evaluate and assess the results and apprise the RAC of all activities, results and recommendations. Offsite radiological monitoring is provided by responding Radiation Protection Personnel or 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 OSC perform repair and corrective actions directed by the OSC 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.

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 ED. 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 TSC Security Coordinator. 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 Energy Center communications personnel and/or individuals assigned to the JIC. A Press Release Writer 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 JIC being operational.

The JIC 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 Press Release Writer and the JIC Manager have access to all necessary information, either directly available to them or available through the onsite ERO. A Public Information Liaison reports to the EOF with the initial augmentation of the watch force to facilitate information flow regarding the emergency to the JIC Technical Advisor. The ED prior to the activation of the JIC approves information that is used to notify the public. Once the JIC is operational, the JIC Press Release Writer 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 ERO 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 Duty Manager coordinates corporate support into the ERO once the on call ERO is activated. With the full activation of the ERO, Entergy is capable of continuous (24 hour) operations for a protracted period. The ED 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.

b. Additional Technical Assistance

If the need for additional technical assistance is identified, this may be obtained by the TSC Manager and the ED. 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 referenced 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 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 has 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 referenced in Appendix 2. All support, including support during hostile action events, is provided utilizing the National Incident Management System (NIMS) tool called the Incident Command System (ICS).

a. Ambulance Service

Twenty-four (24) hour ambulance service is provided by the Verplanck Fire District Ambulance with mutual aid backup from other ambulance services. Mutual aid backup from other ambulance services provides for additional Emergency Medical Services (EMS), ambulances and EMS personnel. 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.

c. Hospitals

The Hudson Valley Hospital Center at Peekskill / Cortlandt has agreed to accept patients from the Indian Point Energy Center 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.

d. Law Enforcement

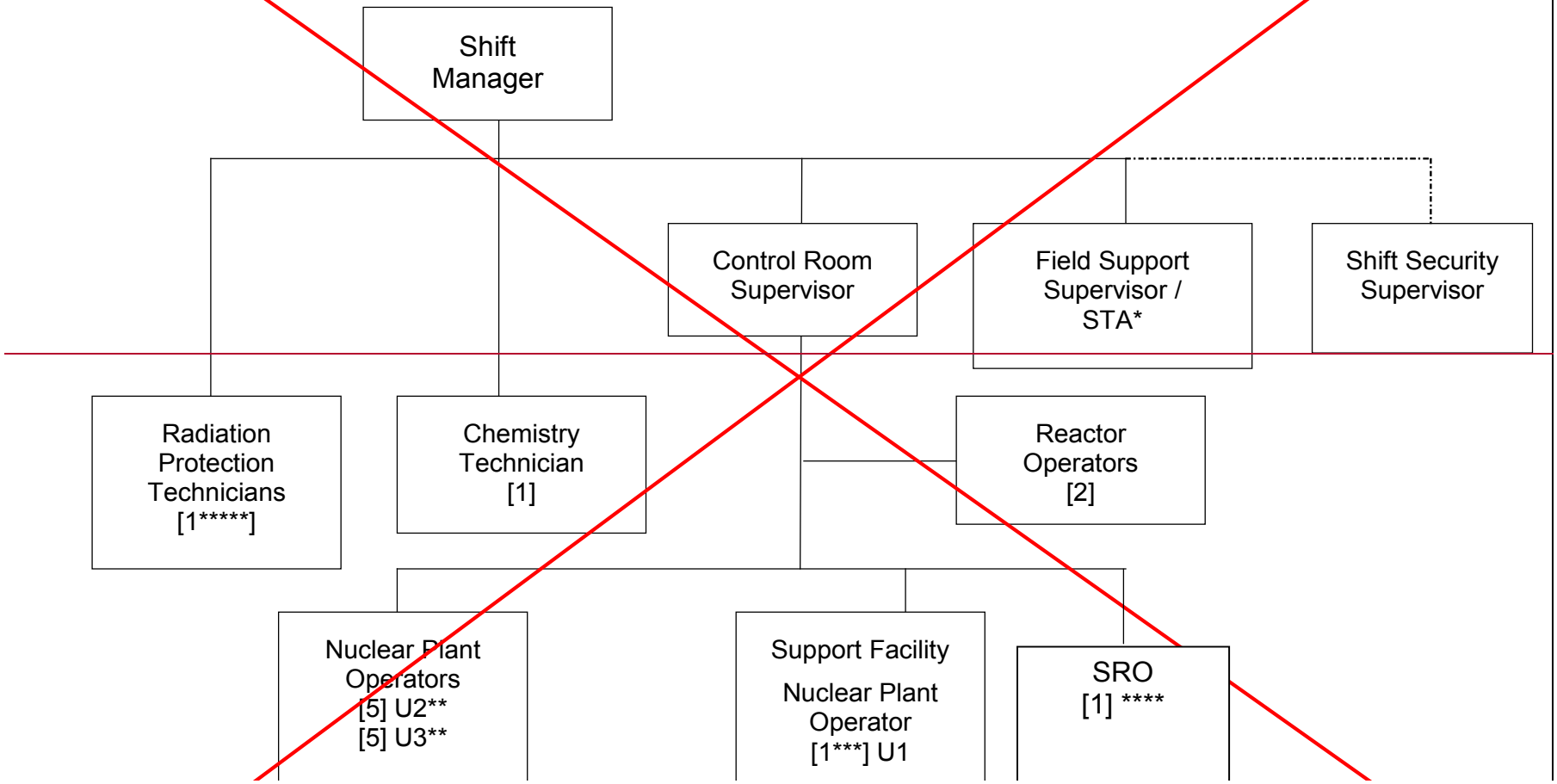
When notified that assistance is required, IPEC Security will notify the New York State Police which is the lead LLEA. As the situation demands, the Westchester County Police serve as the back-up to the State Police to provide timely reinforcement. The handling of security matters including those involving hostile action for the Indian Point Energy Center site is covered in the Security Safeguards Contingency Plan and Incident Response Plan.

e. Fire

Offsite firefighting support is provided by the Verplanck, Buchanan, and/or Montrose Fire Departments, as resources permit, with mutual aid backup from other fire departments. Mutual aid for fire response, fire apparatus, and firefighter resources is described in the Westchester County Fire Mutual Aid Plan.

**Figure B-1.1 Indian Point Energy Center Station Watch Organization per Unit**

**Figure B-1.1 Indian Point Energy Center Station Watch Organization per Unit**




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

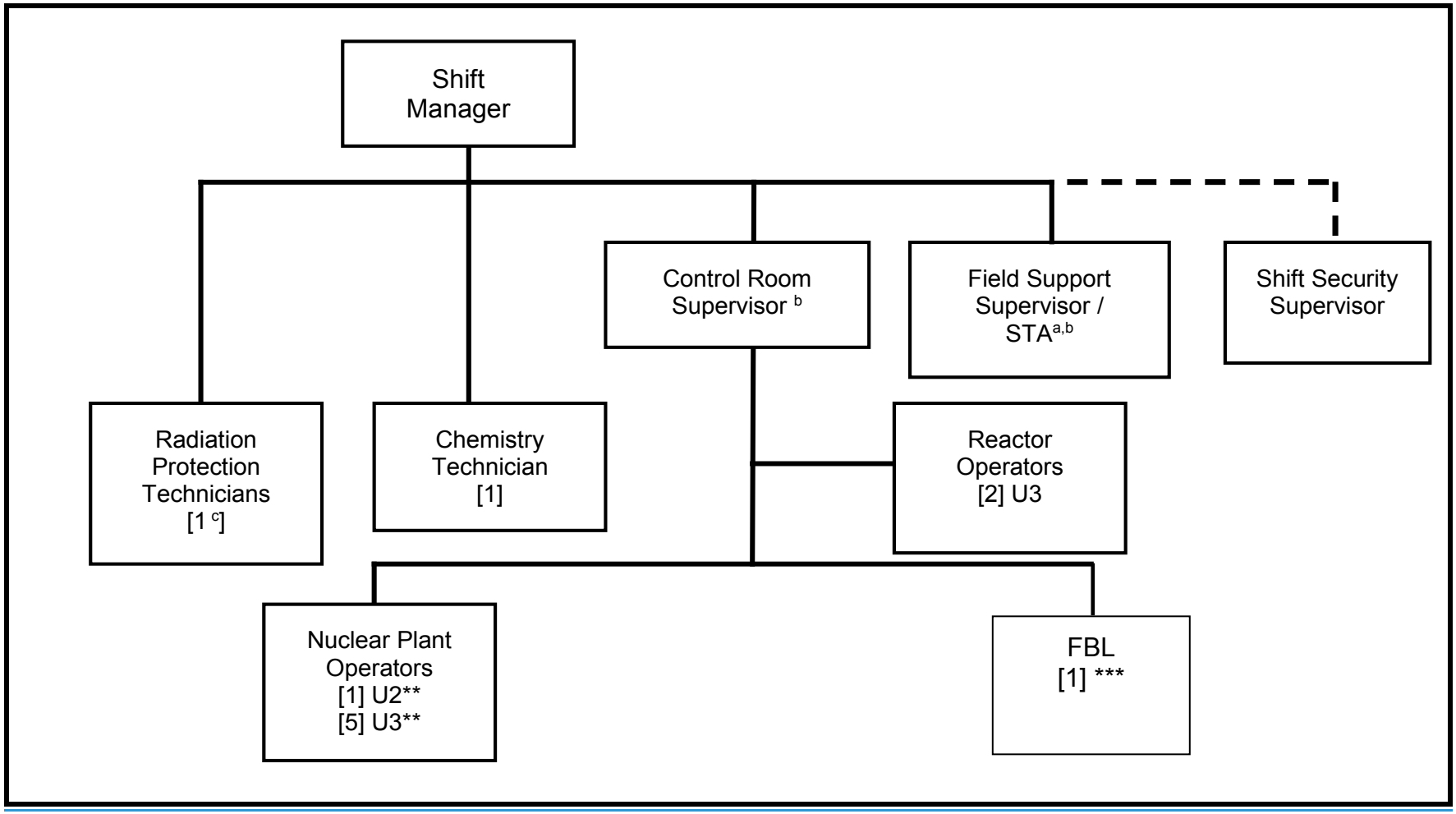
~~** One NPO would be the communicator and make notifications for both units~~

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

~~**** The SRO would serve as FBL for both units in accordance with the Fire Protection Program Plan~~

~~***** This RP Technician would assist at affected unit if needed~~

**Figure B-1.1 Indian Point Energy Center Station Watch Organization per Unit**

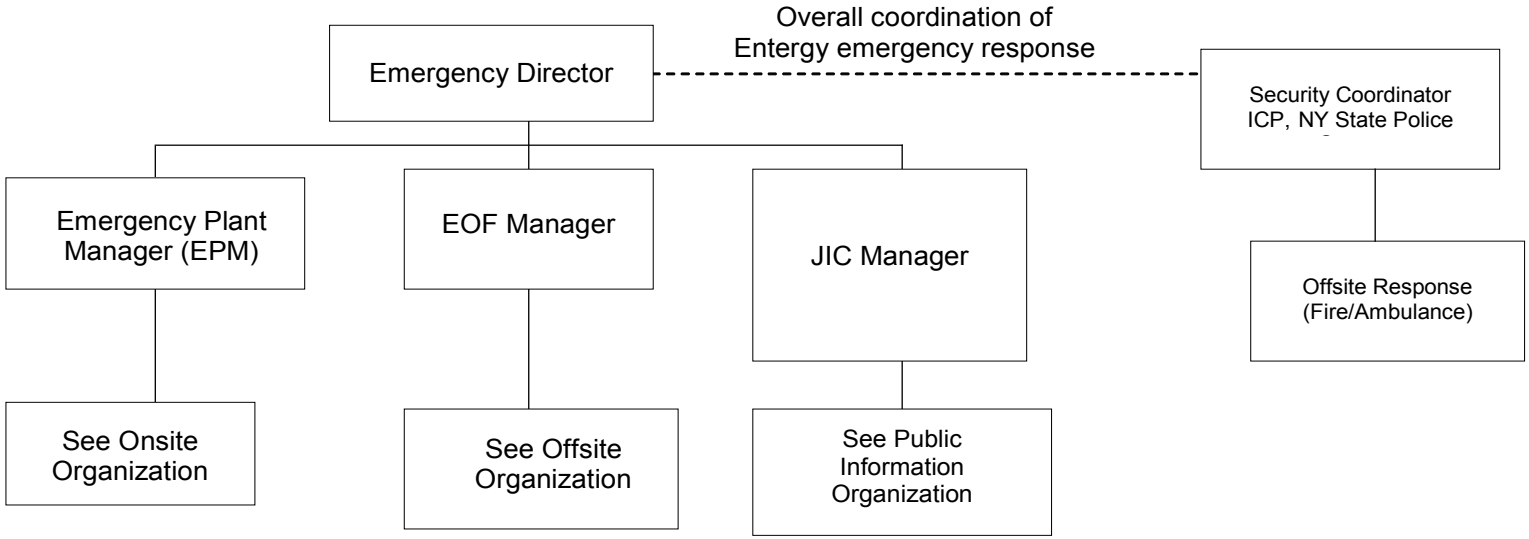



[a] Consistent with NUREG-0737 and Technical Specifications, the Field Support Supervisor / Shift Technical Advisor is not required on shift during cold shutdown conditions.
[b] A Control Room Supervisor and STA will not be assigned to Unit 2 in the permanently shut down and defueled condition.
[c] This RP Technician would assist at affected unit if needed

** One NPO would be the communicator and make notifications for both units

*** One qualified individual would serve as FBL for both units in accordance with the Fire Protection Program Plan

## Figure B-1.2a Emergency Response Organization – Major Areas



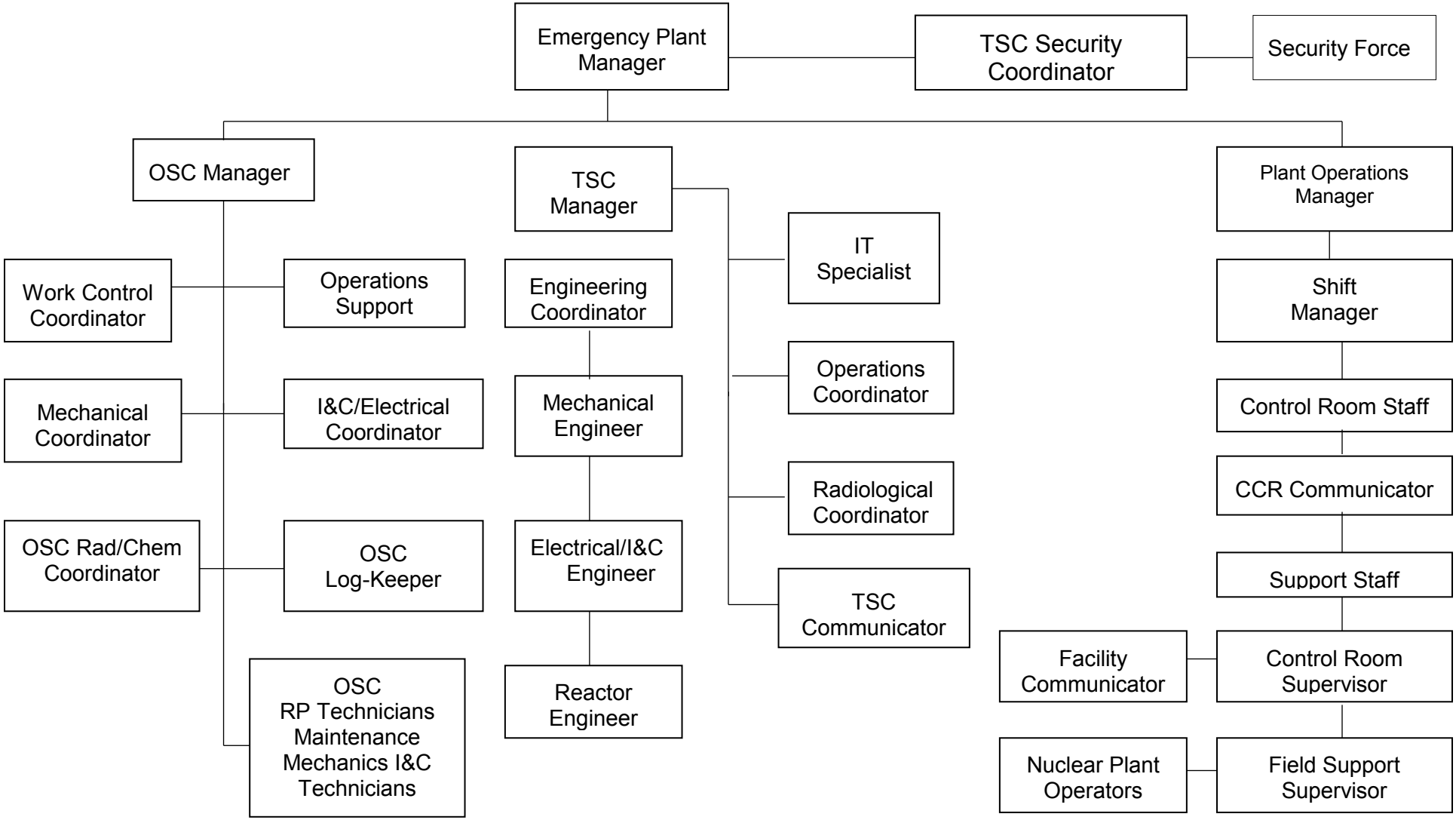

- Overall coordination of onsite response
- Safety of onsite personnel
- Advise ED on plant status, radiological conditions and plant related EALs
- Security Interface

- 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

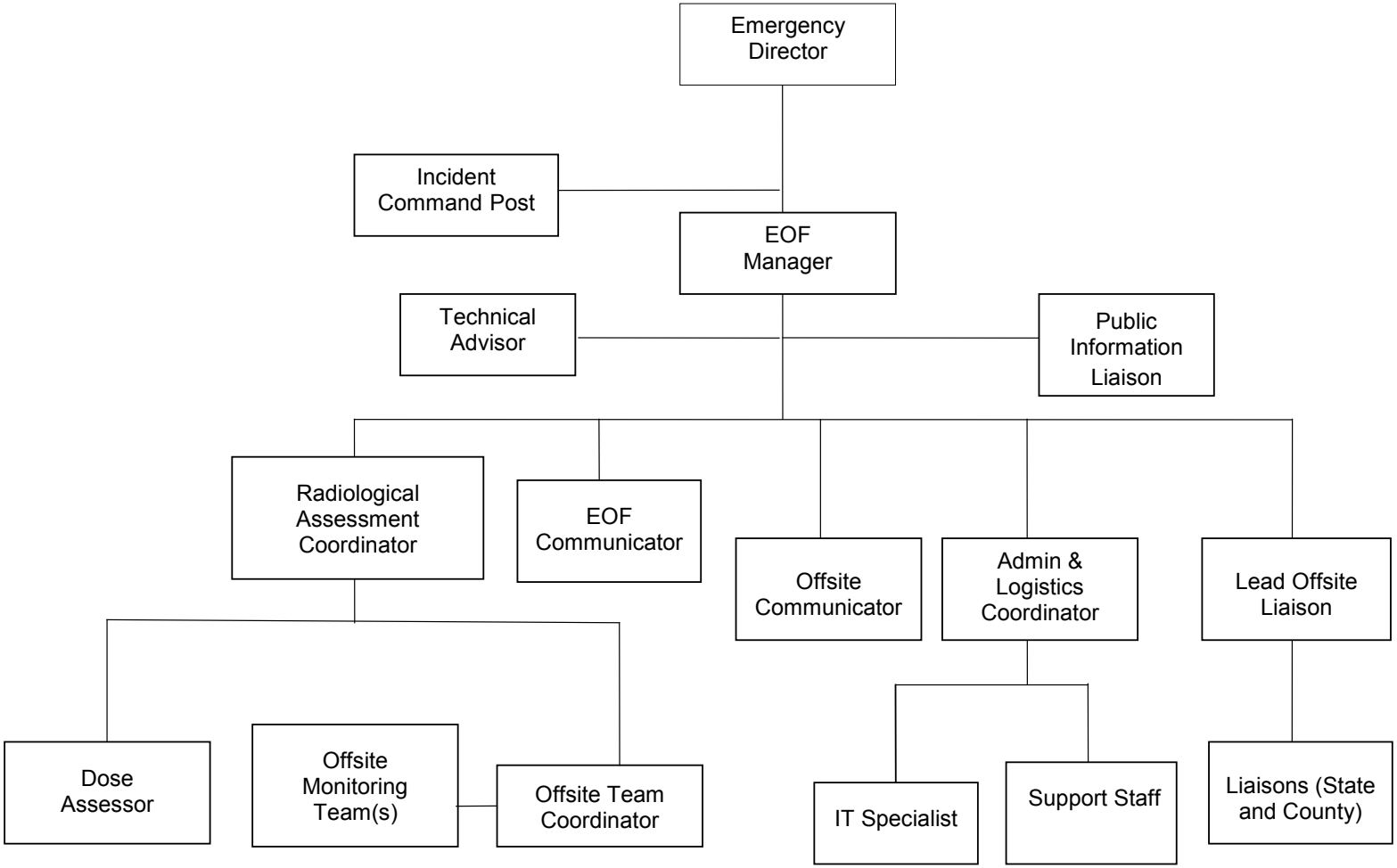
- Overall coordination of Entergy Public Information response
- Act as representative to the media
- Keep ED informed of any Public Information concerns

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

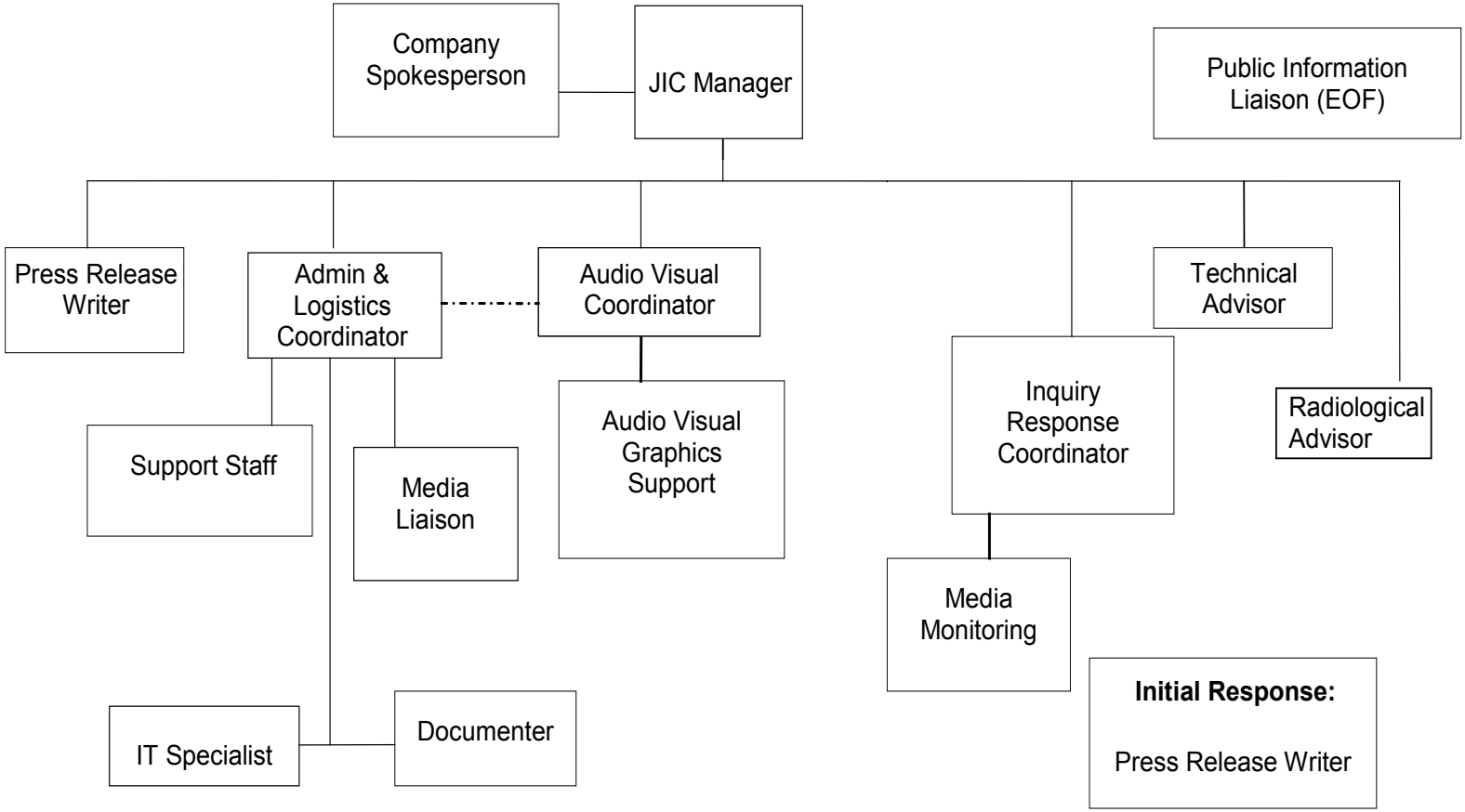
## Figure B-1.2b Emergency Response Organization – Onsite



## Figure B-1.2c Emergency Response Organization – EOF



## Figure B-1.2d Emergency Response Organization – Public Information



## Figure B-1.3 Normal Station Organization

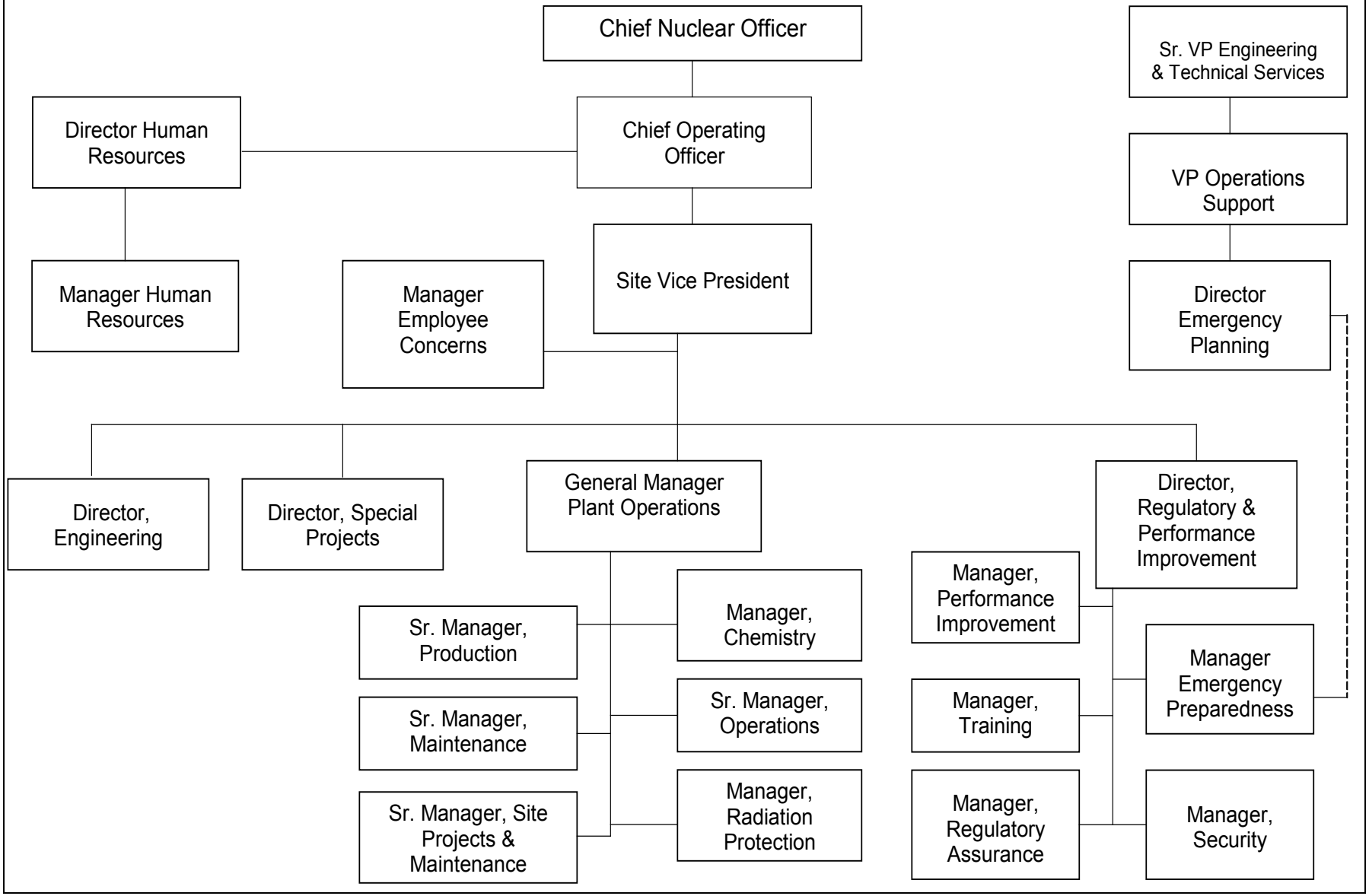


**TABLE B – 1 Comparison of NUREG – 0654 to Indian Point Energy Center**

| 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.** | [1] [2] |
| | | | | | | **U 2** | **U 3** | **U 1** | | |
| **Plant Operations and Assessment** | | | | | | | | | | |
| 1 | Shift Supervisor (SRO) | 1 | -- | -- | Shift Manager | 1 | 1 | 0 | -- | |
| 2 | Shift Foreman (SRO) | 1 | -- | -- | Control Room Supervisor | ~~1~~0 | 1 | 0 | -- | |
| 3 | Control Room Operators | 2 | -- | -- | Reactor Operators or Field Support Supervisor | ~~2~~0 | 2 | 0 | -- | [3] |
| 4 | Auxiliary Operators | 2 | -- | -- | Nuclear Plant Operators | ~~5~~1 | 4 | ~~1~~0 | -- | ~~[12]~~ [~~13~~12] |
| **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 | 1 | 0 | -- | [4] [10] |
| **Notification / Communication** | | | | | **Communicator** | | | | | |
| 6 | Communicator – notify licensee, State, Local and Federal personnel and maintain communication | 1 | 1 | 2 | Nuclear Plant Operator provides notifications for both units<br>Offsite Communicator plus<br>Any two of the following:<br>Offsite Team Coordinator<br>Control Room Communicator<br>TSC Communicator | 0 | 1 | | --<br>1<br>2 | [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 | -- | Radiological Assessment Coordinator | -- | | | 1 | |

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

| NUREG – 0654 | | | | | Indian Point Energy Center<br>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. | [1]<br>[2] |
| 9 | Offsite Surveys | -- | 2 | 2 | Two Teams of Field Monitors | -- | | | 4 | [6] |
| 10 | Onsite (out-of-plant) Surveys | -- | 1 | 1 | RP Technicians | -- | | | 2 | |
| 11 | RP Technicians | 1 | 1 | 1 | RP Technicians | 1 | 1 | 0 | 2 | [11] |
| 12 | Rad / Chem Technicians | 1 | -- | 1 | Chemistry Technicians | 1 | 1 | 0 | 1 | |
| **Plant System Engineering, Repair and Corrective Action** | | | | | | | | | | |
| 13 | Shift Technical Advisor | 1 | -- | -- | Field Support Supervisor or Shift Technical Advisor | ~~1~~<br>0 | 1 | 0 | -- | |
| 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<br>-- | --<br>-- | 1<br>1 | Mechanical Maintenance | 1 | 0 | | 2 | [7]<br>[10] |
| 18 | Electrical Maintenance | 1 | 1 | 1 | Electrical Maintenance | 0 | 1 | | 2 | [8]<br>[10] |
| 19 | Instrument & Control Technician | -- | 1 | -- | Instrument & Control Technician | -- | | | 1 | |
| **Protective Actions (In-Plant)** | | | | | | | | | | |
| 20 | RP Technicians | 2 | 2 | 2 | RP Technicians or other qualified personnel | 2 | | | 4 | [9]<br>[10] |

**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.** | [1] [2] |
| **Fire Fighting** | | | | | | | | | | |
| 21 | Fire Brigade | Fire Brigade per TS | Local Support | | Fire Brigade | 0 | 1 | 0 | Local Support | [~~13~~12] [~~14~~13] |
| **Rescue Operations and First Aid** | | | | | | | | | | |
| 22 | Rescue – First Aid | 2 | Local Support | | Rescue – First Aid | 2 | | | Local Support | [10] |
| **Site Access Control and Personnel Accountability** | | | | | | | | | | |
| 23 | Security Personnel | Per Security Plan | | | Security Personnel | Per Security Plan | | | | |
| **Totals** | | 10 | 11 | 15 | | ~~12~~4 | 13 | ~~1~~ 0 | 26 | |

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

(b) On-shift staffing is in accord with guidance of NRC's NSIR/DPR-ISG-01 Interim Staff Guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities.

**Note:**

[1] For Emergency Response Organization purposes resources may be shared between units. ~~The unaffected unit in operation~~Unit 2 must maintain a CFH-qualified Shift Manager and a Nuclear Plant Operator. Unit 3 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 (Unit 3). 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 or qualified designee) for both units and an Offsite Communicator in the EOF as a required one-hour responder. The on shift communicator has been counted in the Unit 3 total, but can be provided by either unit. The additional two communicators are filled by the following: TSC Communicator and 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 other 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

~~[12] One (1) Unit 1 NPO is designated for SSD.~~

[~~13~~12] The Fire Brigade is staffed per the Fire Protection Program Plan.

[~~14~~13] One (1) ~~SRO~~ designated FBL. This is a person on shift qualified as FBL. This person has been counted in the Unit 3 total, but can come from either unit.

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) (Unit 3) | Shift Manager (Unit 3) | Immediate supervision of plant operations |
| Field Support Supervisor/Shift Technical Advisor (Unit 3) | Shift Manager (Unit 3) | Provide technical support to operations shift |
| Reactor Operator (RO)[s] (Unit 3) | CRS (Unit 3) | 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 (Unit 3) (Unit 2 personnel report to Unit 2 Shift Manager) | Operates equipment outside the control room, minor maintenance |
| Offsite (CCR) Communicator | CRS (Unit 3) or the Unit 2 Shift Manager | 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, water chemistry |
| Watch Radiation Protection (RP) Technician (OSC when activated) | Shift Manager | Provide RP support as needed, rad monitoring, decon and surveillance |
| Facility Communicator | Shift Manager | Provides data to the other emergency response facilities |
| Plant Operations Manager (POM) | EPM | Relieves the SM as ED and acts as ED until relieved by the ED in the EOF. Manages emergency response operations activities in the Control Room and keeps 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) | Shift Manager / 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. |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major 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 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 |
| Public 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. |
| EOF Communicator | EOF Manager | Communicates with other ERFs |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Function |
|---|---|---|
| **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 |
| OSC Rad/Chem Coordinator | OSC Manger | Coordinate radiological controls inside the Protected Area and assist in coordination of chemistry sampling |
| Mechanical Coordinator | OSC Manager | Coordinate Maintenance activities |
| I&C/Electrical Coordinator | OSC Manager | Coordinate I&C activities |
| Operations Support | OSC Manager | Coordinate Operations support to the CCR |
| Radiation Protection Technicians | Rad/Chem Coordinator | Perform radiological surveys, sampling and analysis as needed, provide RP coverage for OSC operations |
| Chemistry Technician | Rad/Chem 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 Support | Operate plant systems as directed by Operations Support in an SAE or GE. Assist OSC teams in repair and assessment activities. |
| OSC Log-Keeper | OSC Manager | Coordinate Accountability with Security Coordinator and as necessary verify/set up equipment. Provide support as needed. |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major 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 and assist EPM in implementation of Severe Accident Management Guidelines |
| Mechanical Engineer | Engineering Coordinator | Perform Mechanical Engineering Assessments |
| Electrical / I&C Engineer | Engineering Coordinator | Perform Electrical / I&C Engineering Assessments |
| Operations Coordinator | TSC MGR | Perform Operations Engineering Assessments |
| TSC Radiological Coordinator | TSC MGR | Radiological Oversight |
| IT Specialist | TSC MGR | ERDS Activation/Verification and maintain IT equipment (computers, phones) operational. |
| TSC Security Coordinator | TSC MGR | Direct Physical Security |
| TSC Communicator | TSC MGR | Perform TSC communications as needed |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Joint Information Center (JIC)** | | |
| Company Spokesperson | JIC Manager | 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 Admin & Logistics Coordinator | Maintain facility log on WebEOC. Ensure timeliness of facility briefings. |
| IT Specialist | JIC Admin & Logistics Coordinator | Assist JIC Staff with computer hardware and software use |
| Audiovisual Coordinator | JIC Manager | Manages Audio/Video operations |
| Support Staff | Admin & Logistics Coordinator | Provide 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 |

## 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 Energy Center 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 Energy Center, 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 Energy Center in the event of an accident are identified in Section A of this plan. If needed, Federal resources are made available to Indian Point Energy Center in an expeditious and timely manner.

   c. Each Indian Point Energy Center 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. A conference/working area has 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 Energy Center 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, Entergy Offsite Liaisons are dispatched to the State and local government EOCs to act as communications liaisons and to provide clarification of emergency response information.

3. Radiological Laboratories

In addition to Indian Point Energy Center's radiological assessment facilities, contracted services may be utilized to analyze inplant and offsite environmental samples. Outside analytical assistance may be requested from State and Federal agencies and other licensees if the offsite radiological monitoring and environmental sampling operation exceeds the capacity of the Indian Point Energy Center 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 the Indian Point Energy Center. The availability of services has been ascertained and agreement letters are listed 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;
- Access to 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 the Emergency Telephone Directory (ETD), 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 Energy Center 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 ERO. Indian Point Energy Center emergency planning personnel work closely with State and local agencies to ensure consistency in classification schemes and procedural interfaces.

Indian Point Energy Center maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and promptly declares the emergency condition as soon as possible following identification of the appropriate emergency classification level.

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 progress or have occurred, which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site 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.

The Shift Manager/ED will ensure:

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

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 or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of Hostile Action. Any releases are expected to be limited to small fractions of the EPA PAG 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 on plant status and parameters. 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/ED will ensure:

a) Initiation of activation of the ERO 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;

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 in emergency class by verbal discussion with offsite authorities followed by written summary within eight (8) hours of entering recovery after an Alert or higher classified event.

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 ~~t~~Technical ~~s~~Specification limits;

f) Maintain Alert status until verbal closeout or escalation.

**Site Area Emergency (SAE)**

A Site Area Emergency indicates events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public, or Hostile Action that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to, equipment needed for protection of the public. Any releases are not

expected to result in exposure levels which exceed EPA PAG exposure levels beyond 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).

The Shift Manager/ED will ensure:

a) Initiation of activation of the ERO 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;

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 involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels beyond the site boundary.

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/ED will ensure:

a) Initiation of activation of the ERO which would staff 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) A recommendation is made, as a minimum, sheltering or evacuation for 2 mile radius and 5 miles downwind and assess need to extend distances; consider advisability of evacuation (projected time available vs. Evacuation Time Estimates);

d) Prompt notification of the NRC (not to exceed one hour);

e) Continued Assessment and response as necessary;

f) Dispatch of field monitoring teams and associated communications;

g) An individual is provided for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities);

h) Senior technical and management staff on-site are made available for consultation with NRC and State on a periodic basis;

i) Meteorological and dose estimates are provided to offsite authorities for actual releases;

j) Release and dose projections based on available plant condition information and foreseeable contingencies are performed and provided to offsite authorities;

k) Accountability process is initiated;

l) 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) Augment resources by activating EOC's and any other primary response centers;

d) Dispatch key emergency personnel including monitoring teams and establish associated communications;

e) Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status;

f) Provide offsite monitoring results to licensee, DOE and others and jointly assess them;

g) Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective actions;

h) Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance;

i) Provide news media briefings, perhaps with a licensee;

j) Maintain General Emergency status until closeout.

**Classification Downgrading**

The Indian Point Energy Center 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 NEI 99-01 REV 5 "Methodology for Development of Emergency Action Levels" were evaluated to establish an emergency classification and emergency action level scheme. NEI 99-01 REV 5 has been accepted by the NRC as an alternative to NUREG-0654-REV 1.

This classification scheme is presented in six 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 Plan Implementing Procedures. The Emergency Action Levels (EALs) are grouped into six categories to simplify their presentation and promote a rapid understanding by their users. (See Table D-1 for a description of each of the EAL initiating conditions for each EAL category).

These categories are:

(1) Abnormal Rad Release/Rad Effluent

(2) Hazards

(3) ISFSI

(4) Systems

(5) Fission Product Barriers

(6) Cold Shutdown/Refueling System Malfunction

Table D-1, Summary of IPEC EAL Initiating Conditions, provides a description of the initiating conditions associated with the above categories which would cause the Plan to be implemented. Detailed emergency action levels are provided in a Plan Implementing Procedure and an associated EAL Technical Bases Administrative Procedure. It is important to note that some EALs in the NRC-approved EAL scheme are not possible for Unit 2 in the permanently shut down and defueled condition.

3. Offsite Classification Systems:

Indian Point Energy Center 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 Energy Center 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 Energy Center accounting for local offsite conditions that exist at the time of the emergency.

## Table D-1

## SUMMARY OF IPEC EAL INITIATING CONDITIONS

**Category A – Abnormal Radiation Levels/Radiological Effluent**

This category encompasses the spectrum of potential uncontrolled radionuclide releases via liquid or gaseous effluents for all modes of operation. It also includes other incidents related to high levels of radioactivity, but which may not result in a release to the environment. Potential sources of radionuclide releases are from the Primary Auxiliary Building (PAB), Vapor Containment (VC) and Fuel Storage Building (FSB). Appropriate monitoring is provided for potential gaseous and liquid release paths. The ICs within this category are keyed to Radiation Monitoring System (RMS) indications, radiological survey results and offsite dose assessment calculations.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any release of gaseous or liquid radioactivity to the environment > 2 times the radiological effluent ODCM limits for ≥ 60 minutes.

2. Unplanned rise in plant radiation levels.

ALERT

1. Any release of gaseous or liquid radioactivity to the environment that exceeds significant multiples of the Offsite Dose Calculation Manual (ODCM) limits for 15 minutes or longer.

2. Damage to irradiated fuel or loss of water level that has or will result in the uncovering of irradiated fuel outside the reactor vessel

3. Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions.

SITE AREA EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release.

GENERAL EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 1,000 mRem TEDE or 5,000 mRem thyroid CDE for the actual or projected duration of the release using actual meteorology

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards**

This category encompasses the spectrum of man-caused or non-naturally occurring hazards that jeopardize the level of safety of the plant in all modes of operation. The ICs are keyed to offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of naturally occurring events that jeopardize the level of safety of the plant. The ICs are keyed to specific instrument indications, offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of security infractions as addressed in the Security Contingency Plan. The ICs are keyed to notification from the security force or another credible source of a site specific credible threat.

This category is the location for the miscellaneous ICs that are provided to allow for Emergency Director judgment classifications.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Confirmed security condition or threat which indicates a potential degradation in the level of safety of the plant.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Unusual Event.

3. Fire within the Protected Area not extinguished within 15 minutes of detection or explosion within the Protected Area.
4. Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to normal plant operations.

5. Natural or destructive phenomena affecting the Protected Area.

ALERT

1. Hostile Action within the Owner Controlled Area or airborne attack threat.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards and Other Conditions Affecting Plant Safety (Cont'd)**

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert.

3. Control Room evacuation has been initiated.

4. Fire or Explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown.

5. Access to a vital area is prohibited due to release of toxic, corrosive, asphyxiant or flammable gases which jeopardizes operation of systems required to maintain safe operations or safely shutdown the reactor

6. Natural or destructive phenomena affecting Vital Areas.

SITE AREA EMERGENCY

1. Hostile Action within the Protected Area.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency.

3. Control Room evacuation has been initiated and plant control cannot be established.

GENERAL EMERGENCY

1. Hostile Action resulting in loss of physical control of the facility.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY E – ISFSI Malfunction**

This category addresses events of sufficient magnitude that a loaded spent fuel dry cask storage confinement boundary is damaged or violated.

UNUSUAL EVENT

1. Damage to a loaded cask confinement boundary.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the power operations, startup, hot standby and hot shutdown operating modes. In general, the ICs relate to equipment or system malfunctions or failures. The ICs include RCS leakage, loss of Control Room instrument indications and failure of the Reactor Protection System as well as those events dealing with power losses. This category also includes inadvertent criticality and loss of decay heat removal capability ICs.

NOTE:

Category S EALs are not possible for Unit 2 in the permanently shut down and defueled condition.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

3. Loss of all offsite AC power to emergency buses for 15 minutes or longer.

4. Unplanned loss of safety system annunciation or indication in the control room for 15 minutes or longer.

5. RCS Leakage.

4. Loss of all onsite or offsite communications capabilities.

5. Fuel clad degradation.

6. Inadvertent criticality.

7. Inability to reach required shutdown within Technical Specification limits

ALERT

1. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguard buses.

2. Automatic trip fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction (Continued)**

3. Unplanned loss of safety system annunciation or indication in the control room with either (1) a significant transient in progress, or (2) compensatory indicators unavailable.

SITE AREA EMERGENCY

1. Loss of all offsite power and loss of all onsite AC power to safeguards buses for 15 minutes or longer.

2. Automatic trip fails to shut down the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor

3. Loss of all vital DC power for 15 minutes or longer.

4. Inability to monitor a significant transient in progress.

GENERAL EMERGENCY

1. Prolonged loss of all offsite and all onsite AC power to safeguards buses.

2. Automatic trip and all manual actions fail to shut down the reactor and indication of an extreme challenge to the ability to cool the core exists

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY F – Fission Product Barrier Degradation**

This category addresses losses and potential losses of the three fission product barriers – fuel clad, RCS and containment. The category is designed for events in the power operations, startup, hot standby and hot shutdown modes of operation.

NOTE:

Category F EALs are not possible for Unit 2 in the permanently shut down and defueled condition.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any loss or any potential loss of Containment.

ALERT

1. Any loss or any potential loss of either Fuel Clad or RCS

SITE AREA EMERGENCY

1. Loss or potential loss of any two barriers.

GENERAL EMERGENCY

1. Loss of any two barriers and loss or potential loss of the third barrier.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the shutdown and refueling modes. These include RCS leakage and loss of reactor vessel inventory events as well as those events dealing with power losses.

This category also encompasses events that directly affect the integrity of the reactor core when in cold shutdown or refueling. This includes inadvertent criticality and loss of decay heat removal capability.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. RCS leakage.

2. Unplanned loss of reactor vessel inventory.

3. Unplanned loss of decay heat removal capability with irradiated fuel in the reactor vessel.

4. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguards buses

5. Loss of required DC power for 15 minutes or longer

6. Inadvertent criticality.

7. Loss of all onsite or offsite communications capabilities.

ALERT

1. Loss of reactor vessel inventory.

2. Inability to maintain plant in cold shutdown.

3. Loss of all offsite and all onsite AC power to safeguards buses for 15 minutes or longer.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction (Cont'd)**

SITE AREA EMERGENCY

1. Loss of reactor vessel inventory affecting core decay heat removal capability.

GENERAL EMERGENCY

1. Loss of reactor vessel inventory affecting fuel clad integrity with Containment challenged.

## 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 Energy Center 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 Energy Center, 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) if any Unusual Event threshold listed in Section D (Table D-1) is met or exceeded.

      2) Depending on the particular circumstances of the situation, the Control Room ~~Operator~~ personnel 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) 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, an electronic notification system or alternate methods. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the

Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) 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.

5) The Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) phone or commercial phone lines.

6) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

7) 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) in the event an Alert threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room ~~Operators~~ personnel initiating the site assembly alarm and/or via public address announcements. In addition, the affected unit's Control Room ~~Operators~~ personnel 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 or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification 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 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) or commercial phone lines.

7) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

8) If there is a radiological release involved with the event, the Shift Manager/ED or his designee will provide information on the release to the offsite authorities.

9) Close out 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) in the event a Site Area Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room ~~Operator~~ personnel 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 affected unit's Control Room ~~Operators~~ personnel also contact the unaffected unit's Control Room personnel.

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, or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

5) Immediate Notification (within 15 minutes) of a Site Area Emergency is made by the Shift Manager/ED 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) Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) 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/ED or his designee shall provide information on the release to the offsite authorities.

9) Close out 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) in the event a General Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

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 ERO are notified and can 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 ERO positions and related facilities is required. Based on the event, the ED 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, electronic notification system or alternate methods are used to notify the ERO.

**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 an electronic notification system and/or phone calls. 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 local 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 local authorities are responsible for the process of notification of their personnel and 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;

f) recommended protective measures if necessary;

g) the date and time of classification and notification.

In a General Emergency, the notification includes, at a minimum, a recommendation for sheltering or evacuation of the general public within the two (2) mile radius of Indian Point Energy Center and five (5) miles downwind, and implement the NY State KI plan. All remaining areas should monitor the Emergency Alert System (EAS).

4. Follow-up Messages:

The ED 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 Energy Center personnel, have established a system for disseminating appropriate information to the public. The system includes notification through appropriate broadcast media, e.g. the Emergency Alert 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 supplemented with individual alerting devices for residences and special facilities in EPZ areas where acoustic coverage is reduced.

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.

Tone Alert Radios are distributed within the 10-mile EPZ to supplement siren alerting for residents and special facilities in EPZ areas where acoustic coverage is reduced or when requested. On an annual basis, guidance is provided on the use and testing of the tone alert radios.

Given that automated dialing is an accepted method that can be selected to provide primary alerting in accordance with FEMA-REP-10 guidance in consultation with New York State, Westchester, Rockland, Orange and Putnam Counties, the plan is to use "*automated dialing*" capability as the back-up method of alert and notification in the case of a siren failure.

7. Messages to the Public:

The State has developed draft messages for the Emergency Alert 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 licensee, 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 (IPEC) ERO. It outlines the available communications equipment to:

- Notify the Indian Point ERO
- Provide Initial Notification to 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 Energy Center.

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 Systems**

   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. These systems are used to call personnel and announce emergencies in the Indian Point Energy Center Protected Area(s).

   In the event the Public Address Systems are 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 (EOF), Technical Support Center (TSC), Operations Support Center (OSC), Joint Information Center (JIC), Incident Command Post (ICP), Corporate Headquarters, Alternate Emergency Operations Facility (AEOF) and Alternative Technical Support Center / Operational Support Center (Alternative TSC/OSC).

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 Energy Center 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 operation of this system and their respective organization responses.

Figure F-1.1 depicts RECS.

- Dedicated 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 ED 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.

**Electronic Notification System**

A commercial electronic notification service is used for contacting personnel at the start of an emergency. When activated by station personnel, the notification service transmits a message via various communications pathways to all ERO personnel to report to their assigned ERO facilities.

**Computer Systems**

The Emergency Response Data System (ERDS) is a computer link from Indian Point Energy Center to the NRC Operations Center that displays key plant data. ERDS will be available 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 ERO are in place.

a. The Nuclear Regulatory Commission is Indian Point's primary point of contact for communications with the Federal ERO. (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 Energy Center.
c. Section E.2 describes the provisions for alerting and activating the ERO.
d. Procedures are in place for the ERO to continuously provide information to the NRC as requested.

**Medical Communications**:

Indian Point Energy Center establishes communications with the primary medical supplier, New York-Presbyterian/Hudson Valley Hospital, Peekskill/Cortlandt, and if needed the backup hospital, Phelps Memorial Hospital Center, Sleepy Hollow, via commercial telephone that is accessed by station personnel either via commercial onsite telephone or by an Indian Point Energy Center 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 Energy Center or transporting personnel from the Station.

**Communications Drills and Testing:**

Communications drills between Indian Point Energy Center and State and local governments are conducted in accordance with criteria contained in Section N.2. Also, Indian Point Energy Center 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.

Figure F-1.1 Radiological Emergency Communications System

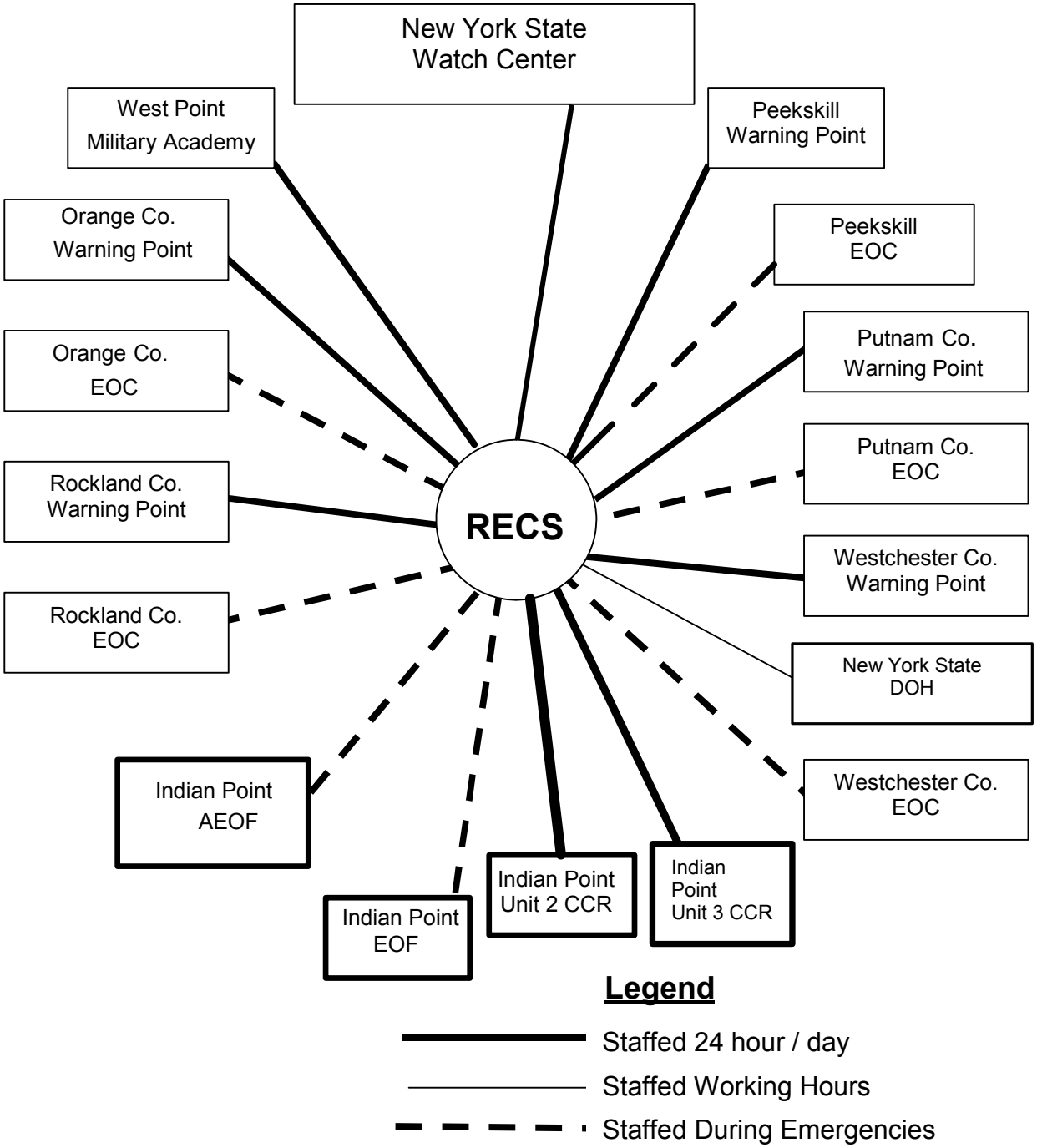


Figure F-1.2 Local Government Radio System

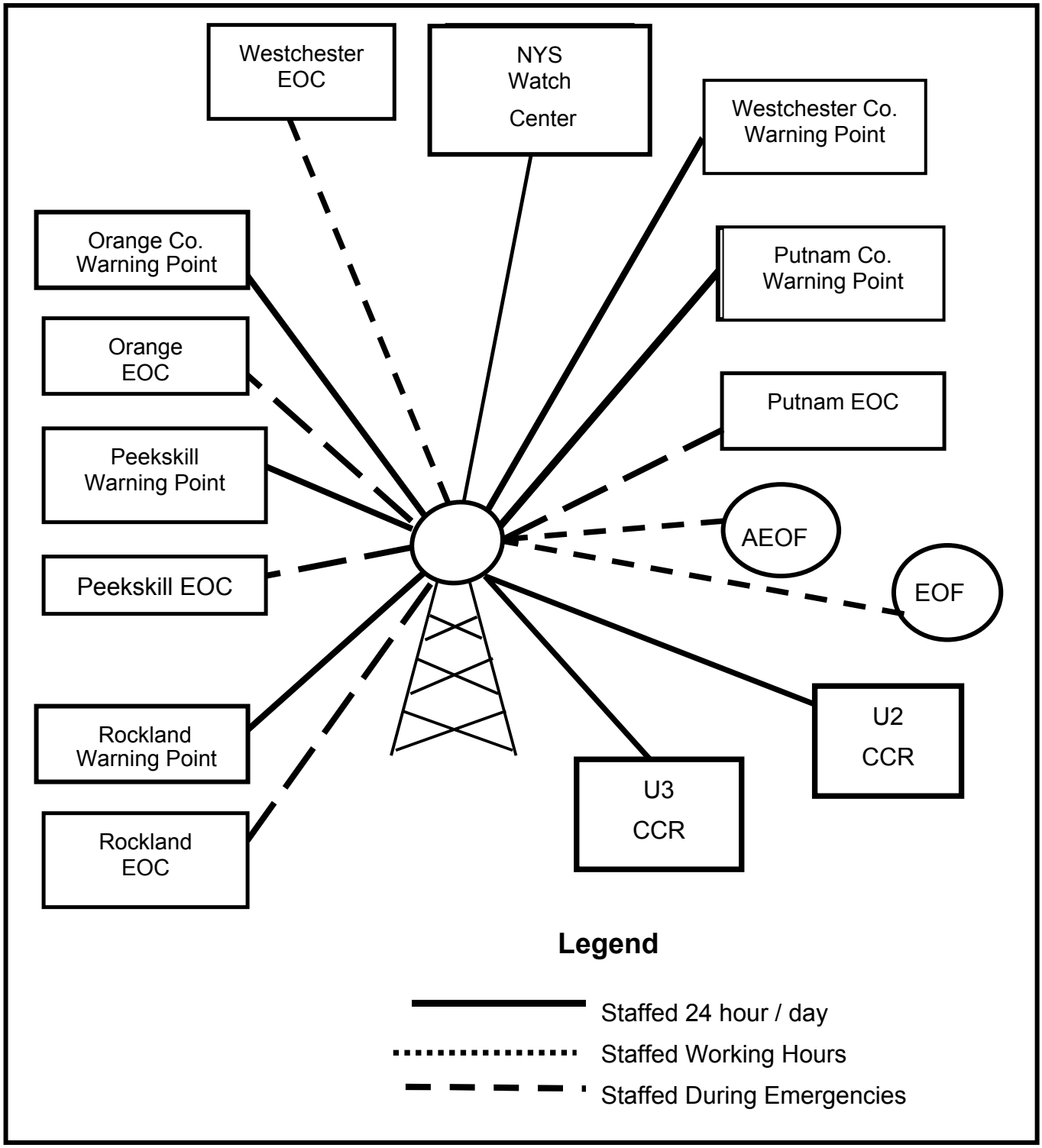
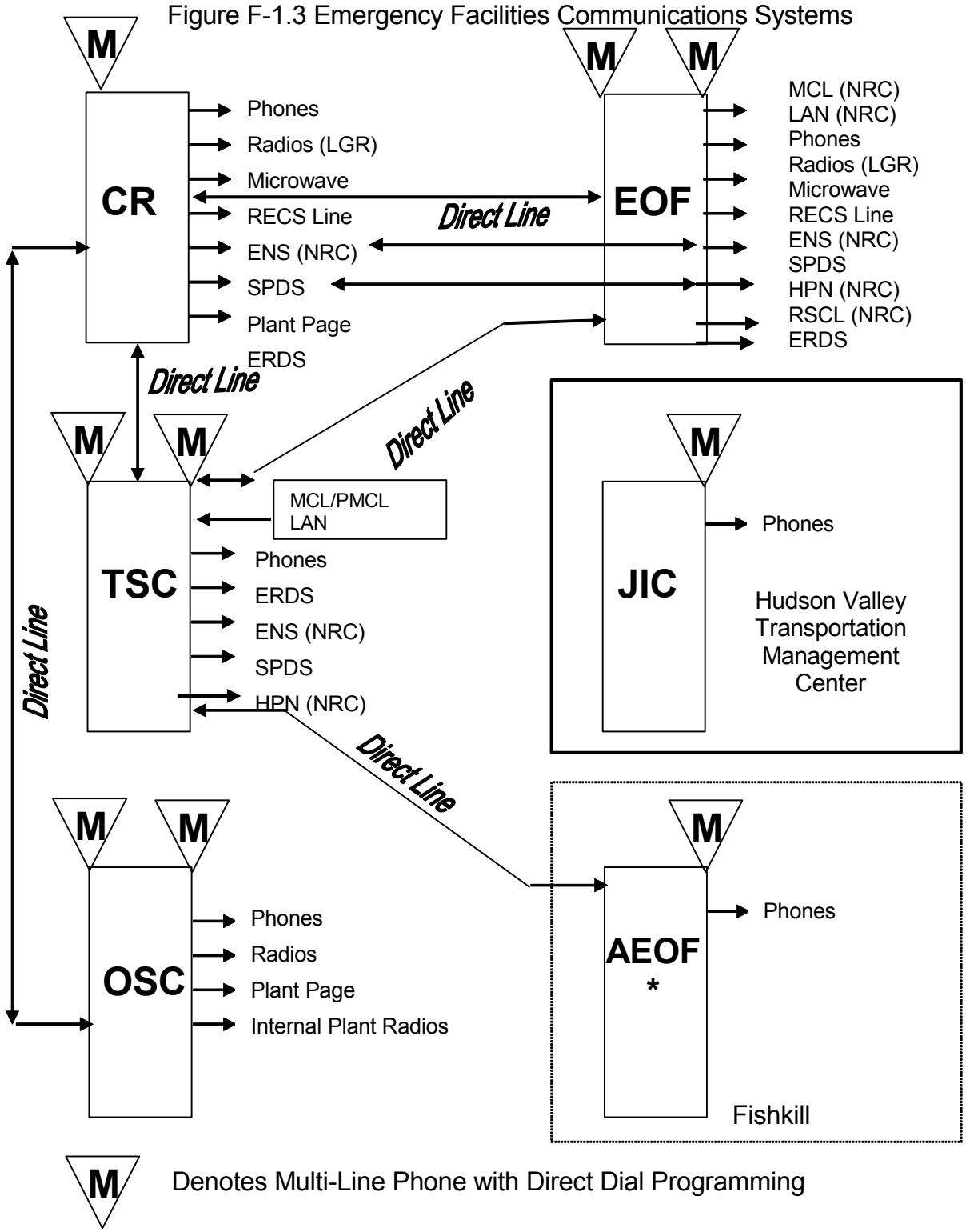


Figure F-1.3 Emergency Facilities Communications Systems




M Denotes Multi-Line Phone with Direct Dial Programming

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

## 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 (EPZ).

   County-specific emergency planning educational booklets are provided to the public. The booklets contain public safety information about emergencies at Indian Point Energy Center 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 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.

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. Press releases are reviewed by appropriate law enforcement agencies during hostile action events.

c. Call Centers respond to public inquiries. Entergy, NYS, and each county respond to 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 Energy Center.

## 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 Plan are distributed among the functions of the following Emergency Response Facilities (ERF):

- Control Rooms (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)
- Alternative Technical Support Center / Operations Support 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 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 ERO is operational, if required, 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 ED in the CR, (Plant Operations Manager) or the ED located in the EOF. Meteorological, plant parameter, offsite radiation monitor, 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.

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 ED in the EOF.

The TSC is operational with minimum staff within 60 minutes after a declaration of an Alert, SAE, or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the TSC.

The TSC Manager directs and coordinates activities in the TSC. Plant parameter data is available for accident assessment including Unit 3 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, and NRC Conference/workspace. The Ventilation System assures that the General Design 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 and teams dispatched to the field.
- 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 with minimum staff within 60 minutes after a declaration of an Alert, SAE or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the OSC.

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

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

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

In the event the OSC becomes uninhabitable, Plan 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 Facility Gate on Broadway. Functions performed at the EOF include:

- Overall management of the Indian Point Energy Center 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 EPZ;
- Coordination with Federal, New York State and local government;
- Radiological exposure control for the individuals on-site outside of the Protected Area.

The EOF is operational with minimum staff within 60 minutes of a declaration of an Alert, SAE or GE. Activation of the ERO at a NUE is discretionary. In declaring the facility operational, the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the EOF. Accommodations are available for Federal, State and local government representatives.

The ED 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 facility. 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.

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 2nd floor of 60 Merritt Boulevard, Fishkill, NY. Procedures, staff, accommodations, equipment, services and supplies for the AEOF are similar to those for the EOF including the capability to perform offsite notifications.

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 ED and the Indian Point ERO 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 with minimum staff within 2 hours after a declaration of an Alert, SAE or GE. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the JIC.

4. Alternative TSC/OSC

The Alternative TSC/OSC has communication capabilities for contacting the Control Room, plant security, EOF, and the AEOF, is available to serve as a staging area for augmented emergency response staff if the site is under threat of or experiencing hostile action. The Alternative TSC/OSC also has the capability for engineering assessment activities.

5. 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 Training and Operations Center, Carmel, NY |
| Rockland County | Fire Training Center, Pomona, NY |
| Westchester County | Transportation Management Center, Hawthorne, NY |
| NY State | Public Safety Building<br>State Campus Building #22, Albany, NY |

6. 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 then declared operational when facility managers determine they can perform required functions based on minimum 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.

If the site is under threat of or experiencing hostile action 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 alternate facility. TSC/OSC/CR staffs will provide any possible assistance from this offsite staging area until such time as site access is restored.

7. 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 Energy Center Site 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 digital 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.

Unit 3 Post-accident Sampling

Plant design includes the capability to sample the Unit 3 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 ERO.

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 Unit 3 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 Unit 3 Core Cooling

Instrumentation for detecting inadequate Unit 3 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

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.

8. 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. Government agencies and other technical data resources are available to the Indian Point Energy Center staff regarding seismic monitoring of the Indian Point Energy Center 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 are referenced in Appendix 2 of this plan.

d. Environmental sample preparation and counting are available through the use of an offsite laboratory. The offsite laboratory contract is available through the Indian Point Energy Center contracts department.

9. Facilities and Equipment for Offsite Monitoring

a. Survey Vehicles

Indian Point Energy Center 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 x $10^{-7}$ µCi/cc), and personnel dosimeters are available for offsite monitoring. A more detailed list of equipment is available in the Plan Implementing Procedures.

During an emergency, the survey vehicles are sent to pre-selected locations within the EPZ. 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~~the 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). The information from these systems is 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. Data from these fixed field measurement sites may be used to verify the travel path of a radiological release and to estimate whole body exposure rates offsite.

10. Meteorological Monitoring

The meteorological system at the Indian Point Energy Center 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 Energy Center 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.

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 (sigma-theta) 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 (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.8.

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

11. 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 or by another qualified calibration service 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.

12. 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 emergency supplies.

13. Collection and Analysis of Field Monitoring Data

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-Contamination 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, Joint Information 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 Joint Information Center provides interface with the public. 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 (or Control Room staff at Unit 2) 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.

Alert

For emergency situations that are classified as Alerts, the Shift Manager/ED 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 ED at the start of the emergency, and the on call ED 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/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, containment integrity and the status of safeguards equipment, if applicable.

An immediate assessment of the projected exposure to the offsite populace is made by using Dose Assessment Computer Programs or by using an Implementing 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 Unit 3 containment building released from the Unit 3 reactor core. Area radiation monitor R-5 (Fuel Storage Building Area Monitor) indicates radioactivity in the Fuel Storage Building.

- 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 Implementing 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 program or Implementing 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.

- 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.

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 ED. 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 ED transmits updated assessment information to the New York State Office of Emergency Management and to 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 Offsite Dose Calculation Manual (ODCM) is utilized to determine the extent of contamination.

Radiological assessment personnel in accordance with an Implementing 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 10-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 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 Plan.

2. Onsite Accident Assessment Capabilities

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

a. Unit 3 Sampling System

Plant design includes the capability to sample the Unit 3 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 Energy Center 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 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 Unit 3 core damage. These monitor readings are utilized as a method for core damage determination. This is accomplished through use of established procedures based on Pressurized Water Reactor 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 Unit 3 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 computer programs.

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. The computer software also has the capability of performing multiple accident dose assessment involving simultaneous releases from one or both of the Indian Point Energy Center units. Dose projections may also be performed without the use of a computer through a series of hand calculations. Indian Point Energy Center 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.

5. Meteorological Information:

Meteorological data is available from the station meteorological tower. The data available includes wind speed, wind direction, stability class (Pasquill). This data is utilized by the licensee, locals, State and other Federal Agencies to provide near real-time predictions of the atmospheric effluent transport and diffusion. Section H.10 provides more details on the Meteorological Monitoring System.

6. Unmonitored Release:

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 the use of actual sample data and/or field monitor team readings.

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 sectors around the Indian Point Energy Center 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 local 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 Energy Center.

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 Energy Center Site. Large-scale maps showing the locations are in the Control Room and Emergency Operations Facility (EOF) or AEOF, for use by the ED. Readings taken by these teams are relayed back to the site via radio or phone communications.

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 Implementing 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 licensee 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 Owner Controlled Area (OCA) badged personnel are notified of an emergency by 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 persons within the site Protected Area from the Control Rooms. Personnel 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/ ED 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/ED. 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 Energy Center.

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 area is the Indian Point Energy Center Generation Support Building (GSB) and the Energy Education Center (EEC). The Indian Point Energy Center Training Center serves as the back-up assembly area and may be used during periods of high volume, such as an outage. Personnel assigned emergency response functions respond to their assigned emergency facilities.

   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 and IPEC Training Building) are within the range of the plant paging system.

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

5. Accountability:

   At the declaration of an Alert, all non-essential 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 identified within 30 minutes of a declared emergency. 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 Security. The results are forwarded to the Emergency Plant Manager and/or ED.

   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.

6. Provisions for Onsite Personnel:

   The station maintains an inventory of respiratory protection equipment, anti-contamination clothing, and a supply of KI that is made available to emergency workers remaining onsite should conditions warrant.

   a. 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.

   b. 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.

   c. 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 KI may be authorized only by the ED or by the Emergency Plant Manager.

   d. Precautions shall be taken to prevent the contamination of drinking water and food supplies by using bottled water and packaged foods.

   e. A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the Unit 3 reactor and perform the functions of the emergency plan.

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" and NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 3, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Guidance for Protective Action Strategies”.

   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 ED makes protective action recommendations.

   Recommendations issued by Indian Point Energy Center 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 monitor EAS messages for further direction. The Indian Point Entergy Center’s rationale and methodology for plant-based and dose-based protective action recommendations has been coordinated with local and state response organizations as required by NUREG-0654, Supplement 3.

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 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 by state and local organizations 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.

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 decisions by offsite authorities would include several of the above factors as well as the following considerations:

- 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.

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 TEDE may be authorized for members of the ERO. |
| 5 - 10 | Protecting critical infrastructure necessary for public welfare | Lower dose not practicable.<br>Must be authorized on individual bases. |
| 10 - 25 | Lifesaving or protection of large populations | Lower dose not practicable.<br>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.<br>Must be authorized on individual bases. |
| * Limit dose to the lens of the eye and dose to any other organ (including skin and body extremities) to 10CFR20.1201 limits unless higher doses are evaluated and authorized on individual bases. | | |

   Any emergency response action requiring greater exposure than 25 Rem should be limited to only volunteers. Individuals over forty-five years of age are considered first. Females who declare pregnancy are restricted to 10CFR20.1208 limits.

2. Emergency Radiological Control Program:

The Radiological Assessment Coordinator (EOF) and the Rad/Chem 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 critical infrastructure, lifesaving or 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~~ Radiological Assessment Coordinator (EOF) or Rad/Chem Coordinator (OSC), 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.

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

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 Plan Implementing Procedures and Radiation Protection Procedures.

4. Non-Entergy Personnel Exposure Authorization:

   The responsibility for authorizing non-Entergy emergency workers (i.e. State and local agency emergency workers such as Fire Department, Police or Medical teams sent to the site) to receive exposures in excess of the EPA Emergency Worker Protective Action Guides rests with the respective State and local organizations.

5. Decontamination and First Aid

   a. Normal contamination control limits apply in emergency conditions. However, these limits may be modified by Rad/Chem 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.

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 New York-Presbyterian/Hudson Valley Hospital (primary), to Phelps Memorial Hospital Center (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 Rad/Chem 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 personnel released from the Protected Area 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 emergency worker personnel monitoring 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 New York-Presbyterian/Hudson Valley Hospital in Cortlandt Manor has agreed to accept patients from the Indian Point Energy Center 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 referenced in Appendix 2.

   The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital. A written agreement is referenced 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, then Radiation Emergency Assistance Center/Training Site (REAC/TS), available 24 hrs/day, would be contacted for guidance. A written agreement is referenced in Appendix 2.

2. Onsite First Aid Capability:

   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.

   First Aid and Decontamination facilities for ~~both units~~Units 2 and 3 are located just beyond the Radiation Protection Control Points. These facilities consist of a stainless steel interior with decontamination table, showers and sinks draining into holdup tanks. These facilities contain general first aid equipment and medical supplies for treatment of injuries.

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

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

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 Energy Center 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 District (Fire/Ambulance) that provides 24-hour services. Backup ambulance service is available through a mutual aid system. A written agreement is listed in Appendix 2. The Verplanck Fire District (Fire/Ambulance), or other backup ambulance agency, 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 Unit 3 Control Room Supervisor for an emergency involving Unit 3, 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~~.

**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 ED, 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 Unit 2 SFP and/or the Unit 3 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
- Unit 3 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.

- At an Alert or higher classification (non-transitory classification), the ERO 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 ERO, 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 for maintaining safe shutdown of ~~the plant~~Unit 3 and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY classifications) the Indian Point and Corporate Emergency Center 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 Emergency Center Manager reports to the Site Recovery Director and is responsible for:

   - Ensuring adequate corporate support to maintain Indian Point Energy Center (IPEC) units in a safe condition;
   - Overseeing development of corporate recovery issues dealing with support of the site;
   - 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.

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 ERO 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 ERO 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 Energy Center 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 Energy Center;
- Designating other Indian Point Energy Center recovery positions required in support of onsite recovery activities; and
- Developing of a Root Cause Report.

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 Energy Center assistance for offsite recovery activities;
- Coordinating Indian Point Energy Center 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 Energy Center 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 Energy Center on all matters relating to the accident or recovery;
- Coordinating non-Indian Point Energy Center public information groups (Federal, State, local, etc.);
- Coordinating media monitoring and rumor control; and
- Determining what public information portions of the Indian Point ERO will remain activated.

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

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 Energy Center 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 ERO are informed of the change. Additional Indian Point Energy Center 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 ERO records to estimate the source term. Data are obtained from offsite agencies to estimate the total exposed population. Environmental Dosimeter of Legal Record (DLRs), 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 Emergency Preparedness Program.
- Develop, maintain and evaluate the capabilities of the Indian Point ERO to respond to emergency conditions and safeguard the health and safety of Station personnel and the general public.
- Identify deficiencies in the 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 may result in the release or potential 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 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 Energy Center (IPEC) Eight-Year Exercise Cycle 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. Exercises are scheduled to be conducted at different times of the year. An unannounced drill/exercise is included in the Eight-Year Exercise Cycle Plan.

2. Drills:

In addition to the exercises described above, IPEC 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 IPEC 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 (ENS) with the NRC will be tested.
- Quarterly: The telephone links with Federal response organizations (i.e., Department of Energy Radiological Assistance Program) and local 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 Rooms 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 whereby 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 IPEC Protected Area. These drills include provisions for communications and record keeping.

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, in the Eight Year Exercise Cycle Plan, 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. The information included in the scenario package is in accordance with Entergy Fleet Procedures which include 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.

Prior approval of Drill and Exercise Dates, by appropriate IPEC 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 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 IPEC Emergency Preparedness Program that require improvement. The Manager of Emergency Preparedness 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 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.) that 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 Plan. This requirement will normally be met by performing training observations.

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

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 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, ED, 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

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 and those individuals qualified as Certified Fuel Handlers receive routine classroom and simulator training, as applicable, to ensure proficiency in this area.

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

c. Radiological Monitoring Teams and Radiological Analysis Personnel

1. 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

2. 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

3. 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
- Radiological Monitoring Team Interface
- Protective Action Guidelines associated with offsite plume exposure doses
- Basic Meteorology

d. Police, Security and Fire Fighting Personnel

1. 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.
2. 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
3. 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 instructs personnel as to the appropriate protective clothing requirements, respiratory protection requirements, time limits, and other protective actions specific to the conditions present.

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 Energy Center. 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 Energy Center provides initial emergency response overview and specific training to assigned ERO members as outlined in the ERO Training Program. Additionally, Indian Point Energy Center 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 is placed on the ERO roster. The completed training documents certify that the individual is qualified to perform their emergency functions.

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 ERO, 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 distribution of the Plan and actions that must be performed to maintain the Indian Point Emergency Preparedness Program. It also outlines the criteria for ensuring 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 Planning 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 Energy Center (IPEC) 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 Program. This includes the authority to provide the necessary resources to ensure the continuous state of readiness for the ERO.

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

3. Manager of Emergency Preparedness:

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

   - Development, maintenance and revision of the Plan and Implementing Procedures is accomplished in accordance with applicable regulations and industry standards.

- 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 and the local communities involved in response to an incident at Indian Point Energy Center.
- 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 EP 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 Program Public Information program.
- IPEC 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 Planning 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 Planning staff provides technical assistance to other IPEC 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.
- Corrective actions identified during the conduct of Exercises, Drills, Training, Audits and Inspections are tracked using the station's corrective action program.

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 Manager of Emergency Preparedness 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 reduce the effectiveness of the Plan, when determined through the technical review process or other changes deemed appropriate by the Manager of Emergency Preparedness 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 reduce 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 reduce or have a potential to reduce the effectiveness of the approved Plan are not implemented without prior approval by the NRC.

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

Technical reviews of the Plan and procedures shall be conducted in accordance with station procedures. The reviewer shall determine the need for cross-disciplinary reviews. Revisions to the Plan and Implementing Procedures shall be reviewed and approved by the Manager of Emergency Preparedness 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 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 Plan only. Verified copies may be used for position specific procedure sets used by the ERO. 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.

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. The 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 Oversight (NOS) organization. The assessment will be performed either at intervals not to exceed 12 months or as necessary, based on an assessment by NOS 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.

Results of this audit are submitted for review to the Site Vice President. The Manager of Emergency Preparedness 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 Manager of Emergency Preparedness.

10. Maintenance of Emergency Telephone List

A phone list contains telephone numbers used by the ERO during an emergency. These numbers are verified and updated at least quarterly.

## 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, Title10, 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, 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-0737, Clarification of TMI Action Plan Requirements, dated October 1980.
14. NUREG-0737, Supplement 1, Requirements for Emergency Response Capability, December 1982.
15. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
16. “FEMA REP Program Manual"
17. Indian Point Energy Center Unit 1, 2 and 3 FSARs
18. Indian Point Energy Center Unit 1, 2 and 3 Tech Specs
19. USNRC Reg. Guide 1.101, "Emergency Planning & Preparedness for Nuclear Power Plants"
20. 10CFR50, Appendix R
21. SAND 77-1725, Public Protection Strategies for Potential Nuclear Reactor Accidents: Sheltering Concepts With Existing Public and Private Structures, February 1978
22. INPO Emergency Resources Manual

**Appendix 1: References (cont.)**


23. "Maintaining Emergency Preparedness Manual," dated November, 1987 INPO 87-019.
24. "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.
25. "Voluntary Assistance Agreement By and Among Electric Utilities involved in Transportation of Nuclear Materials," dated November 1, 1980.
26. Comprehensive Environmental Response, Compensation and Liability Act of 1980.
27. Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendation for State and Local Agencies, Volume 47, No. 205, October 22, 1982.
28. American Nuclear Insurers Bulletin #5B (1981), "Accident Notification Procedures for Liability Insured's".
29. "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency: Final Recommendations on Use," Federal Register Vol. 47, No. 125, June 29, 1982.
30. INPO Coordination agreement on emergency information among USCEA, EPRI, INPO, NUMARC and their member utilities, dated April (1988).
31. Babcock and Wilcox Company, Post Accident Sample Offsite Analysis Program (1982).
32. ANI/MAELU Engineering Inspection Criteria For Nuclear Liability Insurance, Section 6.0, Rev. 1, "Emergency Planning."
33. NEI 99-01 Rev 5, "Methodology for Development of Emergency Action Levels"
34. USNRC Reg. Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants", March 2007
35. INPO 09-006 Guidelines for Training and Qualification of Emergency Response Organization Personnel
36. New York State Comprehensive Emergency Management Plan Radiological Hazards Annex for Fixed Nuclear Facilities
37. NUREG-0654 – FEMA – REP – 1, Revision.1, Supplement 3, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.
38. Westchester County Fire Mutual Aid Plan
39. IPEC Security Safeguards Contingency Plan and Incident Response Plan
40. NSIR/DPR – ISG-01 "Interim Staff Guidance – Emergency Planning For Nuclear Power Plants", ADAMS Accession No. ML113010523 pages 18 to 21.
41. 2014 IPEC ETE Addendum (KLD TR-557, dated October 17, 2014)

## Appendix 2: Letters of Agreement

Copies of agreement letters for the offsite emergency response supporting organizations listed below are maintained in the Emergency Planning Department files.

1. Verplanck Fire District (Fire/Ambulance)
2. Buchanan Engine Co. No. 1, Inc.
3. New York-Presbyterian/Hudson Valley Hospital
4. Phelps Memorial Hospital Center
5. Department of Energy – Radiation Emergency Assistance
6. Westinghouse Electric Corporation
7. Institute of Nuclear Power Operations (INPO)
8. New York State Police
9. New York State Division of Homeland Security and Emergency Services
10. Department of Energy – Radiological Assistance Program Region 1 (Brookhaven)

As Letters of Agreement are received and updated they will be listed in this section. Regular updates that do not change the level of service do not require an EPLAN change unless they impact the planning standards. Letters listed 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.

For hostile action based events, response is provided by Verplanck Fire District, Buchanan Engine Co. No. 1 Inc., and the New York State Police.

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

Emergency Plan Implementing Procedures to Plan Sections

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-115<br>EN-EP-900 | Emergency Plan Forms | All |
| IP-EP-120 | Emergency Classification | D, Table D-1 |
| IP-EP-210<br>IP-EP-251<br>IP-EP-260<br>EN-EP-609<br>EN-EP-610<br>EN-EP-611<br>EN-EP-900 | Emergency Management | A, B, Table B-1, B-7, C, Appendix 2 |
| IP-EP-210 | Control Room Augmentation | B, Table B-1 |
| EN-EP-610 | TSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-611 | OSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-609 | EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-350<br>EN-EP-611 | Radiation Protection, Emergency Exposure Controls and Response | J, K, L |
| IP-EP-240 | Emergency Security Organization Activation and Response | B, Table B-1, E, O |
| IP-EP-241 | Incident Command Post | B, Table B-1, E |
| IP-EP-310<br>IP-EP-340 | Offsite Dose Assessment | I, Table B-1 |
| IP-EP-330<br>IP-EP-340 | Airborne Sample Analysis | C, Appendix 2, I |
| IP-EP-350 | Emergency Contamination Control | K, L |
| IP-EP-360 | Core Damage Assessment | I |
| IP-EP-410 | Protective Action Recommendations | J |
| IP-EP-420 | Use of Potassium Iodide by Indian Point Personnel During and Emergency | K.2 |

| **Procedure ID Number** | **Subject Addressed** | **IPEC Emergency Plan Section(s)** |
|---|---|---|
| IP-EP-251<br>EN-EP-609 | Alternate EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-510 | Data Equipment Operation | Table B-1, B.5, H |
| IP-EP-320<br>EN-EP-609 | Offsite Monitoring Team Activation and Response | I |
| IP-EP-430<br>EN-EP-611 | Evacuation/Accountability | J |
| IP-EP-430 | Search and Rescue | J |
| EN-EP-613 | Recovery | M |
| IP-EP-340<br>IP-EP-620 | Estimating Total Population Exposure | I, M |
| IP-EP-260 | Joint Information Center Procedure Set | B, G |
| EN-EP-613 | Emergency Preparedness Corporate Support | A, B |
| EN-EP-311 | Emergency Response Data System (ERDS) | Table B-1, H, I |
| 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 |

Emergency Planning Administrative Procedures to Plan Sections

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.

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD1 | Emergency Preparedness Department Organization and Responsibilities | P |
| IP-EP-AD2 | Emergency Plan Controlled Documents | P |
| EN-TQ-110 | Emergency Response Training Program | O |
| EN-TQ-110-01 | Fleet E-Plan Training Course Summary | O |
| EN-EP-306 | Drills and Exercises | N |
| EN-EP-307 | Hostile Action Based Drills and Exercises | N |
| EN-EP-308 | Emergency Planning Critiques | N |
| EN-FAP-EP-005 | Emergency Preparedness Performance Indicator Program | N |
| IP-EP-AD6 | Emergency Preparedness Department Facilities and Equipment Surveillances | E, F, H, I, J, N |
| EN-EP-310 | Notifications Systems Testing and Maintenance | F, N |
| IP-EP-AD10 | Offsite Emergency Preparedness Support | A, G, L, O |
| IP-EP-AD13 | Emergency Action Levels Technical Basis Document | D, I, J |
| IPEP-AD-16 | Emergency Planning Records | All |
| IP-EP-AD 17 | Emergency Planning Equipment Administration | E, F, H, I, J |
| EN-EP-801 | Emergency Response Organization | A, B, C |
| IP-EP-AD40 | Equipment Important to Emergency Response | D, E, F, G, H, I, J |

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD12<br>IP-EP-AD20<br>IP-EP-AD30<br>IP-EP-AD31<br>IP-EP-AD32<br>IP-EP-AD33<br>IP-EP-AD34<br>IP-EP-AD35<br>IP-EP-AD36<br>IP-EP-AD38<br>IP-EP-AD39<br>IP-EP-AD41 | IPEC Alert Notification System | E, E.6 |

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

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

AC ..... Alternating Current
AD ..... Administrative Directive
AEOF ..... Alternate Emergency Operations Facility
ALARA ..... As Low As Reasonably Achievable
ANI ..... American Nuclear Insurers
ANS ..... Alert and Notification System
ANSI ..... American National Standards Institute
ARM ..... Area Radiation Monitor
Ci ..... Curie
CDE ..... Committed Dose Equivalent
cc ..... cubic centimeter
CR ..... Control Room
CFR ..... Code of Federal Regulations
CEC ..... Corporate Emergency Center
$cm^2$ ..... square centimeter
Cs ..... Cesium
DC ..... direct current
DE ..... Dose Equivalent
DHS ..... Department of Homeland Security
DLR ..... Dosimeter of Legal Record
DOE ..... U. S. Department of Energy
DOT ..... U. S. Department of Transportation
dpm ..... disintegration per minute
EAL ..... Emergency Action Level
EAS ..... Emergency Alert System
ED ..... Emergency Director
ENS ..... (NRC) Emergency Notification System
EOC ..... Emergency Operations Center
EOF ..... Emergency Operations Facility
EOP ..... Emergency Operating Procedure
EPA ..... U. S. Environmental Protection Agency
EPZ ..... Emergency Planning Zone
ERDS ..... Emergency Response Data System
ERO ..... Emergency Response Organization
ETD ..... Emergency Telephone Directory
FEMA ..... Federal Emergency Management Agency

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

FRERP ..... Federal Radiological Emergency Response Plan
FSAR ..... Final Safety Analysis Report
Ge ..... Germanium
GE ..... General Emergency
GET ..... General Employee Training
I ..... Iodine
ICP ..... Incident Command Post
I&C ..... Instrument and Control
INPO ..... Institute of Nuclear Power Operations
IP ..... Implementing Procedure
IP1, IP2, or IP3 ..... Indian Point Energy Center Unit 1, 2 or 3
IPEC ..... Indian Point Energy Center
IPZ ..... Ingestion Pathway Zone
IRAP ..... Interagency Radiological Assistance Program
ISFSI ..... Independent Spent Fuel Storage Installation
JIC ..... Joint Information Center
KI ..... Potassium Iodide
Kr ..... Krypton
Li ..... Lithium
LGR ..... Local Government Radio
LOCA ..... Loss of Coolant Accident
mR ..... milliroentgen
MWt ..... Megawatt Thermal
NRC ..... U. S. Nuclear Regulatory Commission
NUE ..... Notification of Unusual Event
NYSOEM ..... NYS Office of Emergency Management
OSC ..... Operations Support Center
OSRC ..... On-Site Safety Review Committee
PAG ..... Protective Action Guide
PAR ..... Protective Action Recommendation
PASS ..... Post Accident Sampling System
POM ..... Plant Operations Manager
R ..... roentgen
RACES ..... Radio Amateur Civil Emergency Services
RCA ..... Radiologically Controlled Area
RECS ..... Radiological Emergency Communications System
RERP ..... Radiological Emergency Response Plan
OMT ..... Offsite Monitoring Team

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

RP ..... Radiation Protection
SAE ..... Site Area Emergency
SCBA ..... Self-Contained Breathing Apparatus
SM ..... Shift Manager
SPDS ..... Safety Parameter Display System
Sr ..... Strontium
STA ..... Shift Technical Advisor
TCP/IP ..... Transfer Communication Protocol/Internet Protocol
TDD ..... Telecommunications Device for the Deaf
TLD ..... Thermoluminescent Dosimeter
TSC ..... Technical Support Center
μCi ..... microcuries
UFSAR ..... Updated Final Safety Analysis Report
Xe ..... Xenon

## 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.

**Activated –** An order has been made to activate an emergency response facility, and the facility is in the process of being staffed.

**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 Energy Center 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** - 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.

**Dose Equivalent** - 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.

**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 Entergy 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 Entergy 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.

**Emergency Planning Zone (EPZ)** - The area around the Indian Point Energy Center 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 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 the licensee has the 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 Energy Center Site** - The combined areas immediately surrounding Units 1, 2 and 3 that are owned and operated by Entergy.

**Joint Information Center** – 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 principal Emergency Operations Centers in the Public Security Building, in Harriman State Office Campus in Albany, New York and at the Hudson Valley Transportation Center in Hawthorne, New York.

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

**Offsite** - Locations outside of the Indian Point Energy Center Site boundary.

**Onsite** - The area within the Indian Point Energy Center Site boundary.

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

**Operational** – Status of an emergency facility declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is setup and available to perform the emergency functions assigned to that facility.

**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** - An area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 5mRem (0.05 mSv) in one hour at 30 cm (~ 12 inches) from the radiation source or from any surface that the radiation penetrates.

**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** - 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.

**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.

**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.

**Staffed** – The emergency response facility has been activated and sufficient personnel are available to perform the required functions as determined by the facility manager.

**Station** - The three Entergy Nuclear Generating Units (1, 2 and 3) located on the Indian Point Energy Center 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.

**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 fifteen temporal 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 facility (e.g., schools, nursing homes, and hospitals) population, as well as variations in roadway conditions. The fifteen 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 | Winter | Weekend | Midday | Good | West Point Football |
| 14 | Summer | Weekend | Midday | Good | Event at Croton Point Park |
| 15 | Summer | Midweek | Midday | Good | Roadway impact Rt. 6; Rt. 9W; Palisades Pkwy; Taconic Pkwy |

The traffic demand and trip-generation rate of evacuating vehicles were estimated from the gathered data. Sources of data include the 2010 Census, New York agencies, county agencies, a telephone survey and special concern facilities. (See Section 3/Appendix E and

**Appendix 5**

**EVACUATION PLANS**

Section 5/Appendix F of the ETE of the 2012 ETE Report (Indian Point Energy Center, Development of Evacuation Time Estimates, KLD Engineering PC, KLD TR-537, December 2012) for a complete discussion of traffic demand and trip generation time, respectively.)

Following federal guidelines, the Indian Point Energy Center (IPEC) Emergency Planning Zone (EPZ) is subdivided into 38 Protective Action Areas. The Protective Action Area definitions are provided in Section II. The 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 H of the 2012 ETE Report. Additional Regions were defined in the 2014 ETE Addendum (Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering PC, KLD TR-557, October 17, 2014). For each Protective Action Area within the EPZ, primary evacuation routes have been identified. Descriptions of the Protective Action Areas and their associated evacuation routes are given in the county plan procedures and in Section 10 and Appendix L of the 2012 ETE Report. Listings and maps of reception centers for each Protective Action Area are also included in the county procedures and in Section 10 of the 2012 ETE Report.

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.

## II. PROTECTIVE ACTION AREAS

The plume exposure EPZ for the IPEC has been subdivided into 38 discrete Protective Action Areas as shown in Figure 1. The 2010 US Census permanent resident population estimates for each of the Protective Action Areas are presented in the 2014 ETE Addendum and are provided in Table 1. The boundaries of the various Protective Action Areas are described by county in Tables 2 through 5.

## III. EVACUATION TIME ESTIMATES

Evacuation time estimates by Region for each of the scenarios are presented in Section 7 of the 2012 ETE Report. Updated evacuation time estimates for 90% and 100% of the population within the Protective Action Areas included in the regions defined by the two-mile and five-mile rings and for the full EPZ are presented in the 2014 ETE Addendum and provided in Tables 6-A, 6-B and 6-C.

## IV. 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.

**Appendix 5**

**EVACUATION PLANS**

**TABLE 1**

**EPZ Permanent Population 2010 Census**

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Briarcliff Manor | | | | 8,370 |
| Central Town of Clarkstown | | | 23,052 | |
| Northeastern Town of Ramapo | | | 25,941 | |
| Northeastern & Eastern Town of Clarkstown | | | 15,127 | |
| Northwestern Town of Clarkstown | | | 7,453 | |
| Ossining | | | | 30,478 |
| Village of Haverstraw | | | 11,910 | |
| Town of New Castle (west of Hardscrabble Road) | | | | 4,686 |
| Village of West Haverstraw | | | 10,376 | |
| Unincorporated Areas of the Town of West Haverstraw | | | 11,483 | |
| Town of Tuxedo east of NYS Thruway | 204 | | | |
| Village of Pomona | | | 4,520 | |
| Grassy Point | | | 142 | |
| Croton-on-Hudson | | | | 8,078 |
| Stony Point | | | 13,111 | |
| Verplanck | | | | 2,183 |
| Tompkins Cove | | | 1,797 | |
| Buchanan | | | | 2,232 |
| Montrose | | | | 2,593 |
| Jones Point | | | 125 | |
| Village of Harriman east of NYS Thruway | 0 | | | |
| Peekskill | | | | 23,565 |
| Cortlandt | | | | 26,565 |
| Bear Mountain State Park | 16 | | 5 | |
| Harriman State Park | 6 | | 9 | |

## TABLE 1 (cont.)

**EPZ Permanent Population**
**2010 Census[1]**

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Yorktown | | | | 36,275 |
| Somers (west of Route 118) | | | | 4,436 |
| Fort Montgomery | 1,837 | | | |
| Southwest Carmel | | 2,597 | | |
| Village of Highland Falls | 4,175 | | | |
| Lower Phillipstown | | 2,581 | | |
| Village of Woodbury (east of NYS Thruway) | 2,386 | | | |
| West Point | 6,464 | | | |
| Southern Putnam Valley | | 10,171 | | |
| Town of Highlands | 0 | | | |
| Hudson River | Hudson River | | | |
| Town of Cornwall (south of Angola Road) | 1,035 | | | |
| Southern Phillipstown | | 4,569 | | |
| **Total Population by County:** | **16,123** | **19,918** | **125,051** | **149,461** |
| **Total EPZ Population** | **310,553** | | | |

1. Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering P.C, KLD TR-557, Section 2, October 17, 2014

**Table 2. Orange County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Town of Tuxedo east of NYS Thruway | 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). |
| Village of Harriman east of NYS Thruway | Village of Harriman east of NYS Thruway. |
| Fort Montgomery | The Hamlet of Fort Montgomery. |
| Village of Highland Falls | Village of Highland Falls. |
| Village of Woodbury east of NYS Thruway | The Village of Woodbury east of the NYS Thruway from the Town of Tuxedo to the Town of Cornwall. |
| West Point | The United States Military Academy (West Point) |
| Town of Highlands | The Town of Highlands excluding the Village of Highland Falls and the Hamlet of Fort Montgomery. |
| Town of Cornwall (south of Angola Road) | 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. |
| Bear Mountain State Park | The portion of Bear Mountain State Park in Orange County. |
| Harriman State Park | The portion of Harriman State Park in Orange County. |

**Table 3. Putnam County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Southwest Carmel | 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. |
| Lower Phillipstown | The most southern part of the Town of Phillipstown; that is, south of Canopus Hollow Road; Old West Point Road east, east of US Route 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. |
| Southern Putnam Valley | 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. |
| Southern Phillipstown | The southern half of Phillipstown, not including the area defined as Lower Phillipstown; that is, the Village of Garrison and the Village of Nelsonville except for the portion of Hudson Highlands State Park, and the portion of Phillipstown 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. |

**Table 4. Rockland County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Central Town of Clarkstown | 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. |
| Northeastern Town of Ramapo | 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. |
| Northeastern & Eastern Town of Clarkstown | 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. |
| Northwestern Town of Clarkstown | 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. |
| Village of Haverstraw | In the Town of Haverstraw, the Village of Haverstraw. |
| Village of West Haverstraw | In the Town of Haverstraw, the Village of West Haverstraw. |
| Unincorporated Areas of the Town of Haverstraw | The unincorporated areas of the Town of Haverstraw including the Hamlets of Thiells and Mount Ivy. |

**Table 4 Rockland County Protective Action Area Descriptions (continued)**

| Protective Action Area | Description |
|---|---|
| Village of Pomona | In the Towns of Haverstraw and Ramapo, the Village of Pomona and the unincorporated portions of the Hamlet of Pomona. |
| Grassy Point | Grassy Point east of the Penny Bridge, Minisceongo Yacht Club, Haverstraw Marina, Haverstraw Bay County Park, Bowline Park. |
| Stony Point | The Town of Stony Point east of Bear Mountain and Harriman State Parks, south of Tompkins Cove and west of Grassy Point. |
| Tompkins Cove | Tompkins Cove zip code area. |
| Jones Point | 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. |
| Bear Mountain State Park | 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. |
| Harriman State Park | The central and western parts of Harriman State Park bounded on the east by the Palisades Interstate Parkway (PIP) northbound and a line connecting PIP/US. Route 6 to the West Point Military Reservation boundary where they are very close, about 1 1/2 miles W of the Bear Mountain Bridge; on the south by the Ramapo/Haverstraw Town Line and the Rockland/Orange County Line southwestward; and on the west by the New York State Thruway (Interstate Route 87/287, not included in the EPZ) and the NW/SE running utility right-of-way crossing Smith Rock and Pound Mountain. |

**Table 5. Westchester County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Briarcliff Manor | The Village of Briarcliff Manor. |
| Ossining | The Town and Village of Ossining. |
| Town of New Castle (west of Hardscrabble Rd) | The Town of New Castle west of Hardscrabble Road. |
| Croton-on-Hudson | The Village of Croton-on-Hudson. |
| Verplanck | The Hamlet of Verplanck. |
| Buchanan | The Village of Buchanan. |
| Montrose | The Hamlet of Montrose. |
| Peekskill | The City of Peekskill. |
| Cortlandt | 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. |
| Yorktown | The Town of Yorktown. |
| Somers (west of Route 118) | The Town of Somers west of State Route 118/Tomahawk Street. |

**Table 6-A. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Summer Scenarios**

| | Summer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Midweek | | | | Weekend | | | | Midweek, Weekend | |
| **Scenario:** | 1 | | 2 | | 3 | | 4 | | 5 | |
| **Region** | Midday | | | | Midday | | | | Evening | |
| | Good Weather | | Rain | | Good Weather | | Rain | | Good Weather | |
| | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% |
| **R1 (2 Mile)** | 2:25 | 5:20 | 2:25 | 5:20 | 2:10 | 5:15 | 2:15 | 5:15 | 2:10 | 5:15 |
| **R2 (5 Mile)** | 3:05 | 5:20 | 3:20 | 5:20 | 3:10 | 5:20 | 3:20 | 5:20 | 2:40 | 5:20 |
| **R3 (Full EPZ)** | 3:55 | 6:55 | 4:10 | 7:10 | 3:35 | 6:10 | 3:45 | 6:10 | 3:15 | 5:55 |

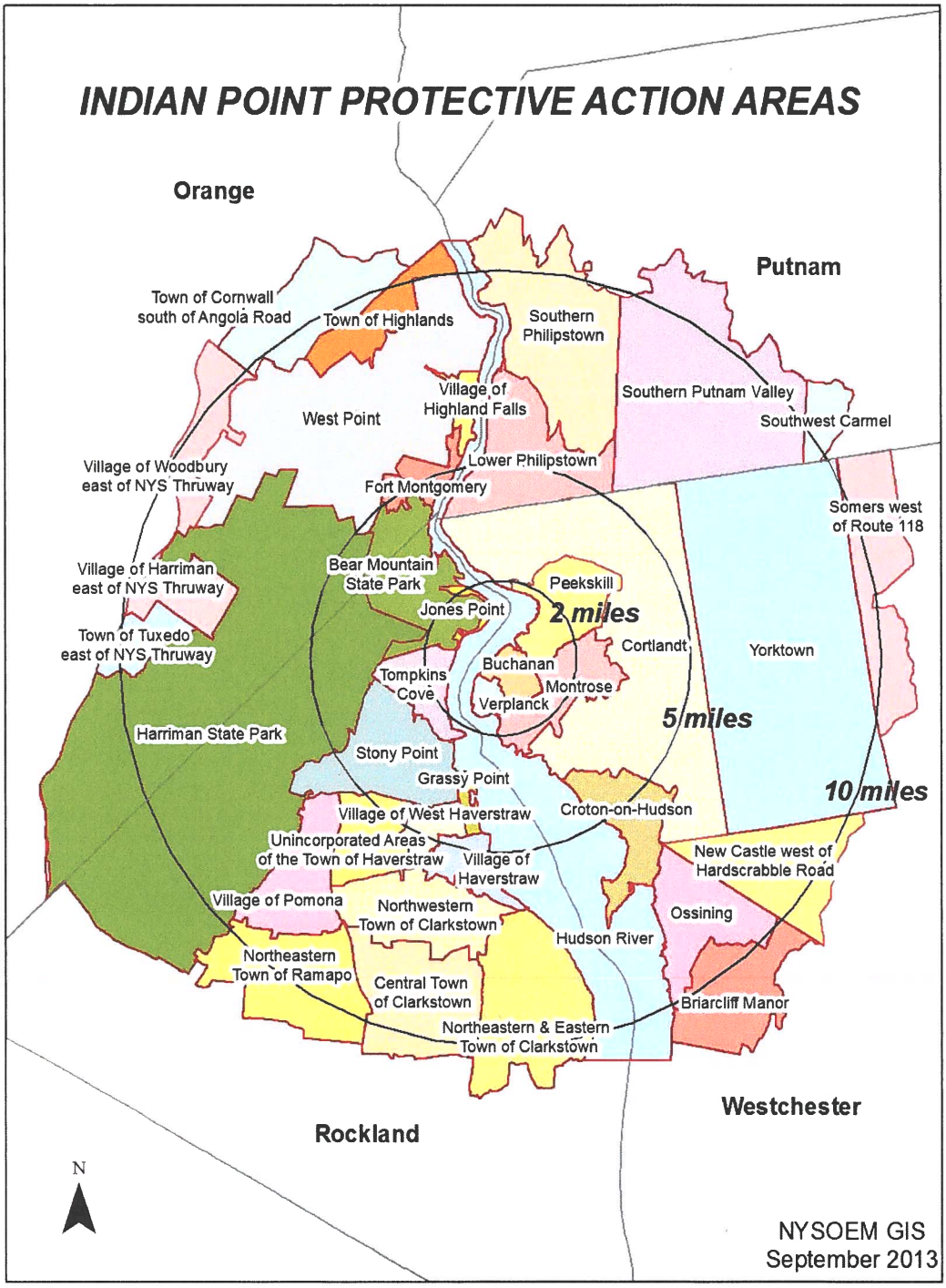
**Table 6-B. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Winter Scenarios**

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

**Table 6-C. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Special Events**

| | Winter | | Summer | | | |
|---|---|---|---|---|---|---|
| | Weekend | | Weekend | | Midweek | |
| Scenario: | 13 | | 14 | | 15 | |
| Region | Midday | | Midday | | Midday | |
| | Good Weather | | Good Weather | | Good Weather | |
| | West Point Football | | Croton Point Park Event | | Roadway Impact | |
| | 90% | 100% | 90% | 100% | 90% | 100% |
| R1 (2 Mile) | 2:10 | 5:15 | 2:10 | 5:15 | 2:25 | 5:20 |
| R2 (5 Mile) | 2:45 | 5:20 | 3:05 | 5:20 | 3:05 | 5:20 |
| R3 (Full EPZ) | 3:30 | 5:55 | 3:35 | 6:10 | 4:40 | 7:00 |

**FIGURE 1**




EMERGENCY PLANNING PROTECTIVE ACTION AREAS

**ATTACHMENT 4**

**NL-19-001**

**Proposed Stage I Revision to the Indian Point Energy Center Site Emergency Plan (Clean Version)**

# Indian Point Energy Center

# Emergency Plan

| | | | |
|---|---|---|---|
| Prepared by: | Antonio Iraola | | |
| | Print Name | Signature | Date |
| Approval: | Frank J Mitchell | | |
| | Print Name | Signature | Date |

Effective Date: TBD

LIST OF EFFECTIVE PAGES

| Page | Revision |
|---|---|
| Table of Contents | TBD |
| Part I | TBD |
| Part 2, Section A | TBD |
| Part 2, Section B | TBD |
| Part 2, Section C | TBD |
| Part 2, Section D | TBD |
| Part 2, Section E | TBD |
| Part 2, Section F | TBD |
| Part 2, Section G | TBD |
| Part 2, Section H | TBD |
| Part 2, Section I | TBD |
| Part 2, Section J | TBD |
| Part 2, Section K | TBD |
| Part 2, Section L | TBD |
| Part 2, Section M | TBD |
| Part 2, Section N | TBD |
| Part 2, Section O | TBD |
| Part 2, Section P | TBD |
| Appendix 1 | TBD |
| Appendix 2 | TBD |
| Appendix 3 | TBD |
| Appendix 4 | TBD |
| Appendix 5 | TBD |

Page

**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
Figure 1.B-1 10-Mile Emergency Planning Zone… ..... 7
Figure 1.B-2 50-Mile Emergency Planning Zone… ..... 8
Figure 1.B-3 Indian Point Energy Center Site Map... ..... 9

**Part 2: PLANNING STANDARDS AND CRITERIA**

**Section A: ..... Assignment of Responsibility**

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

Section B: Station Emergency Response Organization

1. Indian Point 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

Section C: Emergency Response Support and Resources

1. Federal Response Support and Resources ..... C-1
2. Liaisons ..... C-1
3. Radiological Laboratories ..... C-2

Page

4. Other Assistance ..... C-2

Section D: Emergency Classification System

1. Emergency Classification ..... D-1
2. Emergency Action Levels ..... D-7
3. Offsite Classification Systems ..... D-7
4. Offsite Emergency Procedures ..... D-8

Section E: Notification Methods and Procedures

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

Section F: Emergency Communications

1. Description of Primary Communications Systems ..... F-1

Section G: Public Education and Information

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

Section H: Emergency Facilities and Equipment

1. In-Plant Emergency Response Facilities ..... H-1
2. Emergency Operations Facilities ..... H-3
3 Joint Information Center ..... H-4
4 Alternative TSC/OSC ..... H-5
5. Offsite Emergency Operations Centers ..... H-5
6. Activation and Staffing of Emergency Response Facilities ..... H-5
7. Emergency Onsite Monitoring Systems ..... H-5
8. Offsite Emergency Data Acquisition ..... H-7
9. Facilities and Equipment for Offsite Monitoring ..... H-8

..... Page

10. Meteorological Monitoring ..... H-9
11. Facility and Equipment Readiness ..... ……H-10
12. Identification of Emergency Equipment and Supplies ..... H-10
13. Collection and Analysis of Field Monitoring Data ..... H-10

Section I: Accident Assessment

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. Offsite 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

Section J: Protective Response

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-4
8. Evacuation Time Estimates ..... J-4
9. Protective Measure Implementation ..... J-4
10. Factors Affecting Protective Measure Implementation ..... J-4
11. Ingestion Pathway Protective Measures ..... J-6
12. Monitoring of Evacuees ..... J-6

**Table of Contents (Cont.)**

Page

Section K: Radiological Exposure Control

1. Emergency Exposure Guidelines ..... K-1
2. Emergency Radiological Control 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

Section L: Medical and Public Health Support

1. Hospital Services ..... L-1
2. Onsite First Aid Capability ..... L-1
3. Medical Service Facilities ..... L-2
4. Medical Transportation ..... L-2

Section M: Re-entry and Recovery Planning

1. Re-entry and Recovery ..... M-1
2. Recovery Organization ..... M-3
3. Recovery Phase Notifications ..... M-6
4. Total Population Exposure ..... M-6

Section N: Drill and Exercise Program

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

Section O: Emergency Response Training

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

**Table of Contents (Cont.)**

Page

Section P: Responsibility for the Maintenance of the Planning Effort

1. Emergency Planning Staff Training ..... P-1
2. Authority for Emergency Preparedness Effort ..... P-1
3. Manager of Emergency Preparedness ..... 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 ..... P-5

**APPENDIXES**

Appendix 1: References ..... Appendix-1-1
Appendix 2: Letters of Agreement ..... 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

# 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 Energy Center units and the personnel who work at the plant.

The Indian Point Energy Center Emergency Plan (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 Plan 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. Units 1 and 2 are permanently defueled and only those areas of Units 1 and 2 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. Unit 3 is the only unit currently licensed to operate.

This Plan is solely dedicated to Indian Point Energy Center 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).

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 2010 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 Energy Center 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.

Plant

Unit 1 (615 MWt, permanently defueled), Unit 2 (3216 MWt, permanently defueled) and Unit 3 (3216 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-3 unit has 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 Energy Center Site during emergencies. It identifies an IPEC Emergency Response Organization (ERO), 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. Implementing Procedures have been developed to implement this Plan. These procedures identify the elements of the ERO and the interface with supporting offsite organizations. In addition to the Implementing Procedures (IP), Plan Administrative Directives (AD) have been developed to ensure proper maintenance of the program. A listing of procedures cross-referenced to sections of the Plan are contained in Appendix 3. Complete copies of the 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.

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. These agreements are listed 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 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 Corporation 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 Energy Center. 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

contained in the Plan 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 (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 (ED) 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 Energy Center.

**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-0728, "Concept of Operations: NRC Incident Response", was used in the development of the 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 Plan.

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

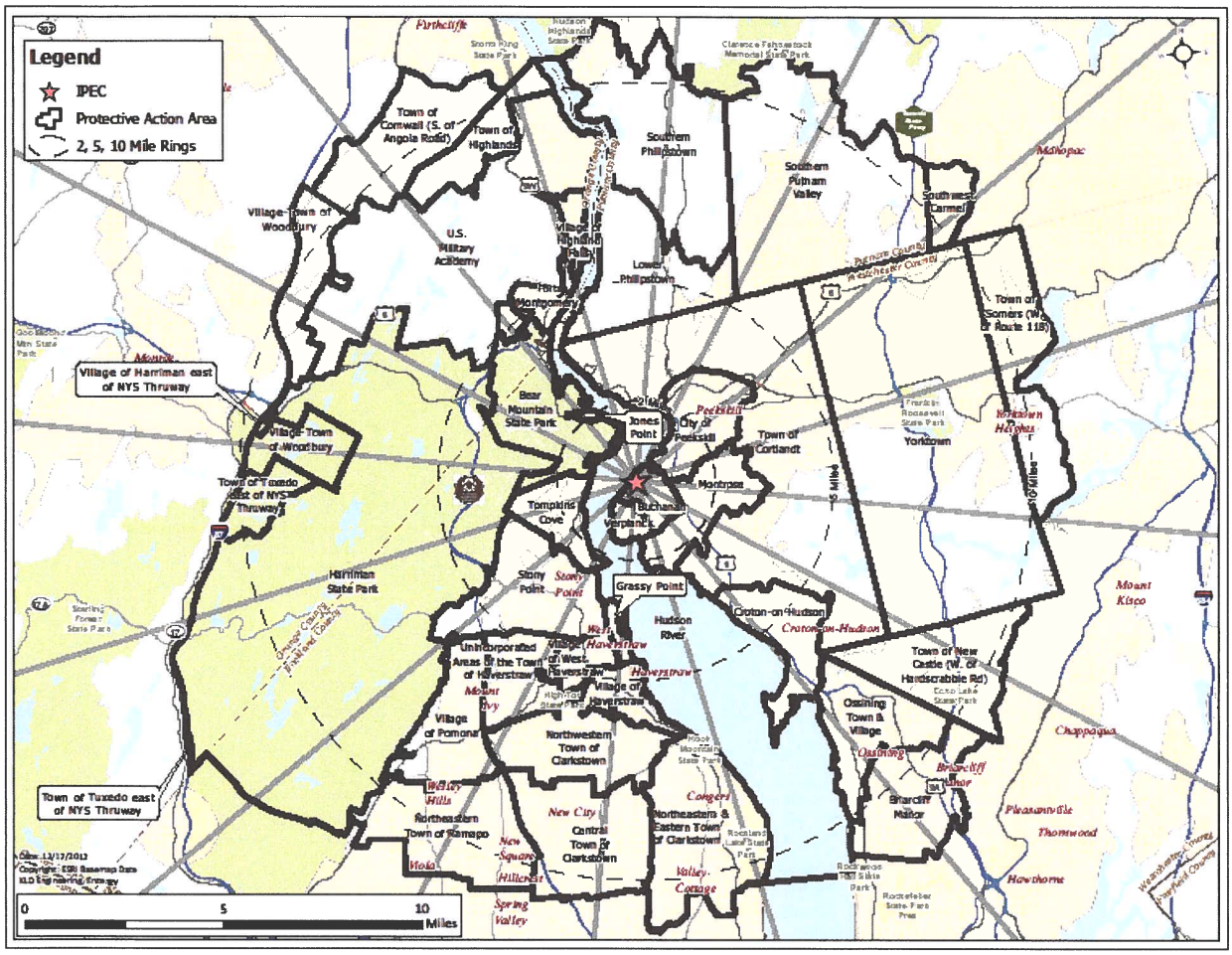
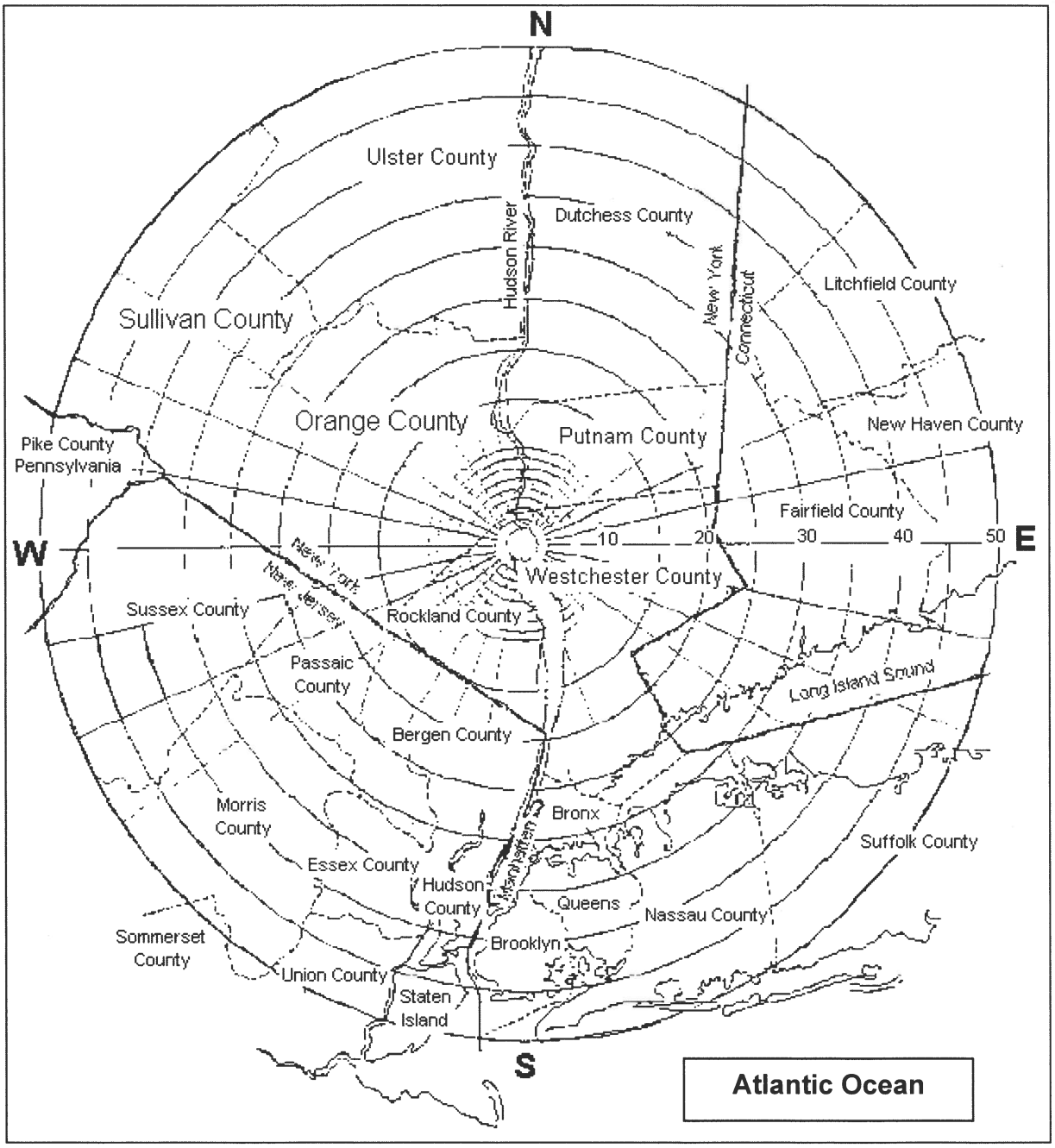
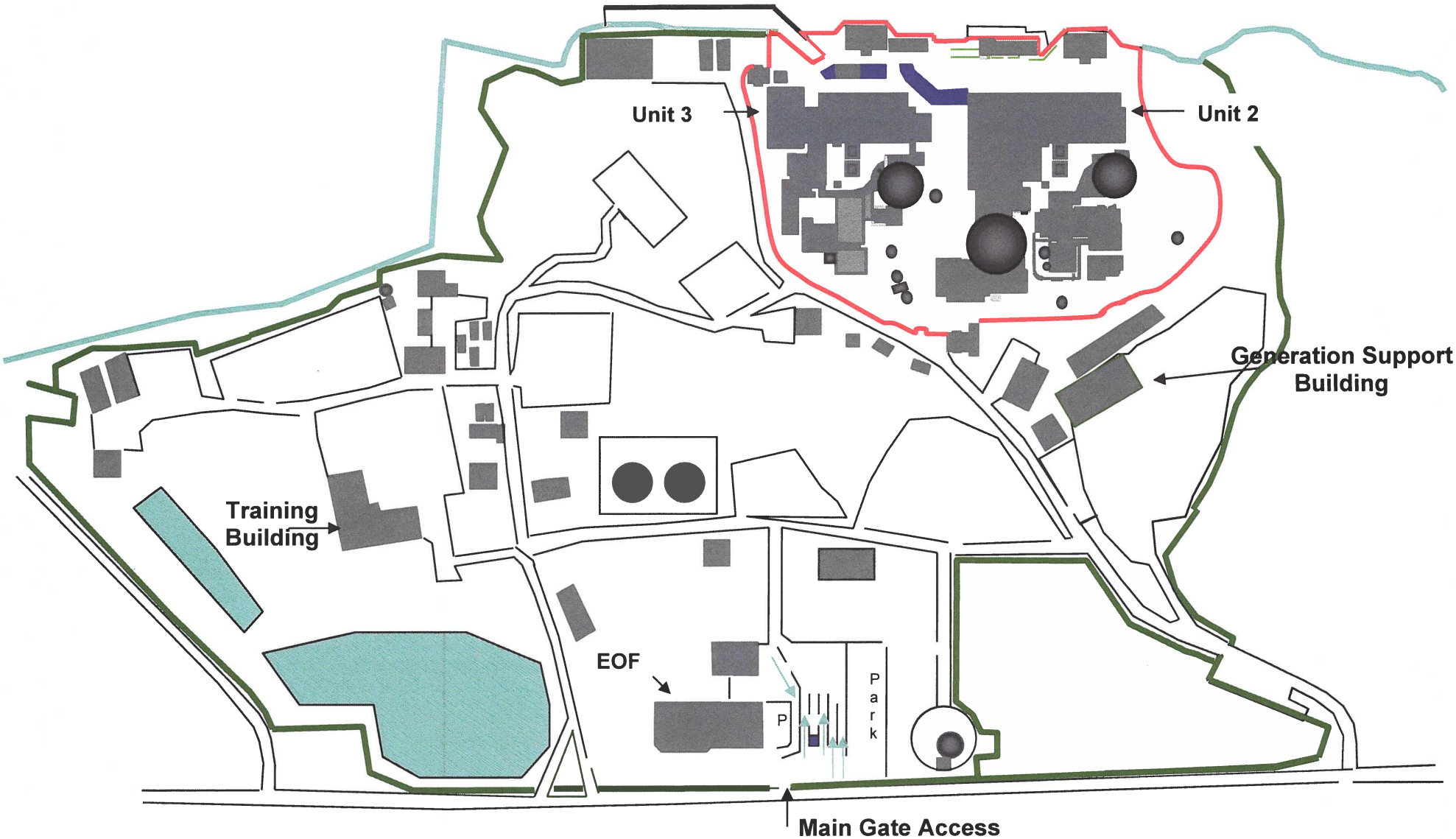


**Figure 1.B-2**
**50 Mile Emergency Planning Zone**



**INDIAN POINT ENERGY CENTER SITE MAP**

**Figure 1.B-3**



INTENTIONALLY LEFT BLANK

## Part 2: PLANNING STANDARDS AND CRITERIA

### Section A: Assignment of Responsibility

This section describes the primary responsibilities for emergency response by IPEC, 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 Energy Center.

      Federal Agencies

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

      - Nuclear Regulatory Commission (NRC), who act as technical/regulatory advisors to Indian Point Energy Center 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 Program 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 ED 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.

- 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 Energy Center 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 New York State Office of Emergency Management (NYSOEM). 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 Comprehensive Emergency Plan, Radiological Hazards Annex for Fixed Nuclear Facilities. Notification to the State of emergency conditions would be as indicated in Part 2, Section E.

- New York State has Emergency Operation Centers in Albany, Westchester and other areas in the state. All of the state EOCs are equipped with communication capability.

County Offices of Disaster and Emergency Services/Emergency Management

The four (4) counties located within the 10 mile Emergency Planning Zone (EPZ) that are involved in emergency response activities at the Indian Point Energy Center 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 Energy Center;

- 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 Energy Center.

- 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 Energy Center.

Each county has an Office of Emergency Management. The Director of each of these offices, or their designee, will act as the County Emergency Operations Manager 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 Energy Center 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 ERO replaces the normal plant organization. Indian Point Energy Center 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 Energy Center.

d. The Shift Manager (or the Unit 3 Control Room Supervisor in the absence of the Unit 3 Shift Manager) is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO.

e. Continuously manned communication points have been identified for all agencies involved in the planning effort.

2. <u>State and Local Functions and Responsibilities</u>

The State, and local counties 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.

3. Agreements in Planning Effort

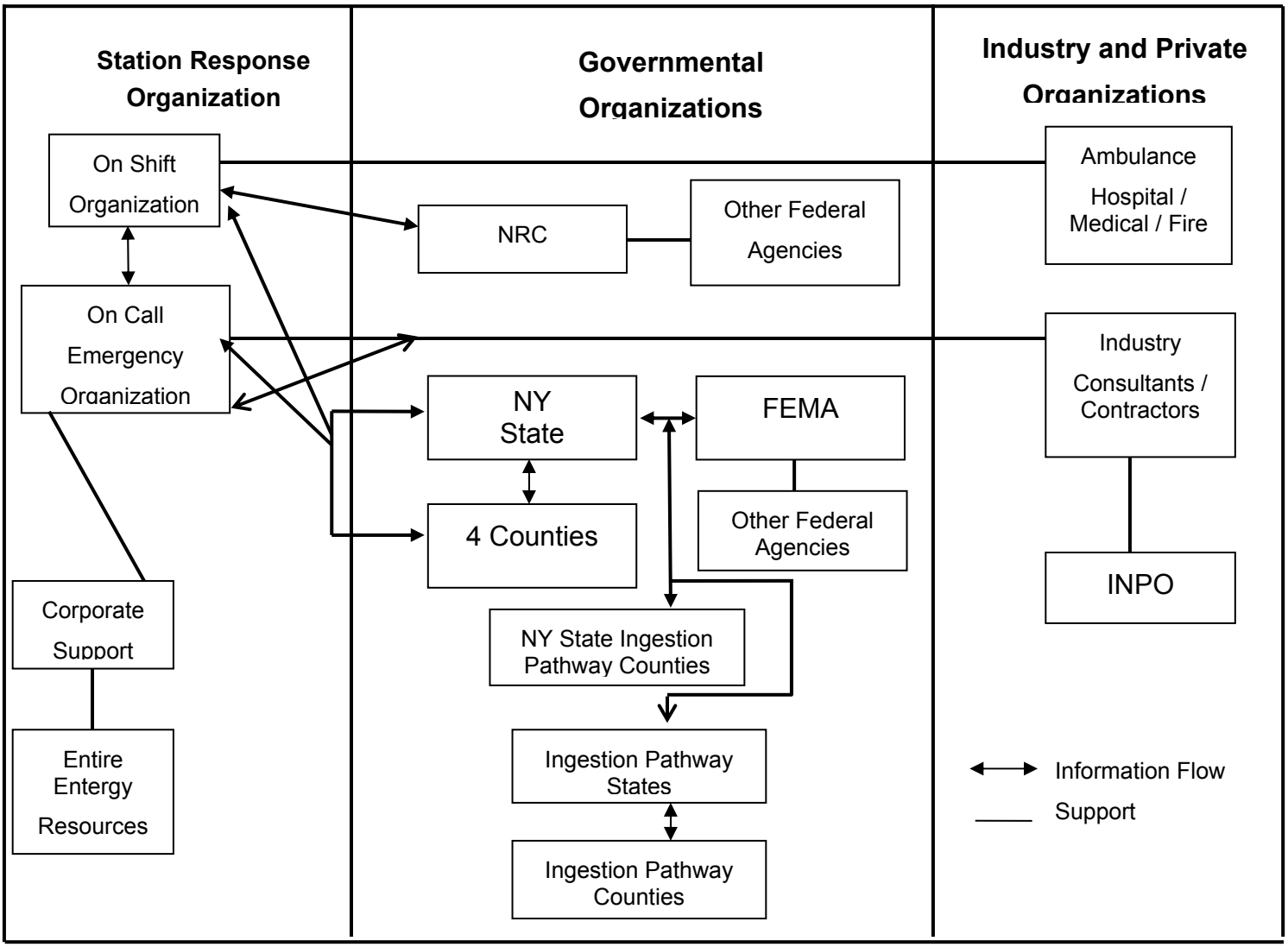
   Agreements establishing the concept of operations developed between IPEC and other support organizations having an emergency response role within the Indian Point Emergency Planning Zones (including hospitals and medical transportation) are provided in Appendix 2, "Letters of Agreement." These agreements 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 Energy Center. 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 ERO has sufficient numbers of qualified, trained personnel to provide the capability of continuous (24-hour) operations. The Manager of Emergency Preparedness administers programs to ensure availability of resources in the event of an emergency. The ED 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 ERO.

Figure A-1

Emergency Response Organizations Interrelationships




Notes:

1. Until the On-Call ERO is in place the Shift Manager (or the Unit 3 Control Room Supervisor if the Unit 3 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 ED, 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 ERO, 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 Energy Center 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 on-shift and other key responders capable of responding within 60 minutes of a declared emergency to support the on-shift 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 ERO. The full ERO will be activated at an Alert, Site Area Emergency or General Emergency.

   a. Normal Plant Organization

      The normal Indian Point Energy Center 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 Energy Center.

      Each Unit's normal watch organization [Figure B-1.1] functions twenty-four [24] hours per day, seven [7] days per week. The minimum on-shift staffing is shown in Table B-1 and includes the following qualified individuals:

      1) Unit 2

         One [1] Shift Manager, who is qualified as a Certified Fuel Handler and is in charge of on-shift personnel during his/her shift and is responsible for assuring that all activities are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;

         One [1] Nuclear Plant Operator at Unit 2 who performs plant operations, minor maintenance and monitoring under the direction of the Shift Manager.

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

      2) Unit 3

         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;

Five [5] Nuclear Plant Operators at Unit 3 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 at each unit. The Radiation Protection Technician can perform emergency duties at the Unit 2 SFP and/or Unit 3 during emergencies.

One [1] qualified individual is assigned as Fire Brigade Leader (FBL) for both units in accordance with the Fire Protection Program Plan.

One [1] qualified on-shift individual is the Communicator for notifications for both units.

The watch organization is augmented during normal working hours Monday through Friday by the Indian Point Energy Center 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 (Unit 3 Control Room Supervisor in the absence of the Unit 3 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. <u>On call Emergency Response Organization</u>

The 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 Energy Center, 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 and on-shift staffing in accordance with guidance of NRC's NSIR/DPR-ISG-01 interim staff guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities. An analysis of the IPEC On-Shift

staffing was conducted and a final analysis report was issued. The analysis report is available as a separate document. The analysis resulted in a total of seventeen persons on-shift.

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

Those personnel identified to augment the Watch Force within 60 minutes of the declaration of an Alert or higher are part of the on-call ERO. These personnel are notified by an electronic notification system and public address announcements, and are immediately available during normal working hours. These personnel are notified by an electronic notification system during non-working hours. An alternate notification system using an automated telephone notification process is used in the event that the normal electronic notification system is unavailable.

The activation phase consists of 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 ED 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 illustrate the Indian Point ERO. Personnel who will fill the positions identified are listed in an Emergency Telephone Directory.

2. <u>Authority Over Indian Point Emergency Response Organization:</u>

The Shift Manager (or the Unit 3 Control Room Supervisor in the event that the Unit 3 Shift Manager is unavailable), acting as the ED, 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 ED. He/she activates the ERO as necessary and continues to direct the emergency response until relieved by another qualified ED.

The relieving ED/Plant Operations Manager (POM) 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 POM holds this position until the on-call ED arrives. Overall control of the Onsite ERO is maintained by the Emergency Plant Manager (EPM) in the TSC. After command and control is transferred to the ED in the EOF/AEOF, it remains there until the event is terminated. In the event that the ED becomes unavailable or personnel at the EOF are required to transfer to the AEOF, command and control may be transferred to the CCR until such time as a new ED assumes command and control or the ED assumes command and control upon arrival at the AEOF.

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

3. Succession to Emergency Director:

The duties and responsibilities of the ED are initially assumed by the Shift Manager (the Unit 3 CR Supervisor in the absence of the Unit 3 Shift Manager). 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 ED is normally staffed by high level station management personnel.

4. Emergency Director Responsibilities:

The ED 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 EDs are designated in an Emergency Telephone Directory. The ED is stationed in the EOF 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 ED 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 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;
- Release of non-essential personnel from the site; and
- Approves information to the public prior to the JIC activation.

The ED is assisted in these activities by the entire ERO. Although the ED 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 ED. He/she directs and coordinates the operational aspects of the In-Plant ERO. He/she assures proper coordination and direction of the efforts of each element of the In-Plant ERO in returning the plant to and maintaining it in a safe and stable condition. The EPM is located in the TSC. 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 ED. Specific responsibilities of the EOF Manager include:

- Coordination of Entergy's emergency response efforts outside the Protected Area Fence;
- Assist the ED 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.

c. Company Spokesperson

The Company Spokesperson reports directly to the JIC Manager. 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 TSC under the direction of the TSC Manager. It is the central facility for the accumulation and re-transmittal of plant parameters;

Specific functions of the TSC 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 ED apprised of plant conditions; and
- Interfacing with NRC personnel in the TSC.

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.

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 ERO personnel is initiated by the Shift Manager and/or Control Room Communicator. Communications with offsite authorities are maintained from the Control Room until the ED takes over the responsibility at the EOF. A communicator is designated at the EOF 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 (RAC). These individuals ensure that sufficient monitoring activities are instituted, evaluate and assess the results and apprise the RAC of all activities, results and recommendations. Offsite radiological monitoring is provided by responding Radiation Protection Personnel or 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 OSC perform repair and corrective actions directed by the OSC 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.

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 ED. 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 TSC Security Coordinator. 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 Energy Center communications personnel and/or individuals assigned to the JIC. A Press Release Writer 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 JIC being operational.

The JIC 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 Press Release Writer and the JIC Manager have access to all necessary information, either directly available to them or available through the onsite ERO. A Public Information Liaison reports to the EOF with the initial augmentation of the watch force to facilitate information flow regarding the emergency to the JIC Technical Advisor. The ED prior to the activation of the JIC approves information that is used to notify the public. Once the JIC is operational, the JIC Press Release Writer 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 ERO 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 Duty Manager coordinates corporate support into the ERO once the on call ERO is activated. With the full activation of the ERO, Entergy is capable of continuous (24 hour) operations for a protracted period. The ED 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.

b. Additional Technical Assistance

If the need for additional technical assistance is identified, this may be obtained by the TSC Manager and the ED. 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 referenced 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 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 has 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 referenced in Appendix 2. All support, including support during hostile action events, is provided utilizing the National Incident Management System (NIMS) tool called the Incident Command System (ICS).

a. Ambulance Service

Twenty-four (24) hour ambulance service is provided by the Verplanck Fire District Ambulance with mutual aid backup from other ambulance services. Mutual aid backup from other ambulance services provides for additional Emergency Medical Services (EMS), ambulances and EMS personnel. 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.

c. Hospitals

The Hudson Valley Hospital Center at Peekskill / Cortlandt has agreed to accept patients from the Indian Point Energy Center 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.

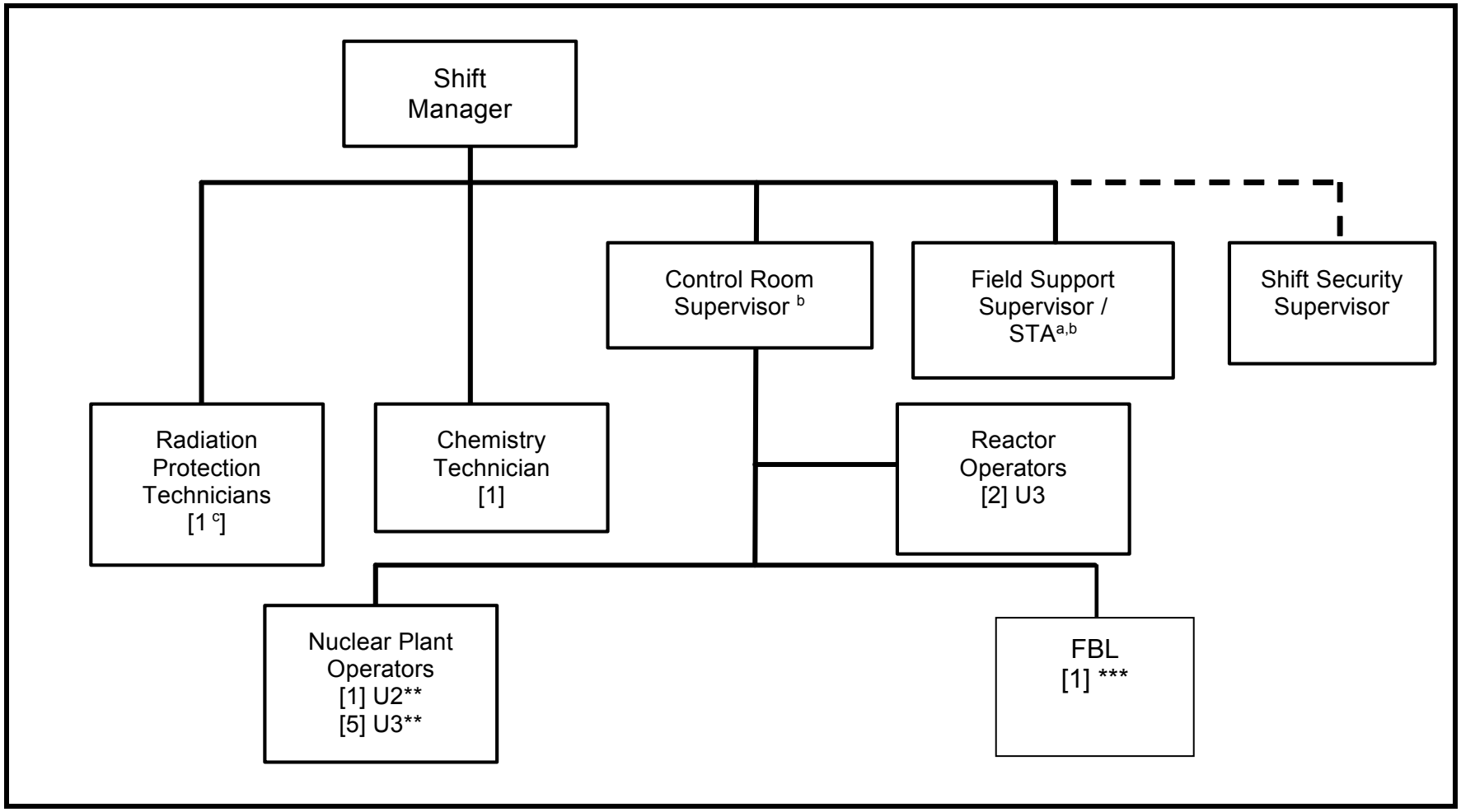
d. Law Enforcement

When notified that assistance is required, IPEC Security will notify the New York State Police which is the lead LLEA. As the situation demands, the Westchester County Police serve as the back-up to the State Police to provide timely reinforcement. The handling of security matters including those involving hostile action for the Indian Point Energy Center site is covered in the Security Safeguards Contingency Plan and Incident Response Plan.

e. Fire

Offsite firefighting support is provided by the Verplanck, Buchanan, and/or Montrose Fire Departments, as resources permit, with mutual aid backup from other fire departments. Mutual aid for fire response, fire apparatus, and firefighter resources is described in the Westchester County Fire Mutual Aid Plan.

**Figure B-1.1 Indian Point Energy Center Station Watch Organization per Unit**

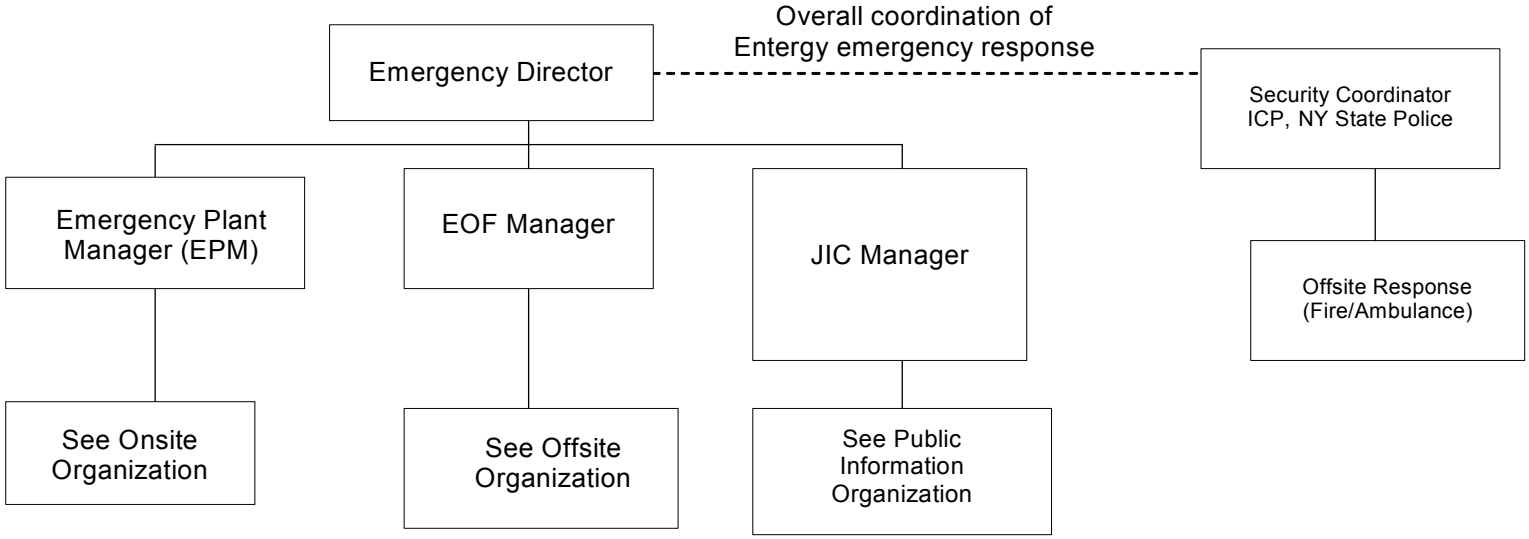



[a] Consistent with NUREG-0737 and Technical Specifications, the Field Support Supervisor / Shift Technical Advisor is not required on shift during cold shutdown conditions.
[b] A Control Room Supervisor and STA will not be assigned to Unit 2 in the permanently shut down and defueled condition.
[c] This RP Technician would assist at affected unit if needed

** One NPO would be the communicator and make notifications for both units

*** One qualified individual would serve as FBL for both units in accordance with the Fire Protection Program Plan

## Figure B-1.2a Emergency Response Organization – Major Areas



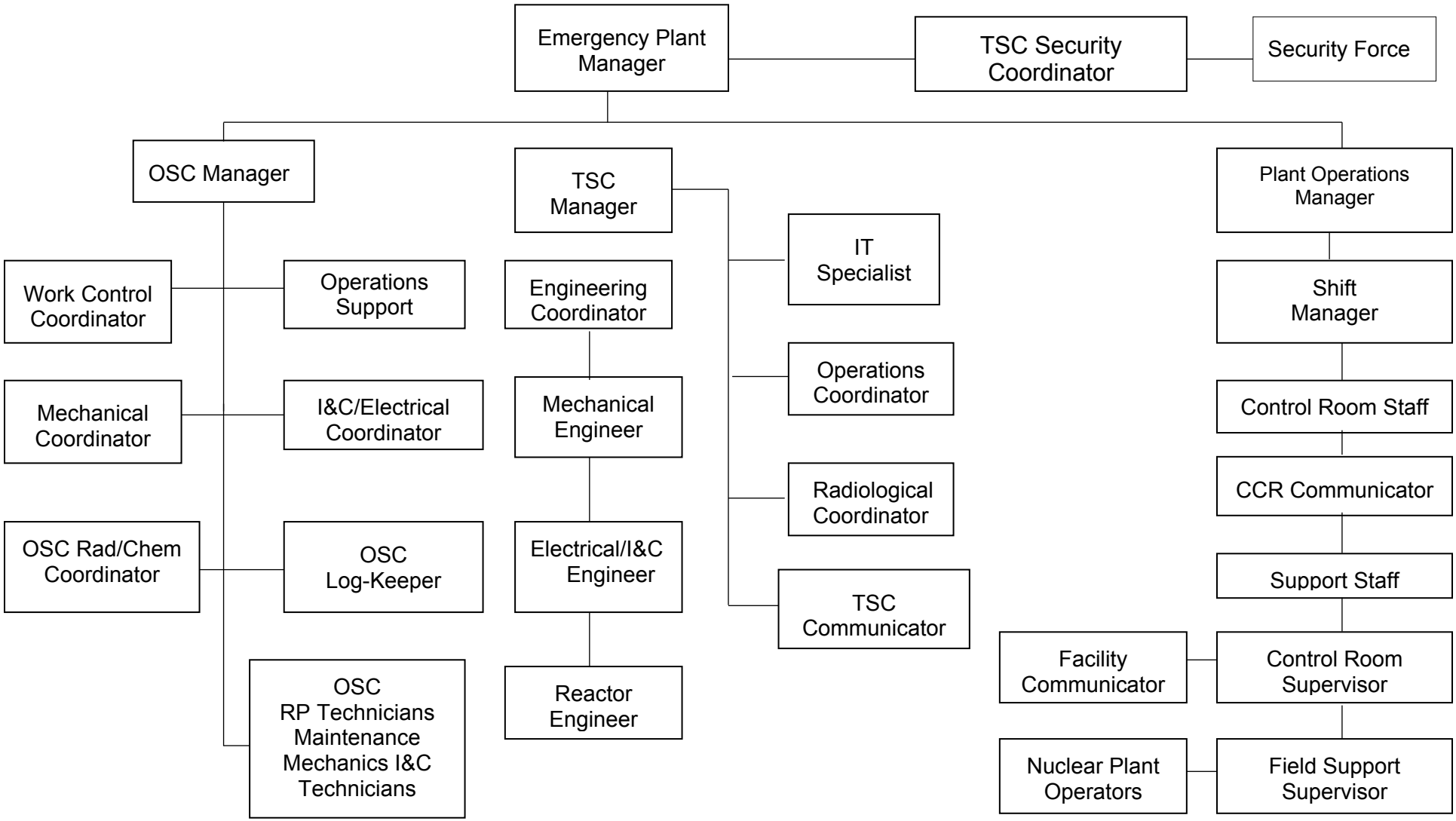

- Overall coordination of onsite response
- Safety of onsite personnel
- Advise ED on plant status, radiological conditions and plant related EALs
- Security Interface

- 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

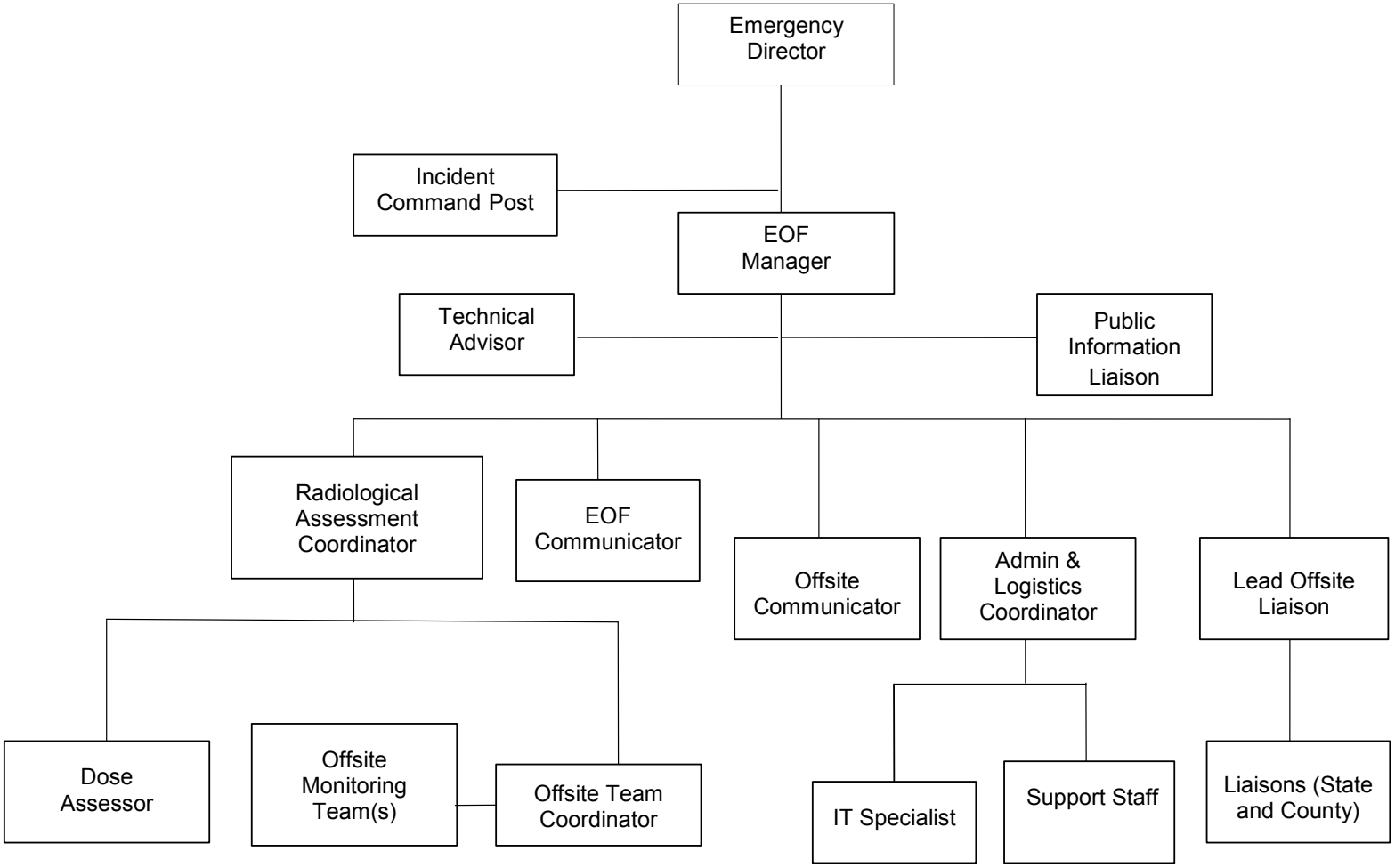
- Overall coordination of Entergy Public Information response
- Act as representative to the media
- Keep ED informed of any Public Information concerns

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

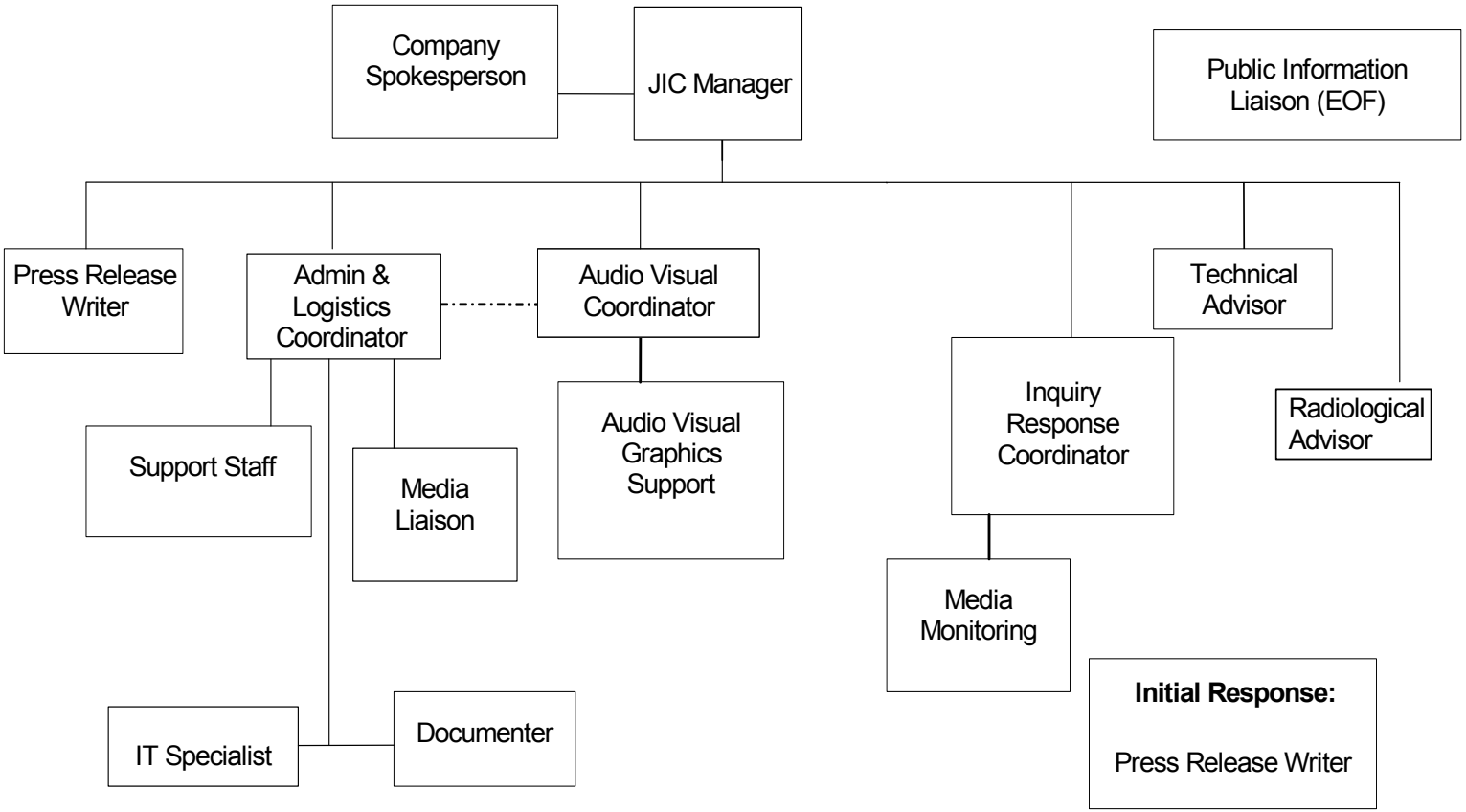
## Figure B-1.2b Emergency Response Organization – Onsite



## Figure B-1.2c Emergency Response Organization – EOF



## Figure B-1.2d Emergency Response Organization – Public Information



## Figure B-1.3 Normal Station Organization

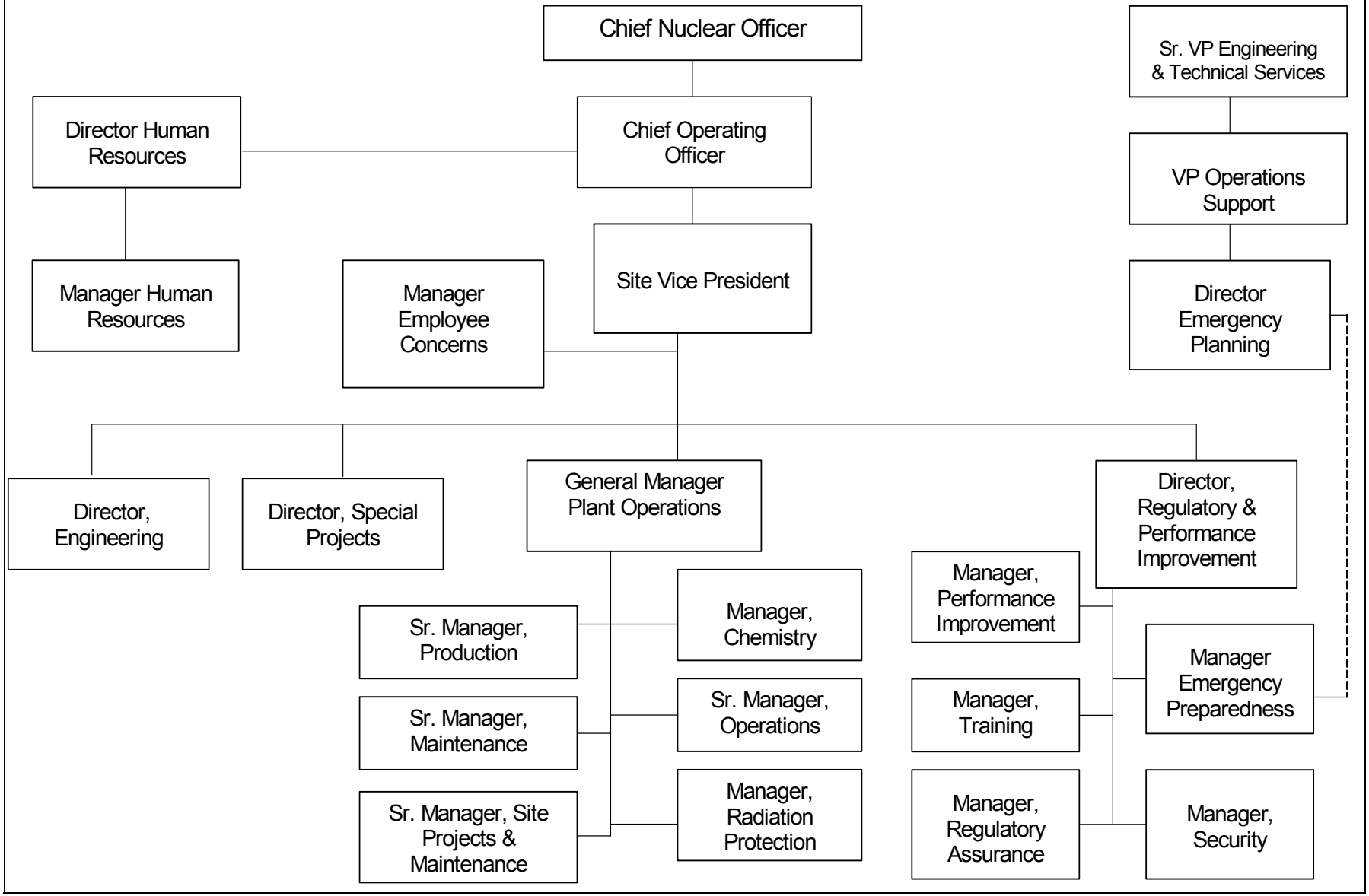


TABLE B – 1 Comparison of NUREG – 0654 to Indian Point Energy Center

| 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 U 2 | On Shift U 3 | On Shift U 1 | 60 Min. | [1] [2] |
| **Plant Operations and Assessment** | | | | | | | | | | |
| 1 | Shift Supervisor (SRO) | 1 | -- | -- | Shift Manager | 1 | 1 | 0 | -- | |
| 2 | Shift Foreman (SRO) | 1 | -- | -- | Control Room Supervisor | 0 | 1 | 0 | -- | |
| 3 | Control Room Operators | 2 | -- | -- | Reactor Operators or Field Support Supervisor | 0 | 2 | 0 | -- | [3] |
| 4 | Auxiliary Operators | 2 | -- | -- | Nuclear Plant Operators | 1 | 4 | 0 | -- | [12] |
| **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 | 1 | 0 | -- | [4] [10] |
| **Notification / Communication** | | | | | **Communicator** | | | | | |
| 6 | Communicator – notify licensee, State, Local and Federal personnel and maintain communication | 1 | 1 | 2 | Nuclear Plant Operator provides notifications for both units | 0 | 1 | | -- | [5] |
| | | | | | Offsite Communicator plus | | | | 1 | |
| | | | | | Any two of the following: Offsite Team Coordinator Control Room Communicator TSC Communicator | | | | 2 | |
| **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 | -- | Radiological Assessment Coordinator | -- | | | 1 | |



TBD

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

| NUREG – 0654 | | | | | Indian Point Energy Center<br>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. | [1]<br>[2] |
| 9 | Offsite Surveys | -- | 2 | 2 | Two Teams of Field Monitors | -- | | | 4 | [6] |
| 10 | Onsite (out-of-plant) Surveys | -- | 1 | 1 | RP Technicians | -- | | | 2 | |
| 11 | RP Technicians | 1 | 1 | 1 | RP Technicians | 1 | 1 | 0 | 2 | [11] |
| 12 | Rad / Chem Technicians | 1 | -- | 1 | Chemistry Technicians | 1 | 1 | 0 | 1 | |
| **Plant System Engineering, Repair and Corrective Action** | | | | | | | | | | |
| 13 | Shift Technical Advisor | 1 | -- | -- | Field Support Supervisor or Shift Technical Advisor | 0 | 1 | 0 | -- | |
| 14 | Core / Thermal Hydraulics | -- | 1 | -- | Reactor Engineer | -- | | | 1 | |
| 15 | Electrical | -- | -- | 1 | Electrical Engineer | -- | | | 1 | |
| 16 | Mechanical | -- | -- | 1 | Mechanical Engineer | -- | | | 1 | |
| 17 | Mechanical Maintenance /<br>Radwaste Operator | 1<br>-- | --<br>-- | 1<br>1 | Mechanical Maintenance | 1 | 0 | | 2 | [7]<br>[10] |
| 18 | Electrical Maintenance | 1 | 1 | 1 | Electrical Maintenance | 0 | 1 | | 2 | [8]<br>[10] |
| 19 | Instrument & Control Technician | -- | 1 | -- | Instrument & Control Technician | -- | | | 1 | |
| **Protective Actions (In-Plant)** | | | | | | | | | | |
| 20 | RP Technicians | 2 | 2 | 2 | RP Technicians or other qualified personnel | 2 | | | 4 | [9]<br>[10] |



TBD

| **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.** | [1] [2] |
| **Fire Fighting** | | | | | | | | | | |
| 21 | Fire Brigade | Fire Brigade per TS | Local Support | | Fire Brigade | 0 | 1 | 0 | Local Support | [12] [13] |
| **Rescue Operations and First Aid** | | | | | | | | | | |
| 22 | Rescue – First Aid | 2 | Local Support | | Rescue – First Aid | 2 | | | Local Support | [10] |
| **Site Access Control and Personnel Accountability** | | | | | | | | | | |
| 23 | Security Personnel | Per Security Plan | | | Security Personnel | Per Security Plan | | | | |
| **Totals** | | 10 | 11 | 15 | | 4 | 13 | 0 | 26 | |

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

(b) On-shift staffing is in accord with guidance of NRC's NSIR/DPR-ISG-01 Interim Staff Guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities.

**Note:**

[1] For Emergency Response Organization purposes resources may be shared between units. Unit 2 must maintain a CFH-qualified Shift Manager and a Nuclear Plant Operator. Unit 3 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 (Unit 3). 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 or qualified designee) for both units and an Offsite Communicator in the EOF as a required one-hour responder. The on shift communicator has been counted in the Unit 3 total, but can be provided by either unit. The additional two communicators are filled by the following: TSC Communicator and 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 other 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

[12] The Fire Brigade is staffed per the Fire Protection Program Plan.

[13] One (1) designated FBL. This is a person on shift qualified as FBL. This person has been counted in the Unit 3 total, but can come from either unit.

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) (Unit 3) | Shift Manager (Unit 3) | Immediate supervision of plant operations |
| Field Support Supervisor/Shift Technical Advisor (Unit 3) | Shift Manager (Unit 3) | Provide technical support to operations shift |
| Reactor Operator (RO)[s] (Unit 3) | CRS (Unit 3) | Control Room operations / communications |
| | | |
| Nuclear Plant Operator (NPO)[s] (Nuclear, Conventional, Roving) | CRS (Unit 3) (Unit 2 personnel report to Unit 2 Shift Manager) | Operates equipment outside the control room, minor maintenance |
| Offsite (CCR) Communicator | CRS (Unit 3) or the Unit 2 Shift Manager | 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, water chemistry |
| Watch Radiation Protection (RP) Technician (OSC when activated) | Shift Manager | Provide RP support as needed, rad monitoring, decon and surveillance |
| Facility Communicator | Shift Manager | Provides data to the other emergency response facilities |
| Plant Operations Manager (POM) | EPM | Relieves the SM as ED and acts as ED until relieved by the ED in the EOF. Manages emergency response operations activities in the Control Room and keeps 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) | Shift Manager / 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. |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major 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 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 |
| Public 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. |
| EOF Communicator | EOF Manager | Communicates with other ERFs |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Function |
|---|---|---|
| **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 |
| OSC Rad/Chem Coordinator | OSC Manger | Coordinate radiological controls inside the Protected Area and assist in coordination of chemistry sampling |
| Mechanical Coordinator | OSC Manager | Coordinate Maintenance activities |
| I&C/Electrical Coordinator | OSC Manager | Coordinate I&C activities |
| Operations Support | OSC Manager | Coordinate Operations support to the CCR |
| Radiation Protection Technicians | Rad/Chem Coordinator | Perform radiological surveys, sampling and analysis as needed, provide RP coverage for OSC operations |
| Chemistry Technician | Rad/Chem 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 Support | Operate plant systems as directed by Operations Support in an SAE or GE. Assist OSC teams in repair and assessment activities. |
| OSC Log-Keeper | OSC Manager | Coordinate Accountability with Security Coordinator and as necessary verify/set up equipment. Provide support as needed. |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major 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 and assist EPM in implementation of Severe Accident Management Guidelines |
| Mechanical Engineer | Engineering Coordinator | Perform Mechanical Engineering Assessments |
| Electrical / I&C Engineer | Engineering Coordinator | Perform Electrical / I&C Engineering Assessments |
| Operations Coordinator | TSC MGR | Perform Operations Engineering Assessments |
| TSC Radiological Coordinator | TSC MGR | Radiological Oversight |
| IT Specialist | TSC MGR | ERDS Activation/Verification and maintain IT equipment (computers, phones) operational. |
| TSC Security Coordinator | TSC MGR | Direct Physical Security |
| TSC Communicator | TSC MGR | Perform TSC communications as needed |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Joint Information Center (JIC)** | | |
| Company Spokesperson | JIC Manager | 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 Admin & Logistics Coordinator | Maintain facility log on WebEOC. Ensure timeliness of facility briefings. |
| IT Specialist | JIC Admin & Logistics Coordinator | Assist JIC Staff with computer hardware and software use |
| Audiovisual Coordinator | JIC Manager | Manages Audio/Video operations |
| Support Staff | Admin & Logistics Coordinator | Provide 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 |

## 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 Energy Center 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 Energy Center, 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 Energy Center in the event of an accident are identified in Section A of this plan. If needed, Federal resources are made available to Indian Point Energy Center in an expeditious and timely manner.

   c. Each Indian Point Energy Center 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. A conference/working area has 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 Energy Center 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, Entergy Offsite Liaisons are dispatched to the State and local government EOCs to act as communications liaisons and to provide clarification of emergency response information.

3. Radiological Laboratories

In addition to Indian Point Energy Center's radiological assessment facilities, contracted services may be utilized to analyze inplant and offsite environmental samples. Outside analytical assistance may be requested from State and Federal agencies and other licensees if the offsite radiological monitoring and environmental sampling operation exceeds the capacity of the Indian Point Energy Center 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 the Indian Point Energy Center. The availability of services has been ascertained and agreement letters are listed 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;
- Access to 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 the Emergency Telephone Directory (ETD), 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 Energy Center 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 ERO. Indian Point Energy Center emergency planning personnel work closely with State and local agencies to ensure consistency in classification schemes and procedural interfaces.

Indian Point Energy Center maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and promptly declares the emergency condition as soon as possible following identification of the appropriate emergency classification level.

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 progress or have occurred, which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site 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.

The Shift Manager/ED will ensure:

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

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 or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of Hostile Action. Any releases are expected to be limited to small fractions of the EPA PAG 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 on plant status and parameters. 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/ED will ensure:

a) Initiation of activation of the ERO 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;

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 in emergency class by verbal discussion with offsite authorities followed by written summary within eight (8) hours of entering recovery after an Alert or higher classified event.

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 Area Emergency indicates events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public, or Hostile Action that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to, equipment needed for protection of the public. Any releases are not

expected to result in exposure levels which exceed EPA PAG exposure levels beyond 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).

The Shift Manager/ED will ensure:

a) Initiation of activation of the ERO 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;

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 involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels beyond the site boundary.

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/ED will ensure:

a) Initiation of activation of the ERO which would staff 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) A recommendation is made, as a minimum, sheltering or evacuation for 2 mile radius and 5 miles downwind and assess need to extend distances; consider advisability of evacuation (projected time available vs. Evacuation Time Estimates);

d) Prompt notification of the NRC (not to exceed one hour);

e) Continued Assessment and response as necessary;

f) Dispatch of field monitoring teams and associated communications;

g) An individual is provided for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities);

h) Senior technical and management staff on-site are made available for consultation with NRC and State on a periodic basis;

i) Meteorological and dose estimates are provided to offsite authorities for actual releases;

j) Release and dose projections based on available plant condition information and foreseeable contingencies are performed and provided to offsite authorities;

k) Accountability process is initiated;

l) 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) Augment resources by activating EOC's and any other primary response centers;

d) Dispatch key emergency personnel including monitoring teams and establish associated communications;

e) Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status;

f) Provide offsite monitoring results to licensee, DOE and others and jointly assess them;

g) Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective actions;

h) Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance;

i) Provide news media briefings, perhaps with a licensee;

j) Maintain General Emergency status until closeout.

**Classification Downgrading**

The Indian Point Energy Center 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 NEI 99-01 REV 5 "Methodology for Development of Emergency Action Levels" were evaluated to establish an emergency classification and emergency action level scheme. NEI 99-01 REV 5 has been accepted by the NRC as an alternative to NUREG-0654-REV 1.

This classification scheme is presented in six 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 Plan Implementing Procedures. The Emergency Action Levels (EALs) are grouped into six categories to simplify their presentation and promote a rapid understanding by their users. (See Table D-1 for a description of each of the EAL initiating conditions for each EAL category).

These categories are:

(1) Abnormal Rad Release/Rad Effluent

(2) Hazards

(3) ISFSI

(4) Systems

(5) Fission Product Barriers

(6) Cold Shutdown/Refueling System Malfunction

Table D-1, Summary of IPEC EAL Initiating Conditions, provides a description of the initiating conditions associated with the above categories which would cause the Plan to be implemented. Detailed emergency action levels are provided in a Plan Implementing Procedure and an associated EAL Technical Bases Administrative Procedure. It is important to note that some EALs in the NRC-approved EAL scheme are not possible for Unit 2 in the permanently shut down and defueled condition.

3. Offsite Classification Systems:

Indian Point Energy Center 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 Energy Center 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 Energy Center accounting for local offsite conditions that exist at the time of the emergency.

## Table D-1

## SUMMARY OF IPEC EAL INITIATING CONDITIONS

**Category A – Abnormal Radiation Levels/Radiological Effluent**

This category encompasses the spectrum of potential uncontrolled radionuclide releases via liquid or gaseous effluents for all modes of operation. It also includes other incidents related to high levels of radioactivity, but which may not result in a release to the environment. Potential sources of radionuclide releases are from the Primary Auxiliary Building (PAB), Vapor Containment (VC) and Fuel Storage Building (FSB). Appropriate monitoring is provided for potential gaseous and liquid release paths. The ICs within this category are keyed to Radiation Monitoring System (RMS) indications, radiological survey results and offsite dose assessment calculations.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any release of gaseous or liquid radioactivity to the environment > 2 times the radiological effluent ODCM limits for ≥ 60 minutes.

2. Unplanned rise in plant radiation levels.

ALERT

1. Any release of gaseous or liquid radioactivity to the environment that exceeds significant multiples of the Offsite Dose Calculation Manual (ODCM) limits for 15 minutes or longer.

2. Damage to irradiated fuel or loss of water level that has or will result in the uncovering of irradiated fuel outside the reactor vessel

3. Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions.

SITE AREA EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release.

GENERAL EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 1,000 mRem TEDE or 5,000 mRem thyroid CDE for the actual or projected duration of the release using actual meteorology

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards**

This category encompasses the spectrum of man-caused or non-naturally occurring hazards that jeopardize the level of safety of the plant in all modes of operation. The ICs are keyed to offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of naturally occurring events that jeopardize the level of safety of the plant. The ICs are keyed to specific instrument indications, offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of security infractions as addressed in the Security Contingency Plan. The ICs are keyed to notification from the security force or another credible source of a site specific credible threat.

This category is the location for the miscellaneous ICs that are provided to allow for Emergency Director judgment classifications.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Confirmed security condition or threat which indicates a potential degradation in the level of safety of the plant.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Unusual Event.

3. Fire within the Protected Area not extinguished within 15 minutes of detection or explosion within the Protected Area.
4. Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to normal plant operations.

5. Natural or destructive phenomena affecting the Protected Area.

ALERT

1. Hostile Action within the Owner Controlled Area or airborne attack threat.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards and Other Conditions Affecting Plant Safety (Cont'd)**

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert.

3. Control Room evacuation has been initiated.

4. Fire or Explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown.

5. Access to a vital area is prohibited due to release of toxic, corrosive, asphyxiant or flammable gases which jeopardizes operation of systems required to maintain safe operations or safely shutdown the reactor

6. Natural or destructive phenomena affecting Vital Areas.

SITE AREA EMERGENCY

1. Hostile Action within the Protected Area.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency.

3. Control Room evacuation has been initiated and plant control cannot be established.

GENERAL EMERGENCY

1. Hostile Action resulting in loss of physical control of the facility.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY E – ISFSI Malfunction**

This category addresses events of sufficient magnitude that a loaded spent fuel dry cask storage confinement boundary is damaged or violated.

UNUSUAL EVENT

1. Damage to a loaded cask confinement boundary.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the power operations, startup, hot standby and hot shutdown operating modes. In general, the ICs relate to equipment or system malfunctions or failures. The ICs include RCS leakage, loss of Control Room instrument indications and failure of the Reactor Protection System as well as those events dealing with power losses. This category also includes inadvertent criticality and loss of decay heat removal capability ICs.

NOTE:

Category S EALs are not possible for Unit 2 in the permanently shut down and defueled condition.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

3. Loss of all offsite AC power to emergency buses for 15 minutes or longer.

4. Unplanned loss of safety system annunciation or indication in the control room for 15 minutes or longer.

5. RCS Leakage.

4. Loss of all onsite or offsite communications capabilities.

5. Fuel clad degradation.

6. Inadvertent criticality.

7. Inability to reach required shutdown within Technical Specification limits

ALERT

1. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguard buses.

2. Automatic trip fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction (Continued)**

3. Unplanned loss of safety system annunciation or indication in the control room with either (1) a significant transient in progress, or (2) compensatory indicators unavailable.

SITE AREA EMERGENCY

1. Loss of all offsite power and loss of all onsite AC power to safeguards buses for 15 minutes or longer.

2. Automatic trip fails to shut down the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor

3. Loss of all vital DC power for 15 minutes or longer.

4. Inability to monitor a significant transient in progress.

GENERAL EMERGENCY

1. Prolonged loss of all offsite and all onsite AC power to safeguards buses.

2. Automatic trip and all manual actions fail to shut down the reactor and indication of an extreme challenge to the ability to cool the core exists

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY F – Fission Product Barrier Degradation**

This category addresses losses and potential losses of the three fission product barriers – fuel clad, RCS and containment. The category is designed for events in the power operations, startup, hot standby and hot shutdown modes of operation.

NOTE:

Category F EALs are not possible for Unit 2 in the permanently shut down and defueled condition.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any loss or any potential loss of Containment.

ALERT

1. Any loss or any potential loss of either Fuel Clad or RCS

SITE AREA EMERGENCY

1. Loss or potential loss of any two barriers.

GENERAL EMERGENCY

1. Loss of any two barriers and loss or potential loss of the third barrier.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the shutdown and refueling modes. These include RCS leakage and loss of reactor vessel inventory events as well as those events dealing with power losses.

This category also encompasses events that directly affect the integrity of the reactor core when in cold shutdown or refueling. This includes inadvertent criticality and loss of decay heat removal capability.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. RCS leakage.

2. Unplanned loss of reactor vessel inventory.

3. Unplanned loss of decay heat removal capability with irradiated fuel in the reactor vessel.

4. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguards buses

5. Loss of required DC power for 15 minutes or longer

6. Inadvertent criticality.

7. Loss of all onsite or offsite communications capabilities.

ALERT

1. Loss of reactor vessel inventory.

2. Inability to maintain plant in cold shutdown.

3. Loss of all offsite and all onsite AC power to safeguards buses for 15 minutes or longer.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction (Cont'd)**

SITE AREA EMERGENCY

1. Loss of reactor vessel inventory affecting core decay heat removal capability.

GENERAL EMERGENCY

1. Loss of reactor vessel inventory affecting fuel clad integrity with Containment challenged.

## 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 Energy Center 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 Energy Center, 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) if any Unusual Event threshold listed in Section D (Table D-1) is met or exceeded.

      2) Depending on the particular circumstances of the situation, the Control Room personnel 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) 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, an electronic notification system or alternate methods. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the

Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) 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.

5) The Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) phone or commercial phone lines.

6) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

7) 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) in the event an Alert threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room personnel initiating the site assembly alarm and/or via public address announcements. In addition, the affected unit's Control Room personnel 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 or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification 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 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) or commercial phone lines.

7) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

8) If there is a radiological release involved with the event, the Shift Manager/ED or his designee will provide information on the release to the offsite authorities.

9) Close out 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) in the event a Site Area Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room personnel 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 affected unit's Control Room personnel also contact the unaffected unit's Control Room personnel.

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, or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

5) Immediate Notification (within 15 minutes) of a Site Area Emergency is made by the Shift Manager/ED 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) Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) 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/ED or his designee shall provide information on the release to the offsite authorities.

9) Close out 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable) in the event a General Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

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 ERO are notified and can 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 ERO positions and related facilities is required. Based on the event, the ED 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, electronic notification system or alternate methods are used to notify the ERO.

**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 an electronic notification system and/or phone calls. 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 local 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 local authorities are responsible for the process of notification of their personnel and 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;

f) recommended protective measures if necessary;

g) the date and time of classification and notification.

In a General Emergency, the notification includes, at a minimum, a recommendation for sheltering or evacuation of the general public within the two (2) mile radius of Indian Point Energy Center and five (5) miles downwind, and implement the NY State KI plan. All remaining areas should monitor the Emergency Alert System (EAS).

4. Follow-up Messages:

The ED 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 Energy Center personnel, have established a system for disseminating appropriate information to the public. The system includes notification through appropriate broadcast media, e.g. the Emergency Alert 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 supplemented with individual alerting devices for residences and special facilities in EPZ areas where acoustic coverage is reduced.

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.

Tone Alert Radios are distributed within the 10-mile EPZ to supplement siren alerting for residents and special facilities in EPZ areas where acoustic coverage is reduced or when requested. On an annual basis, guidance is provided on the use and testing of the tone alert radios.

Given that automated dialing is an accepted method that can be selected to provide primary alerting in accordance with FEMA-REP-10 guidance in consultation with New York State, Westchester, Rockland, Orange and Putnam Counties, the plan is to use "*automated dialing*" capability as the back-up method of alert and notification in the case of a siren failure.

7. Messages to the Public:

The State has developed draft messages for the Emergency Alert 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 licensee, 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 (IPEC) ERO. It outlines the available communications equipment to:

- Notify the Indian Point ERO
- Provide Initial Notification to 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 Energy Center.

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 Systems**

   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. These systems are used to call personnel and announce emergencies in the Indian Point Energy Center Protected Area(s).

   In the event the Public Address Systems are 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 (EOF), Technical Support Center (TSC), Operations Support Center (OSC), Joint Information Center (JIC), Incident Command Post (ICP), Corporate Headquarters, Alternate Emergency Operations Facility (AEOF) and Alternative Technical Support Center / Operational Support Center (Alternative TSC/OSC).

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 Energy Center 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 operation of this system and their respective organization responses.

Figure F-1.1 depicts RECS.

- Dedicated 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 ED 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.

**Electronic Notification System**

A commercial electronic notification service is used for contacting personnel at the start of an emergency. When activated by station personnel, the notification service transmits a message via various communications pathways to all ERO personnel to report to their assigned ERO facilities.

**Computer Systems**

The Emergency Response Data System (ERDS) is a computer link from Indian Point Energy Center to the NRC Operations Center that displays key plant data. ERDS will be available 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 ERO are in place.

a. The Nuclear Regulatory Commission is Indian Point's primary point of contact for communications with the Federal ERO. (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 Energy Center.
c. Section E.2 describes the provisions for alerting and activating the ERO.
d. Procedures are in place for the ERO to continuously provide information to the NRC as requested.

**Medical Communications**:

Indian Point Energy Center establishes communications with the primary medical supplier, New York-Presbyterian/Hudson Valley Hospital, Peekskill/Cortlandt, and if needed the backup hospital, Phelps Memorial Hospital Center, Sleepy Hollow, via commercial telephone that is accessed by station personnel either via commercial onsite telephone or by an Indian Point Energy Center 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 Energy Center or transporting personnel from the Station.

**Communications Drills and Testing:**

Communications drills between Indian Point Energy Center and State and local governments are conducted in accordance with criteria contained in Section N.2. Also, Indian Point Energy Center 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.

Figure F-1.1 Radiological Emergency Communications System

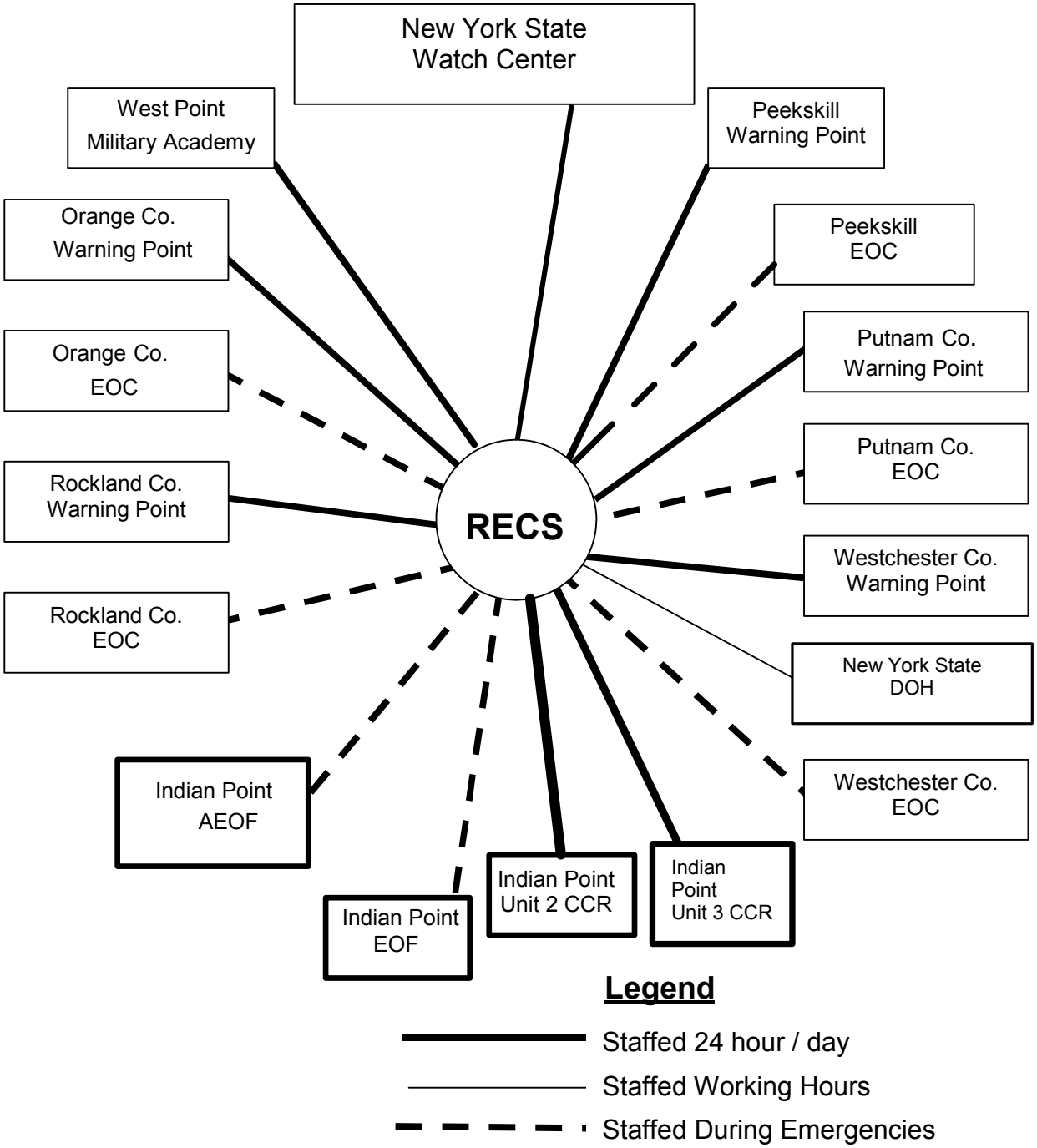


Figure F-1.2 Local Government Radio System

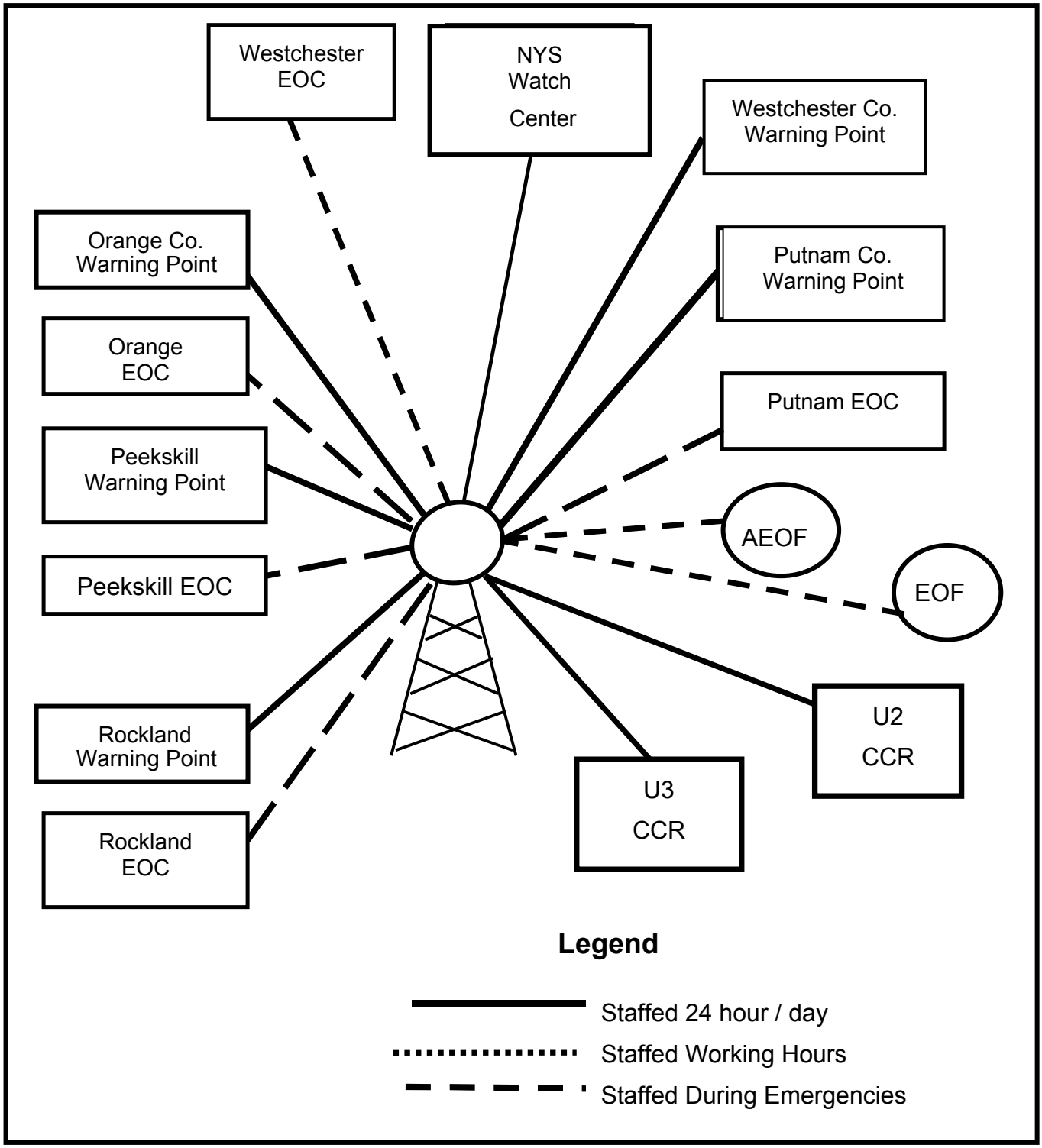
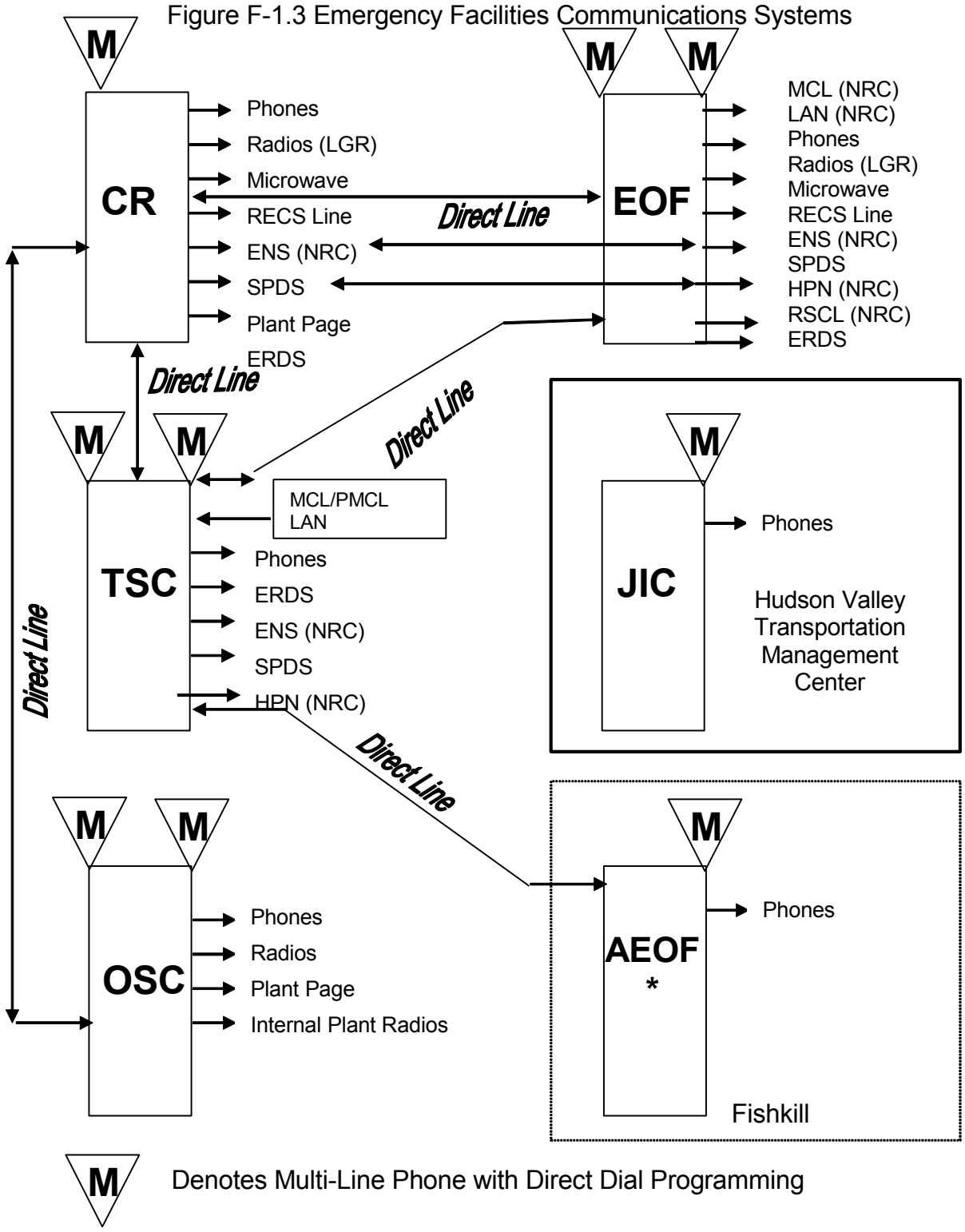


Figure F-1.3 Emergency Facilities Communications Systems




M Denotes Multi-Line Phone with Direct Dial Programming

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

## 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 (EPZ).

   County-specific emergency planning educational booklets are provided to the public. The booklets contain public safety information about emergencies at Indian Point Energy Center 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 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.

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. Press releases are reviewed by appropriate law enforcement agencies during hostile action events.

c. Call Centers respond to public inquiries. Entergy, NYS, and each county respond to 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 Energy Center.

## 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 Plan are distributed among the functions of the following Emergency Response Facilities (ERF):

- Control Rooms (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)
- Alternative Technical Support Center / Operations Support 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 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 ERO is operational, if required, 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 ED in the CR, (Plant Operations Manager) or the ED located in the EOF. Meteorological, plant parameter, offsite radiation monitor, 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.

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 ED in the EOF.

The TSC is operational with minimum staff within 60 minutes after a declaration of an Alert, SAE, or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the TSC.

The TSC Manager directs and coordinates activities in the TSC. Plant parameter data is available for accident assessment including Unit 3 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, and NRC Conference/workspace. The Ventilation System assures that the General Design 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 and teams dispatched to the field.
- 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 with minimum staff within 60 minutes after a declaration of an Alert, SAE or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the OSC.

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

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

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

In the event the OSC becomes uninhabitable, Plan 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 Facility Gate on Broadway. Functions performed at the EOF include:

- Overall management of the Indian Point Energy Center 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 EPZ;
- Coordination with Federal, New York State and local government;
- Radiological exposure control for the individuals on-site outside of the Protected Area.

The EOF is operational with minimum staff within 60 minutes of a declaration of an Alert, SAE or GE. Activation of the ERO at a NUE is discretionary. In declaring the facility operational, the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the EOF. Accommodations are available for Federal, State and local government representatives.

The ED 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 facility. 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.

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 2nd floor of 60 Merritt Boulevard, Fishkill, NY. Procedures, staff, accommodations, equipment, services and supplies for the AEOF are similar to those for the EOF including the capability to perform offsite notifications.

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 ED and the Indian Point ERO 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 with minimum staff within 2 hours after a declaration of an Alert, SAE or GE. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the JIC.

4. Alternative TSC/OSC

The Alternative TSC/OSC has communication capabilities for contacting the Control Room, plant security, EOF, and the AEOF, is available to serve as a staging area for augmented emergency response staff if the site is under threat of or experiencing hostile action. The Alternative TSC/OSC also has the capability for engineering assessment activities.

5. 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 Training and Operations Center, Carmel, NY |
| Rockland County | Fire Training Center, Pomona, NY |
| Westchester County | Transportation Management Center, Hawthorne, NY |
| NY State | Public Safety Building<br>State Campus Building #22, Albany, NY |

6. 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 then declared operational when facility managers determine they can perform required functions based on minimum 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.

If the site is under threat of or experiencing hostile action 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 alternate facility. TSC/OSC/CR staffs will provide any possible assistance from this offsite staging area until such time as site access is restored.

7. 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 Energy Center Site 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 digital 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.

Unit 3 Post-accident Sampling

Plant design includes the capability to sample the Unit 3 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 ERO.

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 Unit 3 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 Unit 3 Core Cooling

Instrumentation for detecting inadequate Unit 3 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

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.

8. <u>Offsite Emergency Data Acquisition</u>

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. Government agencies and other technical data resources are available to the Indian Point Energy Center staff regarding seismic monitoring of the Indian Point Energy Center 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 are referenced in Appendix 2 of this plan.

d. Environmental sample preparation and counting are available through the use of an offsite laboratory. The offsite laboratory contract is available through the Indian Point Energy Center contracts department.

9. Facilities and Equipment for Offsite Monitoring

a. Survey Vehicles

Indian Point Energy Center 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 $1 \times 10^{-7}$ µCi/cc), and personnel dosimeters are available for offsite monitoring. A more detailed list of equipment is available in the Plan Implementing Procedures.

During an emergency, the survey vehicles are sent to pre-selected locations within the EPZ. 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 the 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). The information from these systems is 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. Data from these fixed field measurement sites may be used to verify the travel path of a radiological release and to estimate whole body exposure rates offsite.

10. Meteorological Monitoring

The meteorological system at the Indian Point Energy Center 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 Energy Center 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.

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 (sigma-theta) 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 (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.8.

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

11. 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 or by another qualified calibration service 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.

12. 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 emergency supplies.

13. Collection and Analysis of Field Monitoring Data

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-Contamination 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, Joint Information 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 Joint Information Center provides interface with the public. 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 (or Control Room staff at Unit 2) 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.

Alert

For emergency situations that are classified as Alerts, the Shift Manager/ED 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 ED at the start of the emergency, and the on call ED 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/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, containment integrity and the status of safeguards equipment, if applicable.

An immediate assessment of the projected exposure to the offsite populace is made by using Dose Assessment Computer Programs or by using an Implementing 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 Unit 3 containment building released from the Unit 3 reactor core. Area radiation monitor R-5 (Fuel Storage Building Area Monitor) indicates radioactivity in the Fuel Storage Building.

- 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 Implementing 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 program or Implementing 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.

- 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.

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 ED. 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 ED transmits updated assessment information to the New York State Office of Emergency Management and to 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 Offsite Dose Calculation Manual (ODCM) is utilized to determine the extent of contamination.

Radiological assessment personnel in accordance with an Implementing 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 10-mile EPZ.

1. <u>Plant Parameters and Corresponding Emergency Classification</u>

   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 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 Plan.

2. Onsite Accident Assessment Capabilities

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

a. Unit 3 Sampling System

Plant design includes the capability to sample the Unit 3 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 Energy Center 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 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 Unit 3 core damage. These monitor readings are utilized as a method for core damage determination. This is accomplished through use of established procedures based on Pressurized Water Reactor 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 Unit 3 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 computer programs.

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. The computer software also has the capability of performing multiple accident dose assessment involving simultaneous releases from one or both of the Indian Point Energy Center units. Dose projections may also be performed without the use of a computer through a series of hand calculations. Indian Point Energy Center 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.

5. Meteorological Information:

Meteorological data is available from the station meteorological tower. The data available includes wind speed, wind direction, stability class (Pasquill). This data is utilized by the licensee, locals, State and other Federal Agencies to provide near real-time predictions of the atmospheric effluent transport and diffusion. Section H.10 provides more details on the Meteorological Monitoring System.

6. Unmonitored Release:

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 the use of actual sample data and/or field monitor team readings.

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 sectors around the Indian Point Energy Center 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 local 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 Energy Center.

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 Energy Center Site. Large-scale maps showing the locations are in the Control Room and Emergency Operations Facility (EOF) or AEOF, for use by the ED. Readings taken by these teams are relayed back to the site via radio or phone communications.

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 Implementing 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 licensee 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 Owner Controlled Area (OCA) badged personnel are notified of an emergency by 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 persons within the site Protected Area from the Control Rooms. Personnel 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/ ED 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/ED. 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 Energy Center.

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 area is the Indian Point Energy Center Generation Support Building (GSB) and the Energy Education Center (EEC). The Indian Point Energy Center Training Center serves as the back-up assembly area and may be used during periods of high volume, such as an outage. Personnel assigned emergency response functions respond to their assigned emergency facilities.

   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 and IPEC Training Building) are within the range of the plant paging system.

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

5. Accountability:

   At the declaration of an Alert, all non-essential 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 identified within 30 minutes of a declared emergency. 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 Security. The results are forwarded to the Emergency Plant Manager and/or ED.

   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.

6. Provisions for Onsite Personnel:

   The station maintains an inventory of respiratory protection equipment, anti-contamination clothing, and a supply of KI that is made available to emergency workers remaining onsite should conditions warrant.

   a. 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.

   b. 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.

   c. 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 KI may be authorized only by the ED or by the Emergency Plant Manager.

   d. Precautions shall be taken to prevent the contamination of drinking water and food supplies by using bottled water and packaged foods.

   e. A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the Unit 3 reactor and perform the functions of the emergency plan.

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" and NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 3, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Guidance for Protective Action Strategies”.

   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 ED makes protective action recommendations.

   Recommendations issued by Indian Point Energy Center 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 monitor EAS messages for further direction. The Indian Point Entergy Center’s rationale and methodology for plant-based and dose-based protective action recommendations has been coordinated with local and state response organizations as required by NUREG-0654, Supplement 3.

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 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 by state and local organizations 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.

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 decisions by offsite authorities would include several of the above factors as well as the following considerations:

- 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.

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 TEDE may be authorized for members of the ERO. |
| 5 - 10 | Protecting critical infrastructure necessary for public welfare | Lower dose not practicable.<br>Must be authorized on individual bases. |
| 10 - 25 | Lifesaving or protection of large populations | Lower dose not practicable.<br>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.<br>Must be authorized on individual bases. |
| * Limit dose to the lens of the eye and dose to any other organ (including skin and body extremities) to 10CFR20.1201 limits unless higher doses are evaluated and authorized on individual bases. | | |

   Any emergency response action requiring greater exposure than 25 Rem should be limited to only volunteers. Individuals over forty-five years of age are considered first. Females who declare pregnancy are restricted to 10CFR20.1208 limits.

2. Emergency Radiological Control Program:

The Radiological Assessment Coordinator (EOF) and the Rad/Chem 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 critical infrastructure, lifesaving or 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 Radiological Assessment Coordinator (EOF) or Rad/Chem Coordinator (OSC), 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.

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

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 Plan Implementing Procedures and Radiation Protection Procedures.

4. Non-Entergy Personnel Exposure Authorization:

   The responsibility for authorizing non-Entergy emergency workers (i.e. State and local agency emergency workers such as Fire Department, Police or Medical teams sent to the site) to receive exposures in excess of the EPA Emergency Worker Protective Action Guides rests with the respective State and local organizations.

5. Decontamination and First Aid

   a. Normal contamination control limits apply in emergency conditions. However, these limits may be modified by Rad/Chem 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.

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 New York-Presbyterian/Hudson Valley Hospital (primary), to Phelps Memorial Hospital Center (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 Rad/Chem 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 personnel released from the Protected Area 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 emergency worker personnel monitoring 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 New York-Presbyterian/Hudson Valley Hospital in Cortlandt Manor has agreed to accept patients from the Indian Point Energy Center 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 referenced in Appendix 2.

   The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital. A written agreement is referenced 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, then Radiation Emergency Assistance Center/Training Site (REAC/TS), available 24 hrs/day, would be contacted for guidance. A written agreement is referenced in Appendix 2.

2. Onsite First Aid Capability:

   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.

   First Aid and Decontamination facilities for Units 2 and 3 are located just beyond the Radiation Protection Control Points. These facilities consist of a stainless steel interior with decontamination table, showers and sinks draining into holdup tanks. These facilities contain general first aid equipment and medical supplies for treatment of injuries.

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

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

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 Energy Center 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 District (Fire/Ambulance) that provides 24-hour services. Backup ambulance service is available through a mutual aid system. A written agreement is listed in Appendix 2. The Verplanck Fire District (Fire/Ambulance), or other backup ambulance agency, 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 Unit 3 Control Room Supervisor for an emergency involving Unit 3, 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.

**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 ED, 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 Unit 2 SFP and/or the Unit 3 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
- Unit 3 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.

- At an Alert or higher classification (non-transitory classification), the ERO 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 ERO, 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 for maintaining safe shutdown of Unit 3 and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY classifications) the Indian Point and Corporate Emergency Center 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 Emergency Center Manager reports to the Site Recovery Director and is responsible for:

   - Ensuring adequate corporate support to maintain Indian Point Energy Center (IPEC) units in a safe condition;
   - Overseeing development of corporate recovery issues dealing with support of the site;
   - 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.

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 ERO 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 ERO 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 Energy Center 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 Energy Center;
- Designating other Indian Point Energy Center recovery positions required in support of onsite recovery activities; and
- Developing of a Root Cause Report.

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 Energy Center assistance for offsite recovery activities;
- Coordinating Indian Point Energy Center 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 Energy Center 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 Energy Center on all matters relating to the accident or recovery;
- Coordinating non-Indian Point Energy Center public information groups (Federal, State, local, etc.);
- Coordinating media monitoring and rumor control; and
- Determining what public information portions of the Indian Point ERO will remain activated.

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

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 Energy Center 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 ERO are informed of the change. Additional Indian Point Energy Center 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 ERO records to estimate the source term. Data are obtained from offsite agencies to estimate the total exposed population. Environmental Dosimeter of Legal Record (DLRs), 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 Emergency Preparedness Program.
- Develop, maintain and evaluate the capabilities of the Indian Point ERO to respond to emergency conditions and safeguard the health and safety of Station personnel and the general public.
- Identify deficiencies in the 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 may result in the release or potential 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 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 Energy Center (IPEC) Eight-Year Exercise Cycle 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. Exercises are scheduled to be conducted at different times of the year. An unannounced drill/exercise is included in the Eight-Year Exercise Cycle Plan.

2. Drills:

In addition to the exercises described above, IPEC 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 IPEC 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 (ENS) with the NRC will be tested.
- Quarterly: The telephone links with Federal response organizations (i.e., Department of Energy Radiological Assistance Program) and local 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 Rooms 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 Station procedures.

c. Medical Emergency Drills: a medical emergency involving a simulated contaminated individual whereby 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 IPEC Protected Area. These drills include provisions for communications and record keeping.

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, in the Eight Year Exercise Cycle Plan, 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. <u>Conduct of Drills and Exercises:</u>

For each emergency preparedness exercise or drill conducted, a scenario package is developed. The information included in the scenario package is in accordance with Entergy Fleet Procedures which include 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.

Prior approval of Drill and Exercise Dates, by appropriate IPEC 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 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 IPEC Emergency Preparedness Program that require improvement. The Manager of Emergency Preparedness 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 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.) that 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 Plan. This requirement will normally be met by performing training observations.

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

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 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, ED, 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

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 and those individuals qualified as Certified Fuel Handlers receive routine classroom and simulator training, as applicable, to ensure proficiency in this area.

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

c. Radiological Monitoring Teams and Radiological Analysis Personnel

1. 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

2. 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

3. 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
- Radiological Monitoring Team Interface
- Protective Action Guidelines associated with offsite plume exposure doses
- Basic Meteorology

d. Police, Security and Fire Fighting Personnel

1. 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.
2. 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
3. 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 instructs personnel as to the appropriate protective clothing requirements, respiratory protection requirements, time limits, and other protective actions specific to the conditions present.

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 Energy Center. 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 Energy Center provides initial emergency response overview and specific training to assigned ERO members as outlined in the ERO Training Program. Additionally, Indian Point Energy Center 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 is placed on the ERO roster. The completed training documents certify that the individual is qualified to perform their emergency functions.

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 ERO, 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 distribution of the Plan and actions that must be performed to maintain the Indian Point Emergency Preparedness Program. It also outlines the criteria for ensuring 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 Planning 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 Energy Center (IPEC) 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 Program. This includes the authority to provide the necessary resources to ensure the continuous state of readiness for the ERO.

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

3. Manager of Emergency Preparedness:

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

   - Development, maintenance and revision of the Plan and Implementing Procedures is accomplished in accordance with applicable regulations and industry standards.

- 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 and the local communities involved in response to an incident at Indian Point Energy Center.
- 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 EP 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 Program Public Information program.
- IPEC 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 Planning 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 Planning staff provides technical assistance to other IPEC 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.
- Corrective actions identified during the conduct of Exercises, Drills, Training, Audits and Inspections are tracked using the station’s corrective action program.

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 Manager of Emergency Preparedness 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 reduce the effectiveness of the Plan, when determined through the technical review process or other changes deemed appropriate by the Manager of Emergency Preparedness 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 reduce 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 reduce or have a potential to reduce the effectiveness of the approved Plan are not implemented without prior approval by the NRC.

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

Technical reviews of the Plan and procedures shall be conducted in accordance with station procedures. The reviewer shall determine the need for cross-disciplinary reviews. Revisions to the Plan and Implementing Procedures shall be reviewed and approved by the Manager of Emergency Preparedness 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 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 Plan only. Verified copies may be used for position specific procedure sets used by the ERO. 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.

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. The 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 Oversight (NOS) organization. The assessment will be performed either at intervals not to exceed 12 months or as necessary, based on an assessment by NOS 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.

Results of this audit are submitted for review to the Site Vice President. The Manager of Emergency Preparedness 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 Manager of Emergency Preparedness.

10. Maintenance of Emergency Telephone List

A phone list contains telephone numbers used by the ERO during an emergency. These numbers are verified and updated at least quarterly.

## 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, Title10, 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, 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-0737, Clarification of TMI Action Plan Requirements, dated October 1980.
14. NUREG-0737, Supplement 1, Requirements for Emergency Response Capability, December 1982.
15. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
16. “FEMA REP Program Manual"
17. Indian Point Energy Center Unit 1, 2 and 3 FSARs
18. Indian Point Energy Center Unit 1, 2 and 3 Tech Specs
19. USNRC Reg. Guide 1.101, "Emergency Planning & Preparedness for Nuclear Power Plants"
20. 10CFR50, Appendix R
21. SAND 77-1725, Public Protection Strategies for Potential Nuclear Reactor Accidents: Sheltering Concepts With Existing Public and Private Structures, February 1978
22. INPO Emergency Resources Manual

**Appendix 1: References (cont.)**

23. "Maintaining Emergency Preparedness Manual," dated November, 1987 INPO 87-019.
24. "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.
25. "Voluntary Assistance Agreement By and Among Electric Utilities involved in Transportation of Nuclear Materials," dated November 1, 1980.
26. Comprehensive Environmental Response, Compensation and Liability Act of 1980.
27. Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendation for State and Local Agencies, Volume 47, No. 205, October 22, 1982.
28. American Nuclear Insurers Bulletin #5B (1981), "Accident Notification Procedures for Liability Insured's".
29. "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency: Final Recommendations on Use," Federal Register Vol. 47, No. 125, June 29, 1982.
30. INPO Coordination agreement on emergency information among USCEA, EPRI, INPO, NUMARC and their member utilities, dated April (1988).
31. Babcock and Wilcox Company, Post Accident Sample Offsite Analysis Program (1982).
32. ANI/MAELU Engineering Inspection Criteria For Nuclear Liability Insurance, Section 6.0, Rev. 1, "Emergency Planning."
33. NEI 99-01 Rev 5, "Methodology for Development of Emergency Action Levels"
34. USNRC Reg. Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants", March 2007
35. INPO 09-006 Guidelines for Training and Qualification of Emergency Response Organization Personnel
36. New York State Comprehensive Emergency Management Plan Radiological Hazards Annex for Fixed Nuclear Facilities
37. NUREG-0654 – FEMA – REP – 1, Revision.1, Supplement 3, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.
38. Westchester County Fire Mutual Aid Plan
39. IPEC Security Safeguards Contingency Plan and Incident Response Plan
40. NSIR/DPR – ISG-01 "Interim Staff Guidance – Emergency Planning For Nuclear Power Plants", ADAMS Accession No. ML113010523 pages 18 to 21.
41. 2014 IPEC ETE Addendum (KLD TR-557, dated October 17, 2014)

## Appendix 2: Letters of Agreement

Copies of agreement letters for the offsite emergency response supporting organizations listed below are maintained in the Emergency Planning Department files.

1. Verplanck Fire District (Fire/Ambulance)
2. Buchanan Engine Co. No. 1, Inc.
3. New York-Presbyterian/Hudson Valley Hospital
4. Phelps Memorial Hospital Center
5. Department of Energy – Radiation Emergency Assistance
6. Westinghouse Electric Corporation
7. Institute of Nuclear Power Operations (INPO)
8. New York State Police
9. New York State Division of Homeland Security and Emergency Services
10. Department of Energy – Radiological Assistance Program Region 1 (Brookhaven)

As Letters of Agreement are received and updated they will be listed in this section. Regular updates that do not change the level of service do not require an EPLAN change unless they impact the planning standards. Letters listed 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.

For hostile action based events, response is provided by Verplanck Fire District, Buchanan Engine Co. No. 1 Inc., and the New York State Police.

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

Emergency Plan Implementing Procedures to Plan Sections

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-115<br>EN-EP-900 | Emergency Plan Forms | All |
| IP-EP-120 | Emergency Classification | D, Table D-1 |
| IP-EP-210<br>IP-EP-251<br>IP-EP-260<br>EN-EP-609<br>EN-EP-610<br>EN-EP-611<br>EN-EP-900 | Emergency Management | A, B, Table B-1, B-7, C, Appendix 2 |
| IP-EP-210 | Control Room Augmentation | B, Table B-1 |
| EN-EP-610 | TSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-611 | OSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-609 | EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-350<br>EN-EP-611 | Radiation Protection, Emergency Exposure Controls and Response | J, K, L |
| IP-EP-240 | Emergency Security Organization Activation and Response | B, Table B-1, E, O |
| IP-EP-241 | Incident Command Post | B, Table B-1, E |
| IP-EP-310<br>IP-EP-340 | Offsite Dose Assessment | I, Table B-1 |
| IP-EP-330<br>IP-EP-340 | Airborne Sample Analysis | C, Appendix 2, I |
| IP-EP-350 | Emergency Contamination Control | K, L |
| IP-EP-360 | Core Damage Assessment | I |
| IP-EP-410 | Protective Action Recommendations | J |
| IP-EP-420 | Use of Potassium Iodide by Indian Point Personnel During and Emergency | K.2 |

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-251<br>EN-EP-609 | Alternate EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-510 | Data Equipment Operation | Table B-1, B.5, H |
| IP-EP-320<br>EN-EP-609 | Offsite Monitoring Team Activation and Response | I |
| IP-EP-430<br>EN-EP-611 | Evacuation/Accountability | J |
| IP-EP-430 | Search and Rescue | J |
| EN-EP-613 | Recovery | M |
| IP-EP-340<br>IP-EP-620 | Estimating Total Population Exposure | I, M |
| IP-EP-260 | Joint Information Center Procedure Set | B, G |
| EN-EP-613 | Emergency Preparedness Corporate Support | A, B |
| EN-EP-311 | Emergency Response Data System (ERDS) | Table B-1, H, I |
| 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 |

Emergency Planning Administrative Procedures to Plan Sections

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.

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD1 | Emergency Preparedness Department Organization and Responsibilities | P |
| IP-EP-AD2 | Emergency Plan Controlled Documents | P |
| EN-TQ-110 | Emergency Response Training Program | O |
| EN-TQ-110-01 | Fleet E-Plan Training Course Summary | O |
| EN-EP-306 | Drills and Exercises | N |
| EN-EP-307 | Hostile Action Based Drills and Exercises | N |
| EN-EP-308 | Emergency Planning Critiques | N |
| EN-FAP-EP-005 | Emergency Preparedness Performance Indicator Program | N |
| IP-EP-AD6 | Emergency Preparedness Department Facilities and Equipment Surveillances | E, F, H, I, J, N |
| EN-EP-310 | Notifications Systems Testing and Maintenance | F, N |
| IP-EP-AD10 | Offsite Emergency Preparedness Support | A, G, L, O |
| IP-EP-AD13 | Emergency Action Levels Technical Basis Document | D, I, J |
| IPEP-AD-16 | Emergency Planning Records | All |
| IP-EP-AD 17 | Emergency Planning Equipment Administration | E, F, H, I, J |
| EN-EP-801 | Emergency Response Organization | A, B, C |
| IP-EP-AD40 | Equipment Important to Emergency Response | D, E, F, G, H, I, J |

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD12<br>IP-EP-AD20<br>IP-EP-AD30<br>IP-EP-AD31<br>IP-EP-AD32<br>IP-EP-AD33<br>IP-EP-AD34<br>IP-EP-AD35<br>IP-EP-AD36<br>IP-EP-AD38<br>IP-EP-AD39<br>IP-EP-AD41 | IPEC Alert Notification System | E, E.6 |

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

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

AC ..... Alternating Current
AD ..... Administrative Directive
AEOF ..... Alternate Emergency Operations Facility
ALARA ..... As Low As Reasonably Achievable
ANI ..... American Nuclear Insurers
ANS ..... Alert and Notification System
ANSI ..... American National Standards Institute
ARM ..... Area Radiation Monitor
Ci ..... Curie
CDE ..... Committed Dose Equivalent
cc ..... cubic centimeter
CR ..... Control Room
CFR ..... Code of Federal Regulations
CEC ..... Corporate Emergency Center
$cm^2$ ..... square centimeter
Cs ..... Cesium
DC ..... direct current
DE ..... Dose Equivalent
DHS ..... Department of Homeland Security
DLR ..... Dosimeter of Legal Record
DOE ..... U. S. Department of Energy
DOT ..... U. S. Department of Transportation
dpm ..... disintegration per minute
EAL ..... Emergency Action Level
EAS ..... Emergency Alert System
ED ..... Emergency Director
ENS ..... (NRC) Emergency Notification System
EOC ..... Emergency Operations Center
EOF ..... Emergency Operations Facility
EOP ..... Emergency Operating Procedure
EPA ..... U. S. Environmental Protection Agency
EPZ ..... Emergency Planning Zone
ERDS ..... Emergency Response Data System
ERO ..... Emergency Response Organization
ETD ..... Emergency Telephone Directory
FEMA ..... Federal Emergency Management Agency

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

FRERP ..... Federal Radiological Emergency Response Plan
FSAR ..... Final Safety Analysis Report
Ge ..... Germanium
GE ..... General Emergency
GET ..... General Employee Training
I ..... Iodine
ICP ..... Incident Command Post
I&C ..... Instrument and Control
INPO ..... Institute of Nuclear Power Operations
IP ..... Implementing Procedure
IP1, IP2, or IP3 ..... Indian Point Energy Center Unit 1, 2 or 3
IPEC ..... Indian Point Energy Center
IPZ ..... Ingestion Pathway Zone
IRAP ..... Interagency Radiological Assistance Program
ISFSI ..... Independent Spent Fuel Storage Installation
JIC ..... Joint Information Center
KI ..... Potassium Iodide
Kr ..... Krypton
Li ..... Lithium
LGR ..... Local Government Radio
LOCA ..... Loss of Coolant Accident
mR ..... milliroentgen
MWt ..... Megawatt Thermal
NRC ..... U. S. Nuclear Regulatory Commission
NUE ..... Notification of Unusual Event
NYSOEM ..... NYS Office of Emergency Management
OSC ..... Operations Support Center
OSRC ..... On-Site Safety Review Committee
PAG ..... Protective Action Guide
PAR ..... Protective Action Recommendation
PASS ..... Post Accident Sampling System
POM ..... Plant Operations Manager
R ..... roentgen
RACES ..... Radio Amateur Civil Emergency Services
RCA ..... Radiologically Controlled Area
RECS ..... Radiological Emergency Communications System
RERP ..... Radiological Emergency Response Plan
OMT ..... Offsite Monitoring Team

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

RP ..... Radiation Protection
SAE ..... Site Area Emergency
SCBA ..... Self-Contained Breathing Apparatus
SM ..... Shift Manager
SPDS ..... Safety Parameter Display System
Sr ..... Strontium
STA ..... Shift Technical Advisor
TCP/IP ..... Transfer Communication Protocol/Internet Protocol
TDD ..... Telecommunications Device for the Deaf
TLD ..... Thermoluminescent Dosimeter
TSC ..... Technical Support Center
μCi ..... microcuries
UFSAR ..... Updated Final Safety Analysis Report
Xe ..... Xenon

## 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.

**Activated –** An order has been made to activate an emergency response facility, and the facility is in the process of being staffed.

**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 Energy Center 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** - 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.

**Dose Equivalent** - 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.

**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 Entergy 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 Entergy 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.

**Emergency Planning Zone (EPZ)** - The area around the Indian Point Energy Center 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 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 the licensee has the 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 Energy Center Site** - The combined areas immediately surrounding Units 1, 2 and 3 that are owned and operated by Entergy.

**Joint Information Center** – 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 principal Emergency Operations Centers in the Public Security Building, in Harriman State Office Campus in Albany, New York and at the Hudson Valley Transportation Center in Hawthorne, New York.

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

**Offsite** - Locations outside of the Indian Point Energy Center Site boundary.

**Onsite** - The area within the Indian Point Energy Center Site boundary.

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

**Operational** – Status of an emergency facility declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is setup and available to perform the emergency functions assigned to that facility.

**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** - An area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 5mRem (0.05 mSv) in one hour at 30 cm (~ 12 inches) from the radiation source or from any surface that the radiation penetrates.

**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** - 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.

**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.

**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.

**Staffed** – The emergency response facility has been activated and sufficient personnel are available to perform the required functions as determined by the facility manager.

**Station** - The three Entergy Nuclear Generating Units (1, 2 and 3) located on the Indian Point Energy Center 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.

**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 fifteen temporal 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 facility (e.g., schools, nursing homes, and hospitals) population, as well as variations in roadway conditions. The fifteen 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 | Winter | Weekend | Midday | Good | West Point Football |
| 14 | Summer | Weekend | Midday | Good | Event at Croton Point Park |
| 15 | Summer | Midweek | Midday | Good | Roadway impact Rt. 6; Rt. 9W; Palisades Pkwy; Taconic Pkwy |

The traffic demand and trip-generation rate of evacuating vehicles were estimated from the gathered data. Sources of data include the 2010 Census, New York agencies, county agencies, a telephone survey and special concern facilities. (See Section 3/Appendix E and

**Appendix 5**

**EVACUATION PLANS**

Section 5/Appendix F of the ETE of the 2012 ETE Report (Indian Point Energy Center, Development of Evacuation Time Estimates, KLD Engineering PC, KLD TR-537, December 2012) for a complete discussion of traffic demand and trip generation time, respectively.)

Following federal guidelines, the Indian Point Energy Center (IPEC) Emergency Planning Zone (EPZ) is subdivided into 38 Protective Action Areas. The Protective Action Area definitions are provided in Section II. The 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 H of the 2012 ETE Report. Additional Regions were defined in the 2014 ETE Addendum (Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering PC, KLD TR-557, October 17, 2014). For each Protective Action Area within the EPZ, primary evacuation routes have been identified. Descriptions of the Protective Action Areas and their associated evacuation routes are given in the county plan procedures and in Section 10 and Appendix L of the 2012 ETE Report. Listings and maps of reception centers for each Protective Action Area are also included in the county procedures and in Section 10 of the 2012 ETE Report.

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.

## II. PROTECTIVE ACTION AREAS

The plume exposure EPZ for the IPEC has been subdivided into 38 discrete Protective Action Areas as shown in Figure 1. The 2010 US Census permanent resident population estimates for each of the Protective Action Areas are presented in the 2014 ETE Addendum and are provided in Table 1. The boundaries of the various Protective Action Areas are described by county in Tables 2 through 5.

## III. EVACUATION TIME ESTIMATES

Evacuation time estimates by Region for each of the scenarios are presented in Section 7 of the 2012 ETE Report. Updated evacuation time estimates for 90% and 100% of the population within the Protective Action Areas included in the regions defined by the two-mile and five-mile rings and for the full EPZ are presented in the 2014 ETE Addendum and provided in Tables 6-A, 6-B and 6-C.

## IV. 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.

**Appendix 5**

**EVACUATION PLANS**

**TABLE 1**

**EPZ Permanent Population 2010 Census**

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Briarcliff Manor | | | | 8,370 |
| Central Town of Clarkstown | | | 23,052 | |
| Northeastern Town of Ramapo | | | 25,941 | |
| Northeastern & Eastern Town of Clarkstown | | | 15,127 | |
| Northwestern Town of Clarkstown | | | 7,453 | |
| Ossining | | | | 30,478 |
| Village of Haverstraw | | | 11,910 | |
| Town of New Castle (west of Hardscrabble Road) | | | | 4,686 |
| Village of West Haverstraw | | | 10,376 | |
| Unincorporated Areas of the Town of West Haverstraw | | | 11,483 | |
| Town of Tuxedo east of NYS Thruway | 204 | | | |
| Village of Pomona | | | 4,520 | |
| Grassy Point | | | 142 | |
| Croton-on-Hudson | | | | 8,078 |
| Stony Point | | | 13,111 | |
| Verplanck | | | | 2,183 |
| Tompkins Cove | | | 1,797 | |
| Buchanan | | | | 2,232 |
| Montrose | | | | 2,593 |
| Jones Point | | | 125 | |
| Village of Harriman east of NYS Thruway | 0 | | | |
| Peekskill | | | | 23,565 |
| Cortlandt | | | | 26,565 |
| Bear Mountain State Park | 16 | | 5 | |
| Harriman State Park | 6 | | 9 | |

## TABLE 1 (cont.)

**EPZ Permanent Population**
**2010 Census[1]**

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Yorktown | | | | 36,275 |
| Somers (west of Route 118) | | | | 4,436 |
| Fort Montgomery | 1,837 | | | |
| Southwest Carmel | | 2,597 | | |
| Village of Highland Falls | 4,175 | | | |
| Lower Phillipstown | | 2,581 | | |
| Village of Woodbury (east of NYS Thruway) | 2,386 | | | |
| West Point | 6,464 | | | |
| Southern Putnam Valley | | 10,171 | | |
| Town of Highlands | 0 | | | |
| Hudson River | Hudson River | | | |
| Town of Cornwall (south of Angola Road) | 1,035 | | | |
| Southern Phillipstown | | 4,569 | | |
| **Total Population by County:** | **16,123** | **19,918** | **125,051** | **149,461** |
| **Total EPZ Population** | **310,553** | | | |

1. Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering P.C, KLD TR-557, Section 2, October 17, 2014

**Table 2. Orange County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Town of Tuxedo east of NYS Thruway | 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). |
| Village of Harriman east of NYS Thruway | Village of Harriman east of NYS Thruway. |
| Fort Montgomery | The Hamlet of Fort Montgomery. |
| Village of Highland Falls | Village of Highland Falls. |
| Village of Woodbury east of NYS Thruway | The Village of Woodbury east of the NYS Thruway from the Town of Tuxedo to the Town of Cornwall. |
| West Point | The United States Military Academy (West Point) |
| Town of Highlands | The Town of Highlands excluding the Village of Highland Falls and the Hamlet of Fort Montgomery. |
| Town of Cornwall (south of Angola Road) | 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. |
| Bear Mountain State Park | The portion of Bear Mountain State Park in Orange County. |
| Harriman State Park | The portion of Harriman State Park in Orange County. |

**Table 3. Putnam County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Southwest Carmel | 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. |
| Lower Phillipstown | The most southern part of the Town of Phillipstown; that is, south of Canopus Hollow Road; Old West Point Road east, east of US Route 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. |
| Southern Putnam Valley | 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. |
| Southern Phillipstown | The southern half of Phillipstown, not including the area defined as Lower Phillipstown; that is, the Village of Garrison and the Village of Nelsonville except for the portion of Hudson Highlands State Park, and the portion of Phillipstown 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. |

**Table 4. Rockland County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Central Town of Clarkstown | 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. |
| Northeastern Town of Ramapo | 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. |
| Northeastern & Eastern Town of Clarkstown | 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. |
| Northwestern Town of Clarkstown | 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. |
| Village of Haverstraw | In the Town of Haverstraw, the Village of Haverstraw. |
| Village of West Haverstraw | In the Town of Haverstraw, the Village of West Haverstraw. |
| Unincorporated Areas of the Town of Haverstraw | The unincorporated areas of the Town of Haverstraw including the Hamlets of Thiells and Mount Ivy. |

**Table 4 Rockland County Protective Action Area Descriptions (continued)**

| Protective Action Area | Description |
|---|---|
| Village of Pomona | In the Towns of Haverstraw and Ramapo, the Village of Pomona and the unincorporated portions of the Hamlet of Pomona. |
| Grassy Point | Grassy Point east of the Penny Bridge, Minisceongo Yacht Club, Haverstraw Marina, Haverstraw Bay County Park, Bowline Park. |
| Stony Point | The Town of Stony Point east of Bear Mountain and Harriman State Parks, south of Tompkins Cove and west of Grassy Point. |
| Tompkins Cove | Tompkins Cove zip code area. |
| Jones Point | 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. |
| Bear Mountain State Park | 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. |
| Harriman State Park | The central and western parts of Harriman State Park bounded on the east by the Palisades Interstate Parkway (PIP) northbound and a line connecting PIP/US. Route 6 to the West Point Military Reservation boundary where they are very close, about 1 1/2 miles W of the Bear Mountain Bridge; on the south by the Ramapo/Haverstraw Town Line and the Rockland/Orange County Line southwestward; and on the west by the New York State Thruway (Interstate Route 87/287, not included in the EPZ) and the NW/SE running utility right-of-way crossing Smith Rock and Pound Mountain. |

**Table 5. Westchester County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Briarcliff Manor | The Village of Briarcliff Manor. |
| Ossining | The Town and Village of Ossining. |
| Town of New Castle (west of Hardscrabble Rd) | The Town of New Castle west of Hardscrabble Road. |
| Croton-on-Hudson | The Village of Croton-on-Hudson. |
| Verplanck | The Hamlet of Verplanck. |
| Buchanan | The Village of Buchanan. |
| Montrose | The Hamlet of Montrose. |
| Peekskill | The City of Peekskill. |
| Cortlandt | 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. |
| Yorktown | The Town of Yorktown. |
| Somers (west of Route 118) | The Town of Somers west of State Route 118/Tomahawk Street. |

**Table 6-A. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Summer Scenarios**

| | Summer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Midweek | | | | Weekend | | | | Midweek, Weekend | |
| **Scenario:** | 1 | | 2 | | 3 | | 4 | | 5 | |
| **Region** | Midday | | | | Midday | | | | Evening | |
| | Good Weather | | Rain | | Good Weather | | Rain | | Good Weather | |
| | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% |
| **R1 (2 Mile)** | 2:25 | 5:20 | 2:25 | 5:20 | 2:10 | 5:15 | 2:15 | 5:15 | 2:10 | 5:15 |
| **R2 (5 Mile)** | 3:05 | 5:20 | 3:20 | 5:20 | 3:10 | 5:20 | 3:20 | 5:20 | 2:40 | 5:20 |
| **R3 (Full EPZ)** | 3:55 | 6:55 | 4:10 | 7:10 | 3:35 | 6:10 | 3:45 | 6:10 | 3:15 | 5:55 |

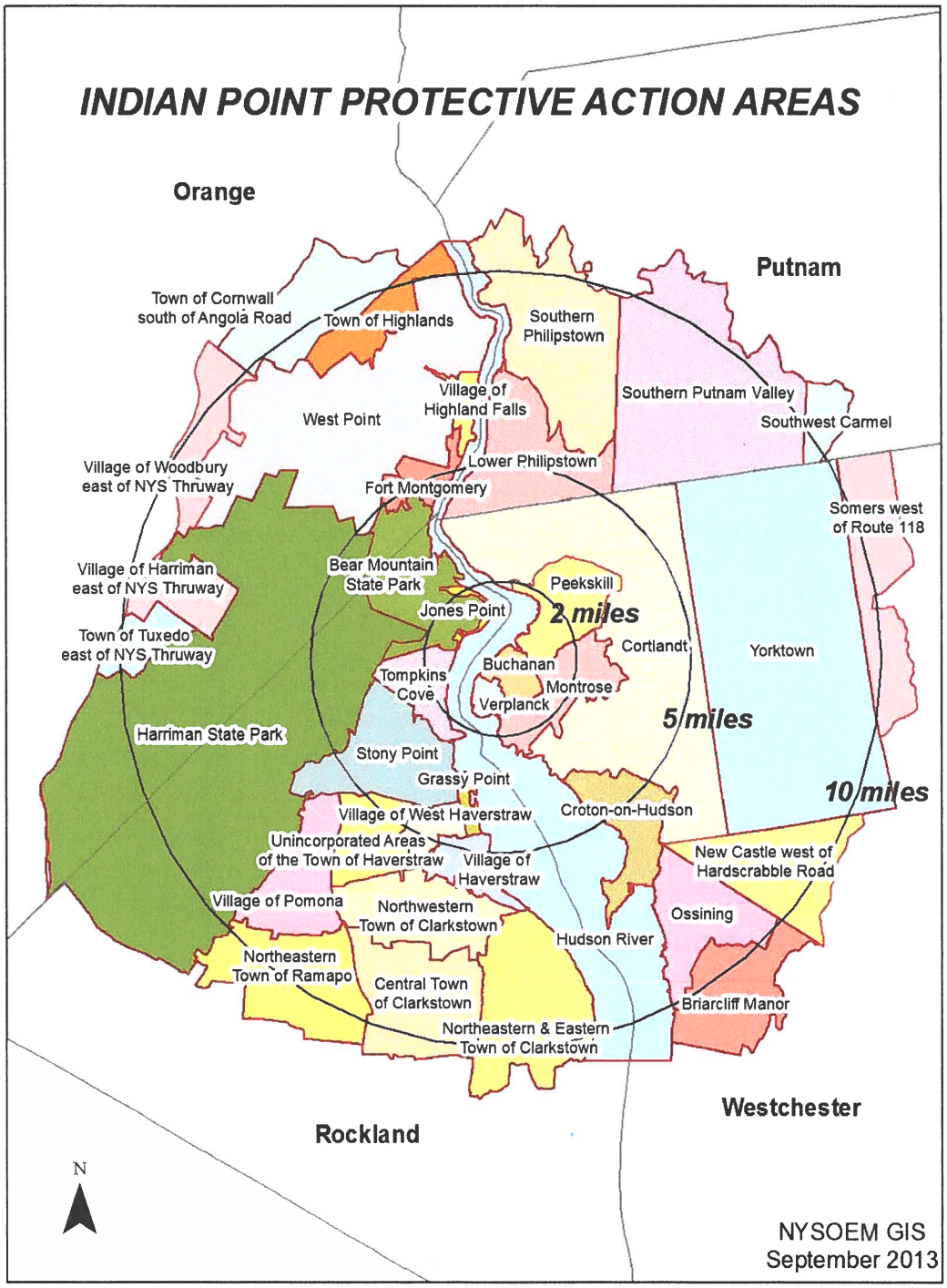
**Table 6-B. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Winter Scenarios**

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

**Table 6-C. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Special Events**

| | Winter | | Summer | | | |
|---|---|---|---|---|---|---|
| | Weekend | | Weekend | | Midweek | |
| Scenario: | 13 | | 14 | | 15 | |
| Region | Midday | | Midday | | Midday | |
| | Good Weather | | Good Weather | | Good Weather | |
| | West Point Football | | Croton Point Park Event | | Roadway Impact | |
| | 90% | 100% | 90% | 100% | 90% | 100% |
| R1 (2 Mile) | 2:10 | 5:15 | 2:10 | 5:15 | 2:25 | 5:20 |
| R2 (5 Mile) | 2:45 | 5:20 | 3:05 | 5:20 | 3:05 | 5:20 |
| R3 (Full EPZ) | 3:30 | 5:55 | 3:35 | 6:10 | 4:40 | 7:00 |

**FIGURE 1**




EMERGENCY PLANNING PROTECTIVE ACTION AREAS



TBD

**ATTACHMENT 5**

**NL-19-001**

**Tabular Summary of the Proposed Stage II Changes to the Indian Point Energy Center Site Emergency Plan**

**Attachment 5**
**Indian Point Energy Center (IPEC) Site Emergency Plan (SEP) Change Summary**

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| List of Effective Pages | Revision number associated with the Stage I Emergency Plan | TBD | Editorial change to reflect document changes |
| Table of Contents | Page numbers will be updated as necessary to account for the proposed changes. | | Editorial revision to reflect changes described below |
| Part 1, Section A, 4th paragraph | The Plan 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. Units 1 and 2 are permanently defueled and only those areas of Units 1 and 2 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. Unit 3 is the only unit currently licensed to operate. | The Plan 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. Units 1, 2, and 3 are permanently defueled and only those areas that either store or process radioactive materials and spent fuel (the Fuel Handling Building and waste storage/process areas in the Chemical Systems Building and the Integrated Liquid Radwaste Systems Building and the Independent Spent Fuel Storage Installation (ISFSI)) were considered in evaluating radiological hazards. | IPEC Unit 3 will no longer be an operating nuclear power plant. Description of the plants and site have been revised to indicate the units in a permanently shut down and defueled condition with fuel stored in the FHB or ISFSI. |
| Part 1, Section B, 1st paragraph | The Site is approximately 239 acres and contains three pressurized water reactors owned by Entergy. | The Site is approximately 239 acres and contains three permanently shutdown and defueled pressurized water reactors owned by Entergy. | IPEC Units 1, 2, and 3 will no longer be operating nuclear power plants. Description of the plants have been revised to indicate the units are in a permanently shut down and defueled condition. |
| Part 1, Section B, 6th paragraph | The Independent Spent Fuel Storage Installation (ISFSI)…. | The ISFSI…. | Editorial change to remove definition of a previously defined acronym. |
| Part 1, Section B, Plant | Unit 1 (615 MWt, permanently defueled), Unit 2 (3216 MWt, | Unit 1 (615 MWt, permanently defueled), Unit 2 (3216 MWt, | All 3 IPEC units are now in a permanently shut down and |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | permanently defueled) and Unit 3 (3216 MWt). Figure 1.B-3 shows a general layout of the Site.<br><br>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-3 unit has three containment barriers that exemplify the "Defense in Depth" philosophy.<br><br>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.<br><br>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.<br><br>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 | permanently defueled) and Unit 3 (3216 MWt, permanently defueled). Figure 1.B-3 shows a general layout of the Site. | defueled condition, therefore the discussion of “Defense in Depth” and the containment barriers is no longer applicable. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | accident. The structure provides radiation shielding for both normal operations and accident conditions. | | |
| Part 1, Section D.1 | The first phase (initial) includes immediate operator actions to maintain or bring the plant to a safe shutdown condition, . . . | The first phase (initial) includes immediate actions to maintain or bring the plant to a safe condition, . . . | All 3 IPEC units are now in a permanently shut down and defueled condition, therefore safe "shutdown" is no longer the goal of the initial phase. |
| Part 1, Section D.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, . . . | 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 condition, . . . | All 3 IPEC units are now in a permanently shut down and defueled condition, therefore "normal operation" is no longer the goal of the recovery phase. |
| Part 2, A.1.d | The Shift Manager (or the Unit 3 Control Room Supervisor in the absence of the Unit 3 Shift Manager) is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO. | The Shift Manager is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, on-shift personnel will no longer staff a Control Room Supervisor position. |
| Part 2, Figure A-1 | INPO | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, INPO resources are no longer needed to address credible accidents. A LOA with INPO will no longer be maintained. |
| Part 2, Figure A-1, Note 1 | Until the On-Call ERO is in place the Shift Manager (or the Unit 3 Control Room Supervisor if the Unit 3 Shift Manager is unavailable) has the responsibility and duty to notify Federal, State and Local governmental authorities and | Until the On-Call ERO is in place the Shift Manager has the responsibility and duty to notify Federal, State and Local governmental authorities and request any assistance needed to | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, on-shift personnel will no longer staff a Control Room Supervisor position. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | request any assistance needed to protect the public and station personnel. | protect the public and station personnel. | |
| Part 2, Section B.1.a, 2nd paragraph | The minimum on-shift staffing is shown in Table B-1 and includes the following qualified individuals: | The minimum on-shift staffing is shown in Table B-1 and includes the following qualified individuals at Unit 2 and Unit 3: | Updated description of post-shutdown on-shift staffing to reflect the permanent removal of fuel from the reactor vessel of all site units. |
| Part 2, Section B.1.a.1) | Unit 2<br><br>One [1] Shift Manager, who is qualified as a Certified Fuel Handler and is in charge of on-shift personnel during his/her shift and is responsible for assuring that all activities are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;<br><br>One [1] Nuclear Plant Operator at Unit 2 who performs plant operations, minor maintenance and monitoring under the direction of the Shift Manager.<br><br>One [1] Radiation Protection Technician and one [1] Chemistry Technician perform radiation monitoring, surveillance, decontamination, and water chemistry as necessary at Unit 2. The Radiation Protection Technician can perform emergency duties at the Unit 2 Spent Fuel Pool (SFP) and/or Unit 3 during emergencies. | One [1] Shift Manager, who is qualified as a Certified Fuel Handler and is in charge of on-shift personnel during his/her shift and is responsible for assuring that all activities are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;<br><br>One [1] Nuclear Plant Operator who performs plant operations, minor maintenance and monitoring under the direction of the Shift Manager.<br><br>One [1] Radiation Protection Technician who performs radiation monitoring, surveillance, decontamination, and water chemistry as necessary. The Radiation Protection Technician can perform emergency duties at the Unit 2 and/or Unit 3 SFPs during emergencies. | Updated description of post-shutdown on-shift staffing to reflect the permanent removal of fuel from the reactor vessel of all site units.<br><br>Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, on-shift personnel at Units 2 and 3 will consist of one Shift Manager (CFH-qualified), one (1) Nuclear Plant Operator, and one (1) Radiation Protection technician. |
| Part 2, Section B.1.a.2) | <u>Unit 3</u> | Delete | Following permanent cessation of Unit 3 power operations and |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | 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;<br><br>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;<br><br>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;<br><br>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;<br><br>Five [5] Nuclear Plant Operators at Unit 3 who perform plant | | permanent removal of fuel from the reactor vessel, Unit 3 on-shift staffing is consistent with Unit 2 and a separate description is unnecessary. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | operations, minor maintenance and monitoring under the direction of the Control Room Supervisor;<br><br>One [1] Radiation Protection Technician and one [1] Chemistry Technician perform radiation monitoring, surveillance, decontamination, and water chemistry as necessary at each unit. The Radiation Protection Technician can perform emergency duties at the Unit 2 SFP and/or Unit 3 during emergencies. | | |
| Part 2, Section B.1.a, last paragraph | The Shift Manager (Unit 3 Control Room Supervisor in the absence of the Unit 3 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. | 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. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, on-shift personnel will no longer staff a Control Room Supervisor in any Unit. |
| Part 2, Section B.1.b, 2nd paragraph | The analysis resulted in a total of seventeen persons on-shift | The analysis resulted in a total of six persons on-shift. | Updated description of the minimum required Unit 3 operating staff to reflect reduced required minimum staffing for shutdown and defueling. |
| Part 2, Section B.2, 1st paragraph | The Shift Manager (or the Unit 3 Control Room Supervisor in the event that the Unit 3 Shift Manager is unavailable), acting as the ED… | The Shift Manager, acting as the ED… | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, on-shift personnel |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | | | will no longer staff a Control Room Supervisor in any Unit. |
| Part 2, Section B.2, 2nd paragraph | The relieving ED/Plant Operations Manager (POM) 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 POM holds this position until the on-call ED arrives. | The relieving ED 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. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, there will not be a Plant Operations Manager (POM) to relieve the SM. The SM will maintain command and control until relieved by the Emergency Director in the EOF. |
| Part 2, Section B.3, 1st paragraph | The duties and responsibilities of the ED are initially assumed by the Shift Manager (the Unit 3 CR Supervisor in the absence of the Unit 3 Shift Manager). 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 duties and responsibilities of the ED are initially assumed by the Shift Manager. 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. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, on-shift personnel will no longer staff a Control Room Supervisor in any Unit, and there will not be a Plant Operations Manager (POM) to relieve the SM. The SM will maintain command and control until relieved by the Emergency Director in the EOF. |
| Part 2, Section B.4, Specific responsibilities of the ED | -- | • Coordination of Entergy's emergency response efforts outside the Protected Area Fence;<br>• Interpretation of offsite radiological assessments for emergency classifications and Protective Action Recommendations in terms of | Added 3 new bullet items reflecting the reduced response staffing and transfer of responsibilities from the EOF Manager to the ED following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | | both real-time measurements and projected radiological exposures;<br>• Ensure proper communications between the Indian Point ERO and offsite response organizations; | |
| Part 2, Section B.4, Specific responsibilities of the ED | • Receive designated responding representatives from offsite emergency agencies and assist in their information and communication needs; | • Receive designated responding representatives from offsite emergency agencies responding to Entergy facilities and assist in their information and communication needs; | Editorial change to clarify extent of response coordination efforts of the ED. |
| Part 2, Section B.5.b | b. Emergency Operations Facility (EOF) Manager<br>The EOF Manager reports directly to the ED. Specific responsibilities of the EOF Manager include:<br>• Coordination of Entergy's emergency response efforts outside the Protected Area Fence;<br>• Assist the ED 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;<br>• Ensure proper communications between the | Delete | The position of EOF Manager will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions within the EOF.<br>Following sections are renumbered to reflect elimination of this section. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | Indian Point ERO and offsite response organizations; and<br>• Assist offsite authorities responding to Entergy facilities. | | |
| Part 2, Section B.5.c.1) | Technical support is performed in the TSC under the direction of the TSC Manager. | Technical support is performed in the TSC under the direction of the TSC Engineering Coordinator. | The position of TSC Manager will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions within the TSC. The responsibilities outlined in this section are transferred to the Engineering Coordinator. |
| Part 2, Section B.5.c.1), Specific functions of the TSC, 2nd bullet | Analyzing and resolving core physics, thermodynamic, hydraulic, mechanical, electrical and instrument problems; | Analyzing and resolving thermodynamic, hydraulic, mechanical, electrical and instrument problems; | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, "core physics" will no longer be a credible concern. |
| Part 2, Section B.5.c.1), last paragraph | 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. | Personnel from the plant's engineering departments are assigned to these functions, as necessary to respond to an emergency declaration. In addition personnel with operational experience are assigned to perform assessment activities in support of the watch personnel handling the in-plant accident conditions. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, duties and responsibilities will be transferred to remaining positions within the TSC. Engineering responsibilities are transferred to the Engineering Coordinator who will determine the need for additional engineering support.<br>The assessment of "operational accident" will no longer be needed. |
| Part 2, Section B.5.c.2) | While overall direction of in-plant operations is the responsibility of the Plant Operations Manager, | While overall direction of in-plant operations is the responsibility of the Emergency Plant Manager, | The positions of Plant Operations Manager, Control Room Supervisor, and Control Room Operators will not |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | 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. | responsibility for plant systems operations remains with the Nuclear Plant Operators under the direction of the Shift Manager. | exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions. |
| Part 2, Section B.5.c.3) | The initial notification of offsite authorities and ERO personnel is initiated by the Shift Manager and/or Control Room Communicator. | The initial notification of offsite authorities and ERO personnel is initiated by the Shift Manager. | The position of a dedicated Control Room Communicator will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions within the CR. |
| Part 2, Section B.5.c.4) | 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. | In-plant radiological monitoring and chemical/radiochemical analysis is provided by the Watch Radiation Protection Technician under the direction of the Shift Manager and by other responding personnel under the direction of the EPM. | The position of Chemistry Technician will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions. |
| Part 2, Section B.5.c.5) | 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 (RAC). | The expertise for evaluating the radiological consequence of the accident is provided by the Dose Assessor and the Offsite Team Coordinator who function directly under authority of the Radiological Assessment Coordinator (RAC). | Numerous ERO positions (multiple Dose Assessors) will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown. |
| Part 2, Section B.5.c.6), 2nd paragraph | Maintenance mechanics, I&C Technicians and operations personnel (NPOs) who respond to the OSC perform repair and corrective actions directed by the OSC Manager. | Maintenance mechanics, technicians and operations personnel (NPOs) who respond to the OSC perform repair and corrective actions directed by the OSC Manager. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, the Permanently Defueled ERO will not include augmenting I&C Technicians. However, if conditions warrant, I&C |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | | | personnel are available to be called in as needed. |
| Part 2, Section B.5.c.9) | 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… | 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 or EPM…. | Numerous ERO positions (POM) will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown. |
| Part 2, Section B.5.c.11)<br>(formerly Part 2, Section B.5.d.11) | Existing Position Titles:<br>• JIC Press Release Writer<br>• Public Information Liaison<br>• JIC Technical Advisor | Existing Position Titles:<br>• Company Spokesperson<br>• EOF Technical Advisor<br>• JIC Technical Advisor<br>• JIC Manager | Numerous ERO positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown. |
| Part 2, Section B.6 | Also, ERO Managers are responsible for ensuring adequate personnel are available to carry out emergency functions. | Also, the ED and ERO Managers are responsible for ensuring adequate personnel are available to carry out emergency functions. | Numerous ERO positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown. |
| Part 2, Section B.7 | The Admin & Logistics Coordinator and/or the Corporate Duty Manager coordinates corporate support into the ERO once the on call ERO is activated. | The EOF Technical Advisor and/or the Corporate Duty Manager coordinates corporate support into the ERO once the on call ERO is activated. | Numerous ERO positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown. |
| Part 2, Section B.8.b, 1st paragraph | If the need for additional technical assistance is identified, this may be obtained by the TSC Manager and the ED. | If the need for additional technical assistance is identified, this may be obtained by the EPM and the ED. | Numerous ERO positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown. |
| Part 2, Section B.8.b, 2nd paragraph | 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. | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, INPO resources are no longer needed to address |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | One of the roles of 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. | | credible accidents. A LOA with INPO will no longer be maintained. |
| Part 2, Figure B-1.1 | (See markups) | Figure B-1.1 is revised to eliminate the following positions:<br><u>Unit 2</u><br>• Chemistry Technician<br><u>Unit 3</u><br>• Chemistry Technician<br>• Control Room Supervisor<br>• Field Support Supervisor/STA<br>• Reactor Operators (2)<br>• SRO<br>• Nuclear Plant Operators (4) | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, on-shift personnel at Units 2 and 3 will consist of one Shift Manager (CFH-qualified), one (1) Nuclear Plant Operator, and one (1) Radiation Protection technician. |
| Part 2, Figure B-1.2a, B-1.2b, B-1.2c, and B-1.2d | (See markups) | Figure B-1.2a (Major Areas) is revised to eliminate the following positions:<br>• EOF Manager<br><br>Figure B-1.2b (Onsite) is revised to eliminate the following positions:<br>• Work Control Coordinator<br>• Mechanical Coordinator<br>• OSC Rad/Chem Coordinator<br>• OSC Operations Support<br>• I&C/Electrical Coordinator<br>• OSC Log Keeper | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | | • TSC Manager<br>• Mechanical Engineer<br>• Electrical/I&C Engineer<br>• Reactor Engineer<br>• IT Specialist<br>• Operations Coordinator<br>• TSC Communicator<br>• Plant Operations Manager<br>• Control Room Staff<br>• CCR Communicator<br>• Support Staff<br>• Control Room Supervisor<br>• Field Support Supervisor<br>• Facility Communicator<br><br>Figure B-1.2c (EOF) is revised to eliminate the following positions:<br>• EOF Manager<br>• Public Information Liaison<br>• EOF Communicator<br>• Admin & Logistics Coordinator<br>• IT Specialist<br>• Support Staff<br><br>Figure B-1.2d (Public Information) is revised to eliminate the following positions:<br>• Press Release Writer<br>• Support Staff<br>• IT Specialist<br>• Admin & Logistics Coordinator<br>• Audio Visual Coordinator<br>• Audio Visual Graphics Support<br>• Documenter<br>• Public Information Liaison<br>• Inquiry Response Coordinator | |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | | • Radiological Advisor<br>• Initial Response: Press Release writer is replaced with the Company Spokesperson | |
| Part 2, Table B-1 | (See markups) | (See markups) | Updated Table B-1 to reflect minimum required on-shift operating staff at Units 2 and 3 following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel.<br>These staffing levels have been evaluated in the IPEC analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in a permanently defueled condition. |
| Part 2, Table B-1 Note 1 | For Emergency Response Organization purposes resources may be shared between units. Unit 2 must maintain a CFH-qualified Shift Manager and a Nuclear Plant Operator. Unit 3 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. | For Emergency Response Organization purposes resources may be shared between units. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous on-shift positions will not exist. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Table B-1 Note 3 | The assessment function may be performed by the Field Support Supervisor | The assessment function may be performed by the Nuclear Plant Operators. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous on-shift positions will not exist. Duties and responsibilities will be transferred to |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | | | remaining positions as shown in the proposed revision. |
| Part 2, Table B-1 Note 4 | The Emergency Coordinator (Emergency Director) position is initially filled by the Shift Manager or Unit 3 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. | The Emergency Coordinator (Emergency Director) position is initially filled by the Shift Manager. He is relieved of this duty by the EOF Emergency Director who is a one-hour responder. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous on-shift positions will not exist. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Table B-1 Note 5 | IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) and an Offsite Communicator in the EOF as a required one-hour responder. The on shift communicator has been counted in the Unit 3 total, but can be provided by either unit. The additional two communicators are filled by the following: TSC Communicator and Offsite Team Coordinator – EOF. | IPEC has a designated Offsite Communicator in the EOF as a required one-hour responder. The additional communicator is filled by the Offsite Team Coordinator – EOF. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Table B-1 Note 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. | The repair and corrective action function would initially be performed by nuclear plant operators for minor mechanical maintenance activities. One additional maintenance mechanic who is a one hour responder would troubleshoot and correct equipment malfunctions designated in NUREG-0654 for Mechanical Maintenance / Radwaste Operator | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Table B-1 Note 8 | The repair and corrective action function would initially be performed by nuclear plant | The repair and corrective action function would initially be performed by nuclear plant | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | operators for minor electrical maintenance activities. Two additional electrical maintenance mechanics who are one-hour responders would troubleshoot and correct equipment malfunctions. | operators for minor electrical maintenance activities. One additional electrical maintenance mechanic who is a one-hour responder would troubleshoot and correct equipment malfunctions. | reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Table B-1 Note 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 other qualified personnel are required as one-hour responders. | On shift and other available qualified personnel and the unaffected unit RP Technicians can fulfill the function for basic in-plant radiation protection activities. One additional RP Technician or other qualified personnel is required as a one-hour responder. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Table B-1 Note 13 | One (1) designated FBL. This is a person on shift qualified as FBL. This person has been counted in the Unit 3 total, but can come from either unit. | Function will be performed by the TSC Engineering Coordinator, who is a one-hour responder. | Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the IPEC Fire Brigade will be staffed by five (5) trained and qualified Fire Brigade members in accordance with the Fire Protection Program Plan. This function will continue to be performed by trained and qualified personnel.<br><br>The note has been replaced with a note referring to the TSC Engineering Coordinator. Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | | | transferred to remaining positions as shown in the proposed revision. |
| Part 2, Table B-5 | (See markups) | (See markups) | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section C.4, 2nd paragraph | Though not a typical contracted service, the Institute of Nuclear Power Operation (INPO) is able to provide:<br>• Assistance in locating sources of emergency manpower and equipment;<br>• Access to an organization of industry experts who could advise the utility on technical matters, and;<br>• Analysis of operational aspects of the incident.-- | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, INPO resources are no longer needed to address credible accidents. A LOA with INPO will no longer be maintained. |
| Part 2, Section D.1, General Emergency, first paragraph | A General Emergency indicates events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed | A General Emergency indicates events are in progress or have occurred which involve actual or imminent substantial fuel degradation or melting with potential for significant release or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, neither unit will be capable of core degradation and loss of containment integrity is no longer applicable. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | EPA PAG exposure levels beyond the site boundary. | exposure levels beyond the site boundary. | |
| Part 2, Section D.2, last paragraph | It is important to note that some EALs in the NRC-approved EAL scheme are not possible for Unit 2 in the permanently shut down and defueled condition. | It is important to note that some EALs in the NRC-approved EAL scheme are not possible in the permanently shut down and defueled condition. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, this cautionary note is now applicable to all units. |
| Part 2, Table D-1, Category S | NOTE:<br>Category S EALs are not possible for Unit 2 in the permanently shut down and defueled condition. | NOTE:<br>Category S EALs are not possible in the permanently shut down and defueled condition. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, this cautionary note is now applicable to all units. |
| Part 2, Table D-1, Category F | NOTE:<br>Category F EALs are not possible for Unit 2 in the permanently shut down and defueled condition. | NOTE:<br>Category F EALs are not possible in the permanently shut down and defueled condition. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, this cautionary note is now applicable to all units. |
| Part 2, Section E.1.a.1)<br>AND<br>Part 2, Section E.1.b.1)<br>AND<br>Part 2, Section E.1.c.1)<br>AND<br>Part 2, Section E.1.d.1) | …is declared by the Shift Manager (or the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable)…. | …by the Shift Manager…. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor. |
| Part 2, Section E.1.a.4)<br>AND<br>Part 2, Section E.1.b.5) and 8)<br>AND<br>Part 2, Section E.1.c.5) and 8) | …or his designee…. | …. or designee…. | Editorial change to remove gender specific term. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section F.1, Public Address Systems, 1st paragraph | Personnel paged have the ability to talk to the Control Room Operator via party line phones that are strategically located within the units. | Personnel paged have the ability to talk to the Control Room via party line phones that are strategically located within the units | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff licensed Operators. Change provides for communication with Control Room rather than an Operator in the Control Room. |
| Part 2, Section F.1, Computer Systems | The Emergency Response Data System (ERDS) is a computer link from Indian Point Energy Center to the NRC Operations Center that displays key plant data. ERDS will be available at an Alert or higher classification.<br><br>Other computer systems have been established to display plant data and meteorological data in the onsite and offsite Emergency Response Facilities. | Computer systems have been established to display plant data and meteorological data in the onsite and offsite Emergency Response Facilities. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, the capability to display and/or transmit ERDS data is not required and will be terminated. |
| Part 2, Section F, Figure F-1.3 | Three (3) instances of ERDS | Deleted | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, the capability to display and/or transmit ERDS data is not required and will be terminated. |
| Part 2, Sections H.1, Control Rooms, 1st paragraph | Control Room personnel make the initial declaration and classification of an emergency and perform activities of other Emergency Response Facilities until those facilities are operational. Manipulations of the reactor or the plant to mitigate the consequences | The Shift Manager makes the initial declaration and classification of an emergency and on-shift personnel perform activities of other Emergency Response Facilities until those facilities are operational. Manipulations of plant equipment to mitigate the consequences of an | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, the Shift Manager will be responsible for initial declaration of an emergency and CR personnel no longer manipulate a reactor. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | of an accident and restore safe conditions, however, remain as the primary function of the CR. | accident and restore safe conditions, however, remain as the primary function of the CR. | |
| Part 2, Sections H.1, Control Rooms, 3rd paragraph | Overall management of the emergency response lies with the Shift Manager in the CR until it is accepted by either another qualified ED in the CR, (Plant Operations Manager) or the ED located in the EOF. | Overall management of the emergency response lies with the Shift Manager in the CR until it is accepted by another qualified ED located in the EOF. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. There will not be a Plant Operations Manager (POM) to relieve the SM. The SM will maintain command and control until relieved by the Emergency Director in the EOF. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Sections H.1, Technical Support Center, 3rd paragraph, 1st bullet | • Plant management and technical support to the reactor operating personnel in the Control Room (CR) and | • Plant management and technical support to the personnel in the Control Room (CR) and | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, CR personnel no longer operate a reactor. |
| Part 2, Sections H.1, Technical Support Center, 5th paragraph | The TSC Manager directs and coordinates activities in the TSC. Plant parameter data is available for accident assessment including Unit 3 core damage assessment. | The Emergency Plant Manager directs and coordinates activities in the TSC. Plant parameter data is available for accident assessment. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, the TSC Manager position will not exist in the Permanently Defueled ERO. Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, core damage assessment is no longer applicable. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Sections H.1, Operations Support Center, 3rd paragraph, 1st bullet | The Control Room Supervisor or the Security Shift Supervisor tracks individuals who are assigned to the Control Room Watch or the Security Force respectively; | The Shift Manager or the Security Shift Supervisor tracks individuals who are assigned to the Control Room Watch or the Security Force respectively; | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor. |
| Part 2, Sections H.7.b, 3rd paragraph | Unit 3 Post-accident Sampling<br><br>Plant design includes the capability to sample the Unit 3 reactor coolant system, the discharge of the recirculation and residual heat removal pumps, and the post accident containment atmosphere.<br><br>Facilities for the radiation protection and chemistry groups include laboratory and calibration rooms for both conventional and radio chemical analyses. | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, post-accident sampling of the RCS will be abandoned. |
| Part 2, Sections H.7.c, 2nd paragraph | Process instrumentation inside Unit 3 containment provides required operating and assessment information after a loss of coolant accident or a steam-line break. This instrumentation includes:<br>• Pressurizer pressure channels<br>• Pressurizer level channels<br>• High-head flow channels<br>• Accumulator pressure channels<br>• Recirculation spray flow channels<br>• Recirculation sump level channels<br>• Containment sump level channels<br>• Residual heat loop flow channels | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, LOCA and MSLB are no longer credible accidents and no process instrumentation is needed. |
| Part 2, Sections H.7.d | Instrumentation for Detecting Inadequate Unit 3 Core Cooling | -- | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | Instrumentation for detecting inadequate Unit 3 core cooling includes:<br>• Reactor coolant saturation meter<br>• Hot leg wide range temperature<br>• Cold leg wide range temperature<br>• Wide range reactor coolant pressure<br>• Pressurizer level<br>• Reactor vessel level indication system (RVLIS)<br>• Core exit thermal couples<br>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. | | reactor vessel, there is no longer a core to cool and no instrumentation is needed. |
| Part 2, Sections H.8.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 are referenced in Appendix 2 of this plan. | Backup radiological monitoring equipment and assistance can be obtained from other utilities or the Department of Energy's Brookhaven Area Office. Letters of agreement for these services are referenced in Appendix 2 of this plan. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, INPO resources are no longer needed to address credible accidents. A LOA with INPO will no longer be maintained. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section I, Notification of Unusual Event, 1st paragraph | The existence of conditions which would be classified under this heading is brought to the attention of Control Room Operators (or Control Room staff at Unit 2) by… | The existence of conditions which would be classified under this heading is brought to the attention of on-shift staff by… | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous on-shift positions will not exist, and Operations on-shift personnel will no longer staff licensed Operators. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section I, Alert, 2nd paragraphs | The Shift Manager or Plant Operations Manager, acting as the ED at the start of the emergency, and the on call ED 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. | The Shift Manager, acting as the ED at the start of the emergency, and the on call ED after taking over control at the Emergency Operations Facility, will continually direct assessment of plant conditions and radiological conditions onsite and offsite. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, nuclear instrumentation is not required. Additionally, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section I, Site Area Emergency and General Emergency, 1st paragraph | For emergency situations that are classified as Site Area Emergencies or General Emergencies, the Shift Manager/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, containment integrity and the status of safeguards equipment, if applicable. | For emergency situations that are classified as Site Area Emergencies or General Emergencies, the Shift Manager/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, and the status of safeguards equipment, if applicable. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, only systems needed to observe or mitigate credible accidents will remain. |
| Part 2, Section I, SAE/GE 3rd paragraph | The source term is determined from the R-25 and R-26 accident monitor instruments, indicating radioactivity in the Unit 3 containment building | Area radiation monitor R-5 (Fuel Storage Building Area Monitor) | Following permanent cessation of power operations and permanent removal of fuel from the Unit 3 reactor, a significant release from |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | released from the Unit 3 reactor core. Area radiation monitor R-5 (Fuel Storage Building Area Monitor) indicates radioactivity in the Fuel Storage Building. | indicates radioactivity in the Fuel Storage Building. | the Unit 3 reactor core is not possible and R-25 and R-26 will not provide appropriate indication of a release from the Unit 3 SFP. R-5 monitors radiation levels in the Fuel Storage Building. |
| Part 2, Section I, Site Area Emergency and General Emergency, 3rd paragraph, 1st bullet | • The release rate is determined from the Plant Vent Monitor, Air Ejector Monitor or the Main Steam Line Monitors. | • The release rate is determined from the Plant Vent Monitor. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, only systems needed to observe or mitigate credible accidents will remain. |
| Part 2, Section I.2.a | a. Unit 3 Sampling System<br>Plant design includes the capability to sample the Unit 3 reactor coolant system, the discharge of the recirculation and residual heat removal pumps, and the containment atmosphere.<br>Facilities for the radiation protection and chemistry groups include laboratory and calibration rooms for both conventional and radio chemical analyses. | a. Sampling System<br>Facilities for the radiation protection and chemistry groups include laboratory and calibration rooms for both conventional and radio chemical analyses. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, post-accident sampling of the RCS will be abandoned, and sampling of discharge of the heat removal pumps and containment atmosphere will not be necessary. |
| Part 2, Section I.2.c | Containment Radiation Monitors and Hydrogen Monitor<br>Containment Radiation Monitors and/or Hydrogen Monitors along with Core Exit Thermocouples may provide an early indication of Unit 3 core damage. These monitor readings are utilized as a method for | Deleted | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, only systems needed to observe or mitigate credible accidents will remain. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| | core damage determination. This is accomplished through use of established procedures based on Pressurized Water Reactor 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. | | |
| Part 2, Section I.3.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 Unit 3 core damage and establish the total number of curies available for release. | The potential for release of radioactive material and the magnitude of the release can be assessed through use of the Process Monitors. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, only systems needed to observe or mitigate credible accidents will remain. |
| Part 2, Section J.6.e | A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the Unit 3 reactor and perform the functions of the emergency plan. | A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to maintain SFP cooling and inventory, and perform the functions of the emergency plan. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, there is no need to shut down the reactor. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section K.2, 1st paragraph | The Radiological Assessment Coordinator (EOF) and the Rad/Chem Coordinator (OSC) ensure that… | The Radiological Assessment Coordinator (EOF) and the Radiological Coordinator (TSC) ensure that… | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section K.2, 4th bullet | Access to high radiation areas is only permitted with prior approval of the applicable Radiological Assessment Coordinator (EOF) or Rad/Chem Coordinator (OSC), and personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated. | Access to high radiation areas is only permitted with prior approval of the Radiological Assessment Coordinator (EOF) or Radiological Coordinator (TSC), and personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section K.5.a | Normal contamination control limits apply in emergency conditions. However, these limits may be modified by Rad/Chem Coordinator or the Radiological Assessment Coordinator should conditions warrant. | Normal contamination control limits apply in emergency conditions. However, these limits may be modified by the Radiological Coordinator or the Radiological Assessment Coordinator should conditions warrant. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section K.6.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 Rad/Chem Coordinator | Areas in the plant found to be contaminated are isolated as restricted areas with appropriate radiological protection and access control as directed by the Radiological Coordinator | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section M.1, Re-entry, 1st bullet, 2nd paragraph | The Shift Manager, and/or the Unit 3 Control Room Supervisor for an emergency involving Unit 3, direct re-entry activities prior to activation of the Emergency Facilities. | The Shift Manager directs re-entry activities prior to activation of the Emergency Facilities. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, Operations on-shift personnel will no longer staff a Control Room Supervisor in Unit 3. |
| Part 2, Section M.1, Recovery, 2nd paragraph | The ED, after consulting with the EOF Manager, Company Spokesperson, the Emergency Plant Manager and the Plant Operations Manager, has the responsibility for… | The ED, after consulting with the EOF Technical Advisor, Company Spokesperson, the Emergency Plant Manager and the Shift Manager, has the responsibility for… | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section M.1, Recovery, 6th bullet | The Unit 2 SFP and/or the Unit 3 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 | The Unit 2 and 3 SFPs are in a stable condition and long-term cooling is available and adequate. There is no foreseeable danger of losing heat removal capability | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, only the condition of the SFPs should be considered prior to entry into the recovery phase. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section M.1, Recovery, 7th bullet | Unit 3 Containment pressure is within Technical Specification limits. | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, only systems needed to observe or mitigate credible accidents will remain. |
| Part 2, Section M.2, Recovery Organization, 3rd bullet | For events involving major damage to systems required for maintaining safe shutdown of Unit 3 and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY classifications) the Indian Point and Corporate Emergency Center Manager is put in place. | For events involving major damage to systems required to maintain SFP cooling and inventory and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY classifications) the Indian Point and Corporate Emergency Center Manager is put in place. | Following permanent cessation of Unit 2 power operations and permanent removal of fuel from the reactor vessel, safe shutdown is no longer a consideration. |
| Part 2, Section O.4.a | Personnel responsible for management of an Emergency (Shift Manager, ED, EOF Manager, Emergency Plant Manager / Plant Operations Manager / TSC Manager and OSC Manager) | Personnel responsible for management of an Emergency (Shift Manager, ED, Emergency Plant Manager and OSC Manager) | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |
| Part 2, Section O.4.b, 1st paragraph, last sentence | Licensed Operators receive routine classroom and simulator training, as applicable, to ensure proficiency in this area. | Individuals qualified as Certified Fuel Handlers receive routine classroom training to ensure proficiency in this area. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous on-shift positions will not exist, and Operations on-shift personnel will no longer staff licensed Operators. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Part 2, Section O.4.e, 3rd paragraph | 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. | Maintenance personnel are trained to troubleshoot and to repair damaged or malfunctioning electrical, mechanical, or instrumentation systems as appropriate to their job classification. | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, the Permanently Defueled ERO will not include augmenting I&C Technicians. However, if conditions warrant, I&C personnel are available to be called in as needed. |
| Appendix 1, References | 22. INPO Emergency Resources Manual<br>30. INPO Coordination agreement on emergency information among USCEA, EPRI, INPO, NUMARC and their member utilities, dated April (1988). | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, INPO resources are no longer needed to address credible accidents. A LOA with INPO will no longer be maintained. |
| Appendix 2, Letters of Agreement | 7. Institute of Nuclear Power Operations (INPO) | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, “resources beyond in-house capabilities” are no longer needed to address credible accidents and a LOA with INPO will no longer be maintained.<br>Remaining LOAs renumbered to reflect deletion of INPO LOA. |
| Appendix 4, Acronyms | INPO…Institute of Nuclear Power Operations | Delete | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, INPO resources are no longer needed to address credible accidents. A LOA with INPO will no longer be maintained. |

| Emergency Plan Section | Before (Stage I Emergency Plan) | After (Rev. TBD) | Reason for Change |
|---|---|---|---|
| Appendix 4, Definitions | 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. | Process Radiation Monitors - Radiation detectors which continuously monitor 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. | Editorial change to remove the unnecessary “operating” term. |
| Appendix 4, Definitions | 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 | 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 Emergency Director | Following permanent cessation of Unit 3 power operations and permanent removal of fuel from the reactor vessel, numerous positions will not exist in the Permanently Defueled ERO. Duties and responsibilities will be transferred to remaining positions as shown in the proposed revision. |

**ATTACHMENT 6**

**NL-19-001**

**Proposed Stage II Revision to the Indian Point Energy Center Site Emergency Plan (Markup Version)**

# Indian Point Energy Center

# Emergency Plan

| | | | |
|---|---|---|---|
| Prepared by: | Antonio Iraola | | |
| | Print Name | Signature | Date |
| Approval: | Frank J Mitchell | | |
| | Print Name | Signature | Date |

Effective Date: TBD

**Table of Contents (Cont.)**

LIST OF EFFECTIVE PAGES


| Page | Revision |
|---|---|
| Table of Contents | TBD |
| Part I | TBD |
| Part 2, Section A | TBD |
| Part 2, Section B | TBD |
| Part 2, Section C | TBD |
| Part 2, Section D | TBD |
| Part 2, Section E | TBD |
| Part 2, Section F | TBD |
| Part 2, Section G | TBD |
| Part 2, Section H | TBD |
| Part 2, Section I | TBD |
| Part 2, Section J | TBD |
| Part 2, Section K | TBD |
| Part 2, Section L | TBD |
| Part 2, Section M | TBD |
| Part 2, Section N | TBD |
| Part 2, Section O | TBD |
| Part 2, Section P | TBD |
| Appendix 1 | TBD |
| Appendix 2 | TBD |
| Appendix 3 | TBD |
| Appendix 4 | TBD |
| Appendix 5 | TBD |

Page

**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
Figure 1.B-1 10-Mile Emergency Planning Zone… ..... 7
Figure 1.B-2 50-Mile Emergency Planning Zone… ..... 8
Figure 1.B-3 Indian Point Energy Center Site Map... ..... 9

**Part 2: PLANNING STANDARDS AND CRITERIA**

**Section A: ..... Assignment of Responsibility**

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

Section B: Station Emergency Response Organization

1. Indian Point 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

Section C: Emergency Response Support and Resources

1. Federal Response Support and Resources ..... C-1
2. Liaisons ..... C-1
3. Radiological Laboratories ..... C-2

Page

4. Other Assistance ..... C-2

Section D: Emergency Classification System

1. Emergency Classification ..... D-1
2. Emergency Action Levels ..... D-7
3. Offsite Classification Systems ..... D-7
4. Offsite Emergency Procedures ..... D-8

Section E: Notification Methods and Procedures

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

Section F: Emergency Communications

1. Description of Primary Communications Systems ..... F-1

Section G: Public Education and Information

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

Section H: Emergency Facilities and Equipment

1. In-Plant Emergency Response Facilities ..... H-1
2. Emergency Operations Facilities ..... H-3
3 Joint Information Center ..... H-4
4 Alternative TSC/OSC ..... H-5
5. Offsite Emergency Operations Centers ..... H-5
6. Activation and Staffing of Emergency Response Facilities ..... H-5
7. Emergency Onsite Monitoring Systems ..... H-5
8. Offsite Emergency Data Acquisition ..... H-7
9. Facilities and Equipment for Offsite Monitoring ..... H-8

..... Page

10. Meteorological Monitoring ..... H-9
11. Facility and Equipment Readiness ..... ……H-10
12. Identification of Emergency Equipment and Supplies ..... H-10
13. Collection and Analysis of Field Monitoring Data ..... H-10

Section I: Accident Assessment

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. Offsite 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

Section J: Protective Response

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-4
8. Evacuation Time Estimates ..... J-4
9. Protective Measure Implementation ..... J-4
10. Factors Affecting Protective Measure Implementation ..... J-4
11. Ingestion Pathway Protective Measures ..... J-6
12. Monitoring of Evacuees ..... J-6

**Table of Contents (Cont.)**

Page

Section K: Radiological Exposure Control

1. Emergency Exposure Guidelines ..... K-1
2. Emergency Radiological Control 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

Section L: Medical and Public Health Support

1. Hospital Services ..... L-1
2. Onsite First Aid Capability ..... L-1
3. Medical Service Facilities ..... L-2
4. Medical Transportation ..... L-2

Section M: Re-entry and Recovery Planning

1. Re-entry and Recovery ..... M-1
2. Recovery Organization ..... M-3
3. Recovery Phase Notifications ..... M-6
4. Total Population Exposure ..... M-6

Section N: Drill and Exercise Program

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

Section O: Emergency Response Training

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

Page

Section P: Responsibility for the Maintenance of the Planning Effort

1. Emergency Planning Staff Training ..... P-1
2. Authority for Emergency Preparedness Effort ..... P-1
3. Manager of Emergency Preparedness ..... 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 ..... P-5

**APPENDIXES**

Appendix 1: References ..... Appendix-1-1
Appendix 2: Letters of Agreement ..... 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

# 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 Energy Center units and the personnel who work at the plant.

The Indian Point Energy Center Emergency Plan (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 Plan 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. Units 1, ~~and~~ 2, and 3 are permanently defueled and only those areas ~~of Units 1 and 2~~ that either store or process radioactive materials~~,~~ and spent fuel (the Fuel Handling Building and waste storage/process areas in the Chemical Systems Building and the Integrated Liquid Radwaste Systems Building and the Independent Spent Fuel Storage Installation (ISFSI)) were considered in evaluating radiological hazards. ~~Unit 3 is the only unit currently licensed to operate.~~

This Plan is solely dedicated to Indian Point Energy Center 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 permanently shutdown and defueled 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).

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 2010 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 Energy Center 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.

Plant

Unit 1 (615 MWt, permanently defueled), Unit 2 (3216 MWt, permanently defueled) and Unit 3 (3216 MWt, permanently defueled). 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-3 unit has 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 Energy Center Site during emergencies. It identifies an IPEC Emergency Response Organization (ERO), 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. Implementing Procedures have been developed to implement this Plan. These procedures identify the elements of the ERO and the interface with supporting offsite organizations. In addition to the Implementing Procedures (IP), Plan Administrative Directives (AD) have been developed to ensure proper maintenance of the program. A listing of procedures cross-referenced to sections of the Plan are contained in Appendix 3. Complete copies of the 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.

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. These agreements are listed 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 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 Corporation 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 Energy Center. 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

contained in the Plan 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 (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 (ED) 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~~condition, 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 Energy Center.

**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-0728, "Concept of Operations: NRC Incident Response", was used in the development of the 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 Plan.

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

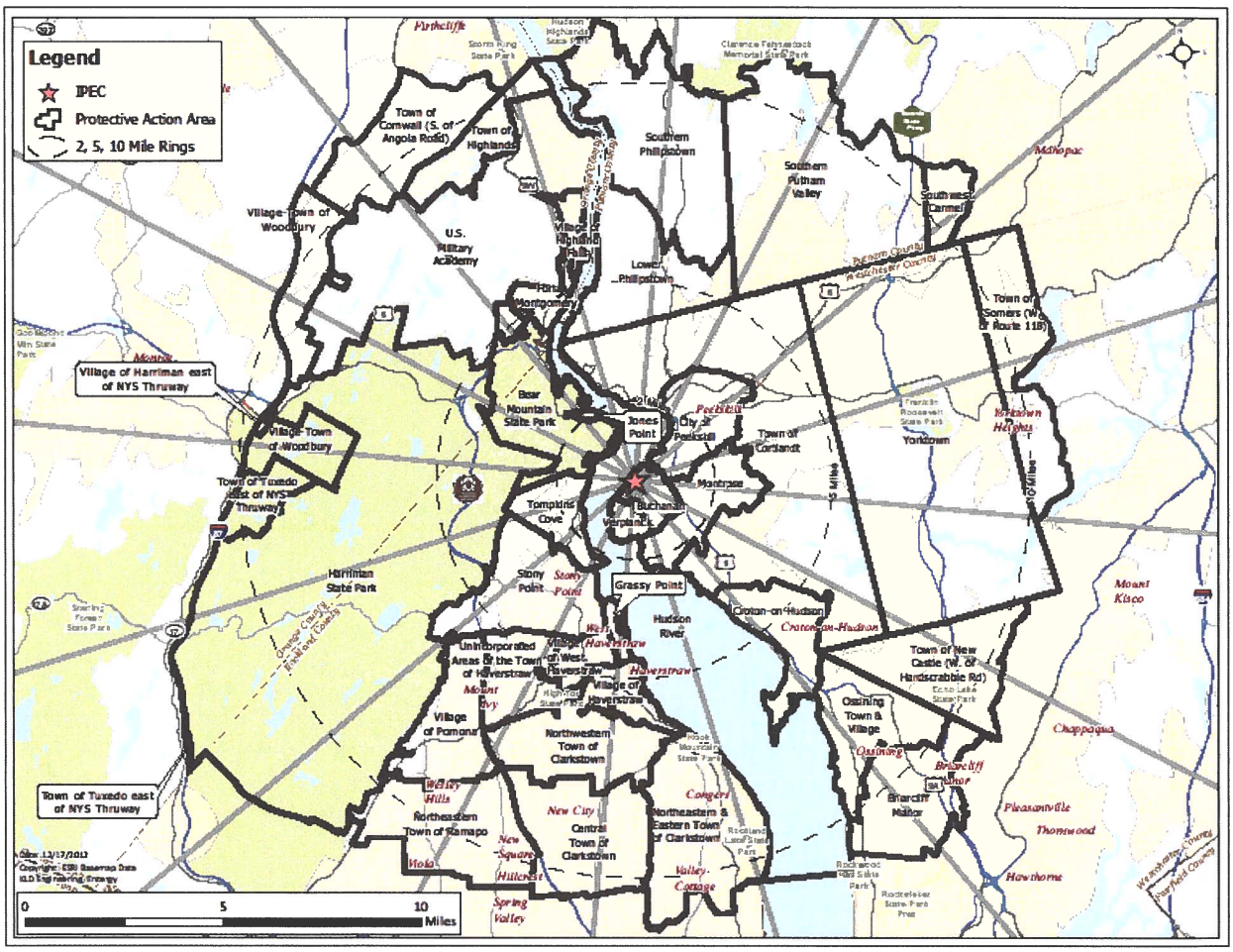
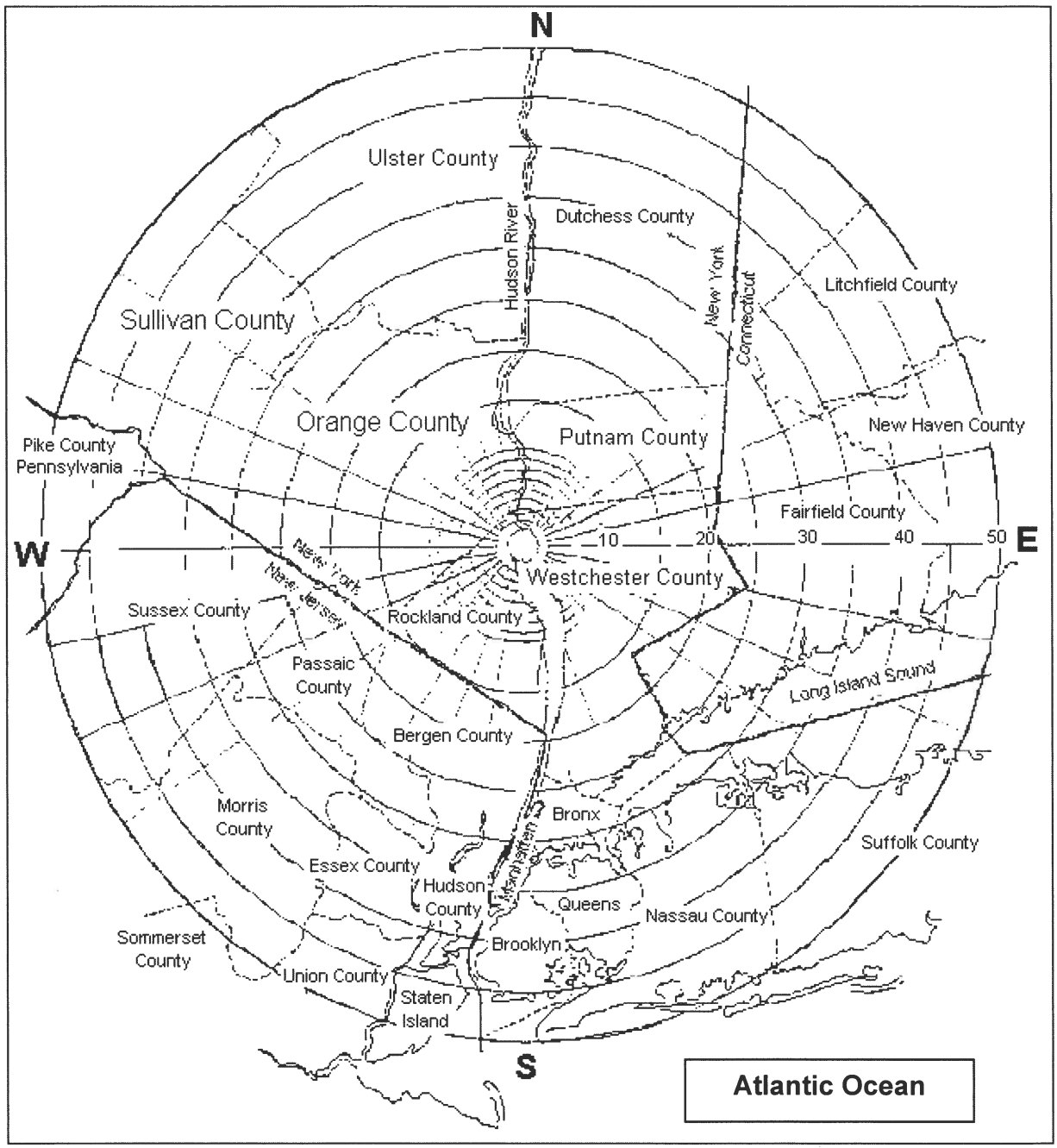
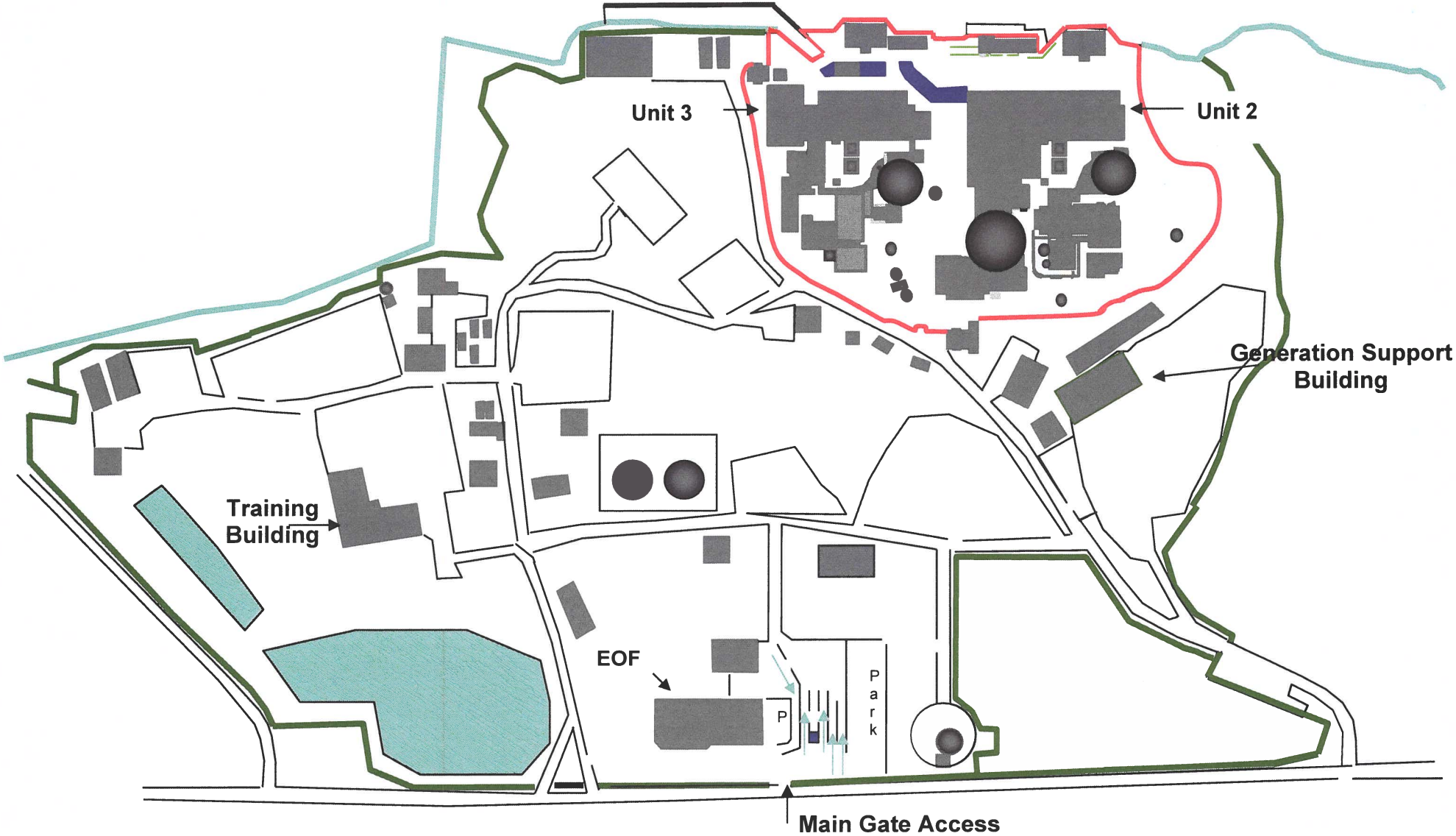


**Figure 1.B-2**
**50 Mile Emergency Planning Zone**



**INDIAN POINT ENERGY CENTER SITE MAP**

**Figure 1.B-3**



INTENTIONALLY LEFT BLANK

## Part 2: PLANNING STANDARDS AND CRITERIA

### Section A: Assignment of Responsibility

This section describes the primary responsibilities for emergency response by IPEC, 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 Energy Center.

      Federal Agencies

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

      - Nuclear Regulatory Commission (NRC), who act as technical/regulatory advisors to Indian Point Energy Center 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 Program 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 ED 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.

- 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 Energy Center 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 New York State Office of Emergency Management (NYSOEM). 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 Comprehensive Emergency Plan, Radiological Hazards Annex for Fixed Nuclear Facilities. Notification to the State of emergency conditions would be as indicated in Part 2, Section E.

- New York State has Emergency Operation Centers in Albany, Westchester and other areas in the state. All of the state EOCs are equipped with communication capability.

County Offices of Disaster and Emergency Services/Emergency Management

The four (4) counties located within the 10 mile Emergency Planning Zone (EPZ) that are involved in emergency response activities at the Indian Point Energy Center 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 Energy Center;

- 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 Energy Center.

- 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 Energy Center.

Each county has an Office of Emergency Management. The Director of each of these offices, or their designee, will act as the County Emergency Operations Manager 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 Energy Center 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 ERO replaces the normal plant organization. Indian Point Energy Center 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 Energy Center.

d. The Shift Manager ~~(or the Unit 3 Control Room Supervisor in the absence of the Unit 3 Shift Manager)~~ is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO.

e. Continuously manned communication points have been identified for all agencies involved in the planning effort.

2. <u>State and Local Functions and Responsibilities</u>

The State, and local counties 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.

3. Agreements in Planning Effort

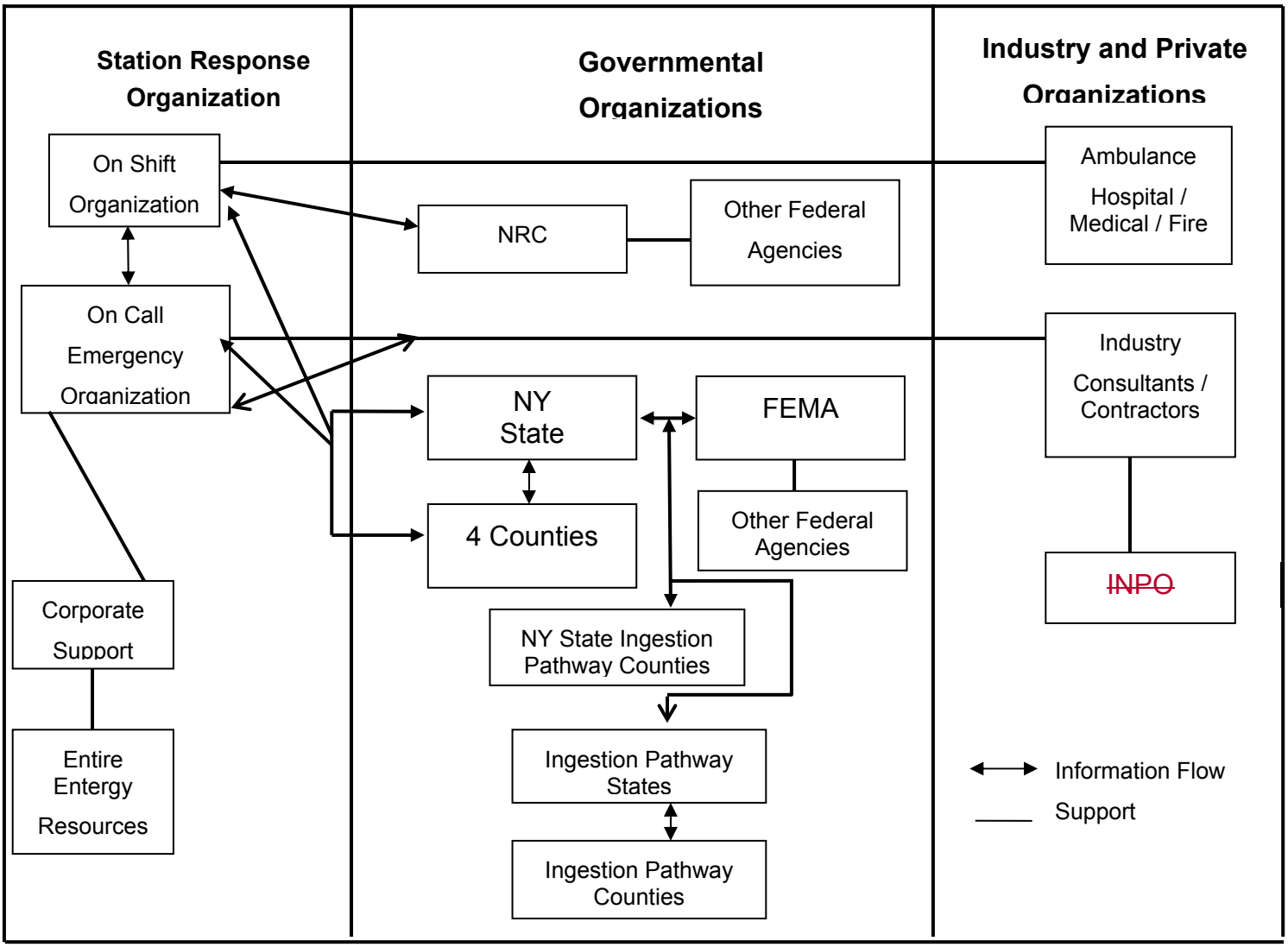
   Agreements establishing the concept of operations developed between IPEC and other support organizations having an emergency response role within the Indian Point Emergency Planning Zones (including hospitals and medical transportation) are provided in Appendix 2, "Letters of Agreement." These agreements 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 Energy Center. 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 ERO has sufficient numbers of qualified, trained personnel to provide the capability of continuous (24-hour) operations. The Manager of Emergency Preparedness administers programs to ensure availability of resources in the event of an emergency. The ED 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 ERO.

Figure A-1

Emergency Response Organizations Interrelationships




Notes:

1. Until the On-Call ERO is in place the Shift Manager ~~(or the Unit 3 Control Room Supervisor if the Unit 3 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 ED, 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 ERO, 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 Energy Center 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 on-shift and other key responders capable of responding within 60 minutes of a declared emergency to support the on-shift 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 ERO. The full ERO will be activated at an Alert, Site Area Emergency or General Emergency.

   a. Normal Plant Organization

      The normal Indian Point Energy Center 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 Energy Center.

      Each Unit's normal watch organization [Figure B-1.1] functions twenty-four [24] hours per day, seven [7] days per week. The minimum on-shift staffing is shown in Table B-1 and includes the following qualified individuals at Unit 2 and Unit 3:

      ~~1) Unit 2~~

      One [1] Shift Manager, who is qualified as a Certified Fuel Handler and is in charge of on-shift personnel during his/her shift and is responsible for assuring that all activities are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;

      One [1] Nuclear Plant Operator ~~at Unit 2~~ who performs plant operations, minor maintenance and monitoring under the direction of the Shift Manager.

      One [1] Radiation Protection Technician ~~and one [1] Chemistry Technician~~who performs radiation monitoring, surveillance, decontamination, and water chemistry as necessary ~~at Unit 2~~. The Radiation Protection Technician can perform emergency duties at the Unit 2 ~~Spent Fuel Pool (SFP)~~ and/or Unit 3 during emergencies.

      ~~2) Unit 3~~

~~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;~~

~~Five [5] Nuclear Plant Operators at Unit 3 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 at each unit. The Radiation Protection Technician can perform emergency duties at the Unit 2 SFP and/or Unit 3 during emergencies.~~

One [1] qualified individual is assigned as Fire Brigade Leader (FBL) for both units in accordance with the Fire Protection Program Plan.

One [1] qualified on-shift individual is the Communicator for notifications for both units.

The watch organization is augmented during normal working hours Monday through Friday by the Indian Point Energy Center 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 ~~(Unit 3 Control Room Supervisor in the absence of the Unit 3 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. <u>On call Emergency Response Organization</u>

The 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 Energy Center, 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 and on-shift staffing in accordance with guidance of NRC's NSIR/DPR-ISG-

01 interim staff guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities. An analysis of the IPEC On-Shift staffing was conducted and a final analysis report was issued. The analysis report is available as a separate document. The analysis resulted in a total of ~~seventeen~~ six persons on-shift.

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

Those personnel identified to augment the Watch Force within 60 minutes of the declaration of an Alert or higher are part of the on-call ERO. These personnel are notified by an electronic notification system and public address announcements, and are immediately available during normal working hours. These personnel are notified by an electronic notification system during non-working hours. An alternate notification system using an automated telephone notification process is used in the event that the normal electronic notification system is unavailable.

The activation phase consists of 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 ED 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 illustrate 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 Unit 3 Control Room Supervisor in the event that the Unit 3 Shift Manager is unavailable)~~, acting as the ED, 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 ED. He/she activates the ERO as necessary and continues to direct the emergency response until relieved by another qualified ED.

The relieving ED~~/Plant Operations Manager (POM)~~ 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 POM holds this position until the on-call ED arrives.~~ Overall control of the Onsite ERO is maintained by the Emergency Plant Manager (EPM) in the TSC. After command and control is transferred to the ED in the EOF/AEOF, it remains there until the event is terminated. In the event that the ED becomes unavailable or personnel at the EOF are required to transfer to the AEOF, command and control may be transferred to the CCR until such time as a new ED assumes command and control or the ED assumes command and control upon arrival at the AEOF.

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

3. Succession to Emergency Director:

The duties and responsibilities of the ED are initially assumed by the Shift Manager ~~(the Unit 3 CR Supervisor in the absence of the Unit 3 Shift Manager)~~. 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 ED is normally staffed by high level station management personnel.

4. Emergency Director Responsibilities:

The ED 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 EDs are designated in an Emergency Telephone Directory. The ED is stationed in the EOF 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 ED include:

- Declares and upgrades the emergency as warranted and initiates recovery phase when appropriate (non-delegable);
- Coordination of Entergy's emergency response efforts outside the Protected Area Fence;
- Interpretation of offsite radiological assessments for emergency classifications and Protective Action Recommendations in terms of both real-time measurements and projected radiological exposures;
- 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;
- Ensure proper communications between the Indian Point ERO and offsite response organizations;
- Review all radiological, meteorological and operational data and update the offsite authorities and the JIC;
- Receive designated responding representatives from offsite emergency agencies responding to Entergy facilities 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;
- Release of non-essential personnel from the site; and
- Approves information to the public prior to the JIC activation.

The ED is assisted in these activities by the entire ERO. Although the ED 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 ED. He/she directs and coordinates the operational aspects of the In-Plant ERO. He/she assures proper coordination and direction of the efforts of each element of the In-Plant ERO in returning the plant to and maintaining it in a safe and stable condition. The EPM is located in the TSC. 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 ED. Specific responsibilities of the EOF Manager include:~~

- ~~Coordination of Entergy's emergency response efforts outside the Protected Area Fence;~~
- ~~Assist the ED 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.~~

~~c.~~b. Company Spokesperson

The Company Spokesperson reports directly to the JIC Manager. 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.~~c. 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 TSC under the direction of the TSC ~~Manager~~Engineering Coordinator. It is the central facility for the accumulation and re-transmittal of plant parameters;

Specific functions of the TSC 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 ED apprised of plant conditions; and
- Interfacing with NRC personnel in the TSC.

Personnel from the plant's engineering departments are assigned to these functions, as necessary to respond to an emergency declaration. 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 Emergency 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~~.

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 ERO personnel is initiated by the Shift Manager ~~and/or Control Room Communicator~~. Communications with offsite authorities are maintained from the Control Room until the ED takes over the responsibility at the EOF. A communicator is designated at the EOF 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 Assessor~~s~~ and the Offsite Team Coordinator who function directly under authority of the Radiological Assessment Coordinator (RAC). These individuals ensure that sufficient monitoring activities are instituted, evaluate and assess the results and apprise the RAC of all activities, results and recommendations. Offsite radiological monitoring is provided by responding Radiation Protection Personnel or 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 T~~technicians and operations personnel (NPOs) who respond to the OSC perform repair and corrective actions directed by the OSC 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.

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 ED. 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 TSC Security Coordinator. 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 Energy Center communications personnel and/or individuals assigned to the JIC. A ~~Press Release Writer~~Company Spokesperson 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 JIC being operational.

The JIC 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 ~~Press Release Writer~~Company Spokesperson and the JIC Manager have access to all necessary information, either directly available to them or available through the onsite ERO. An ~~Public Information Liaison~~EOF Technical Advisor reports to the EOF with the initial augmentation of the watch force to facilitate information flow regarding the emergency to the JIC Technical Advisor. The ED prior to the activation of the JIC approves information that is used to notify the public. Once the JIC is operational, the ~~JIC Press Release Writer~~Company Spokesperson prepares the press release, and once approved by the ED, the JIC Manager or Company Spokesperson 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 ERO 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, the ED and 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~~ EOF Technical Advisor and/or the Corporate Duty Manager coordinates corporate support into the ERO once the on call ERO is activated. With the full activation of the ERO, Entergy is capable of continuous (24 hour) operations for a protracted period. The ED 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.

b. Additional Technical Assistance

If the need for additional technical assistance is identified, this may be obtained by the ~~TSC Manager~~EPM and the ED. 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 referenced 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 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 has 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 referenced in Appendix 2. All support, including support during hostile action events, is provided utilizing the National Incident Management System (NIMS) tool called the Incident Command System (ICS).

a. Ambulance Service

Twenty-four (24) hour ambulance service is provided by the Verplanck Fire District Ambulance with mutual aid backup from other ambulance services. Mutual aid backup from other ambulance services provides for additional Emergency Medical Services (EMS), ambulances and EMS personnel. 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.

c. Hospitals

The Hudson Valley Hospital Center at Peekskill / Cortlandt has agreed to accept patients from the Indian Point Energy Center 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.

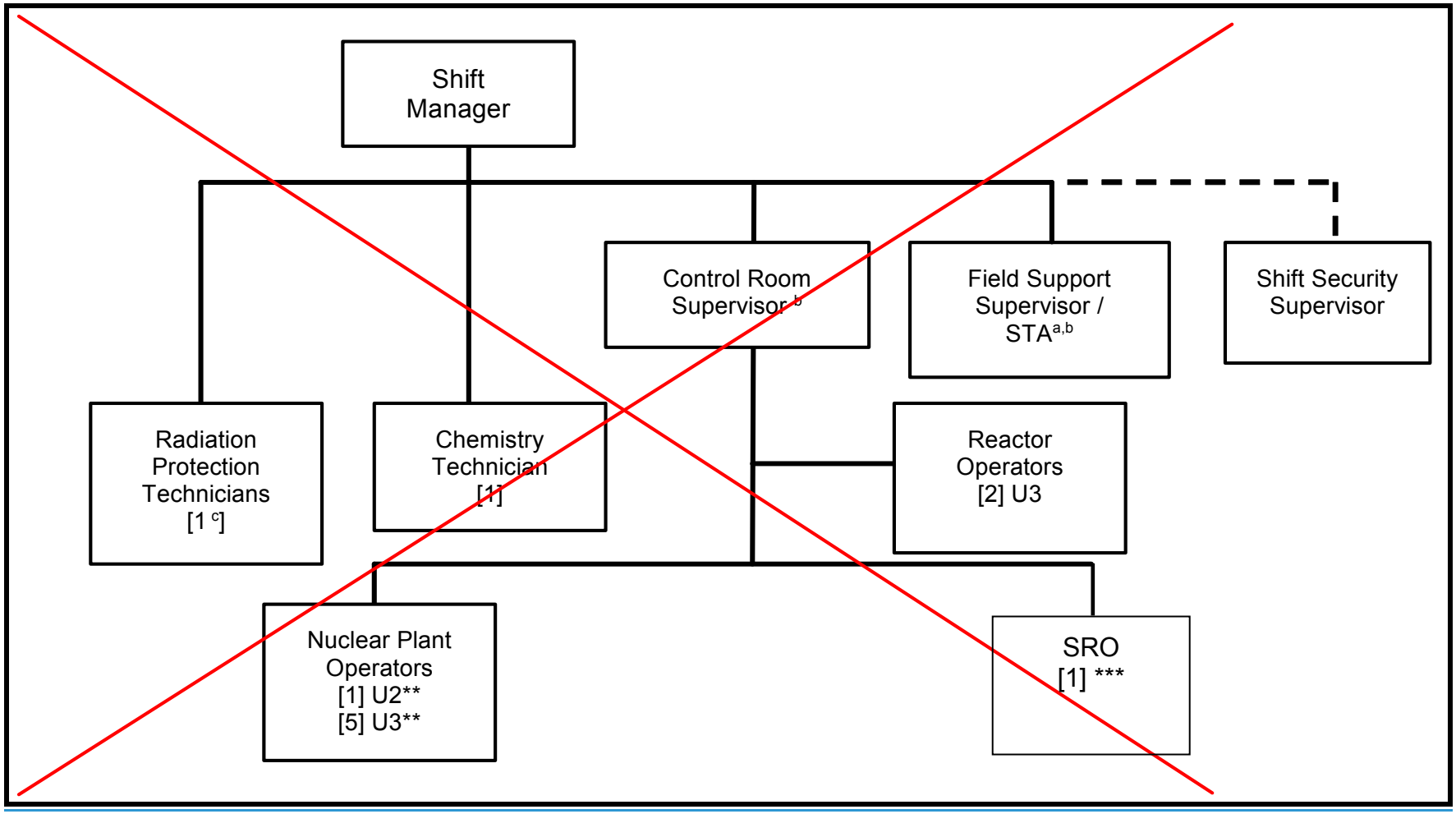
The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital.

d. Law Enforcement

When notified that assistance is required, IPEC Security will notify the New York State Police which is the lead LLEA. As the situation demands, the Westchester County Police serve as the back-up to the State Police to provide timely reinforcement. The handling of security matters including those involving hostile action for the Indian Point Energy Center site is covered in the Security Safeguards Contingency Plan and Incident Response Plan.

e. Fire

Offsite firefighting support is provided by the Verplanck, Buchanan, and/or Montrose Fire Departments, as resources permit, with mutual aid backup from other fire departments. Mutual aid for fire response, fire apparatus, and firefighter resources is described in the Westchester County Fire Mutual Aid Plan.




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

[b] ~~A Control Room Supervisor and STA will not be assigned to Unit 2 in the permanently shut down and defueled condition.~~

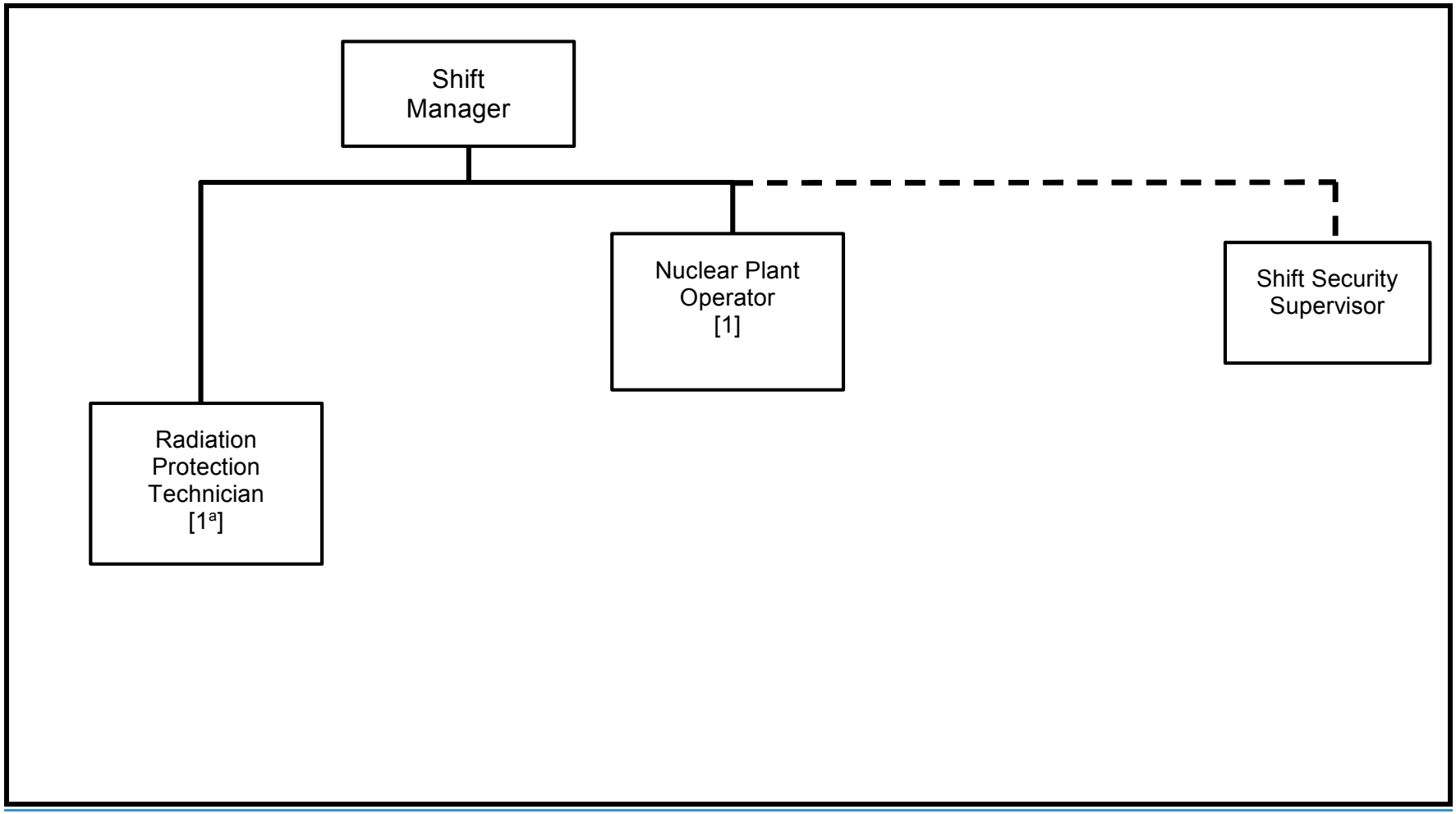
[c] ~~This RP Technician would assist at affected unit if needed~~

~~** One NPO would be the communicator and make notifications for both units~~

~~*** One qualified individual would serve as FBL for both units in accordance with the Fire Protection Program Plan~~

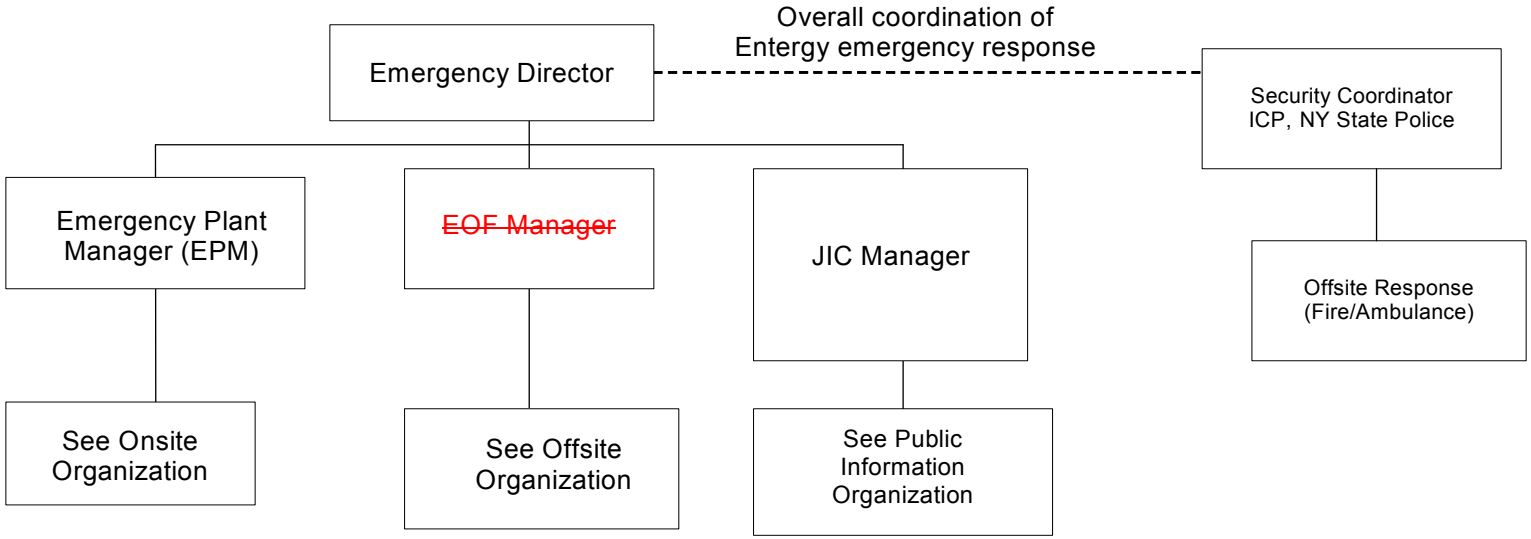


TBD




[a] This RP Technician would assist at affected unit if needed

## Figure B-1.2a Emergency Response Organization – Major Areas



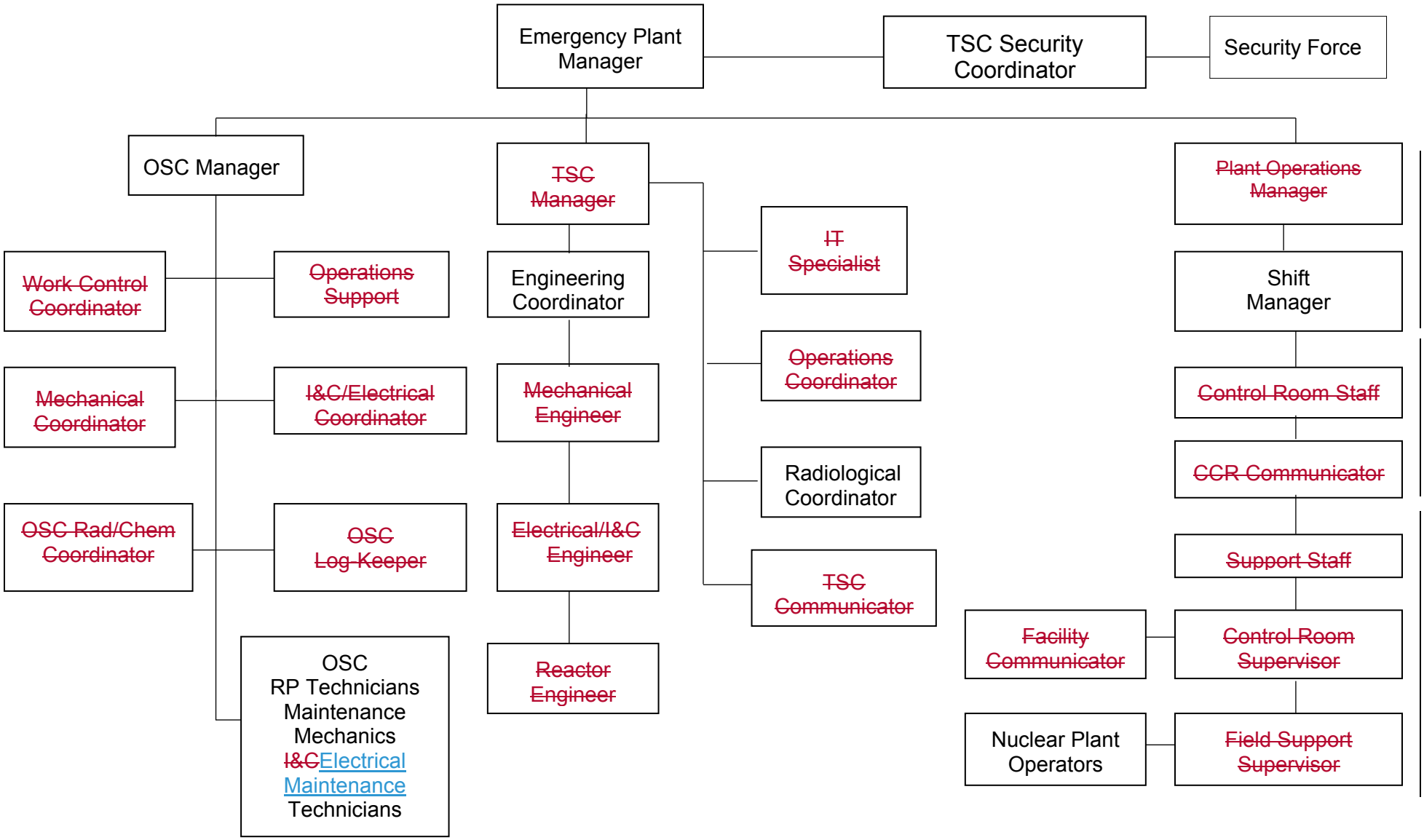

- Overall coordination of onsite response
- Safety of onsite personnel
- Advise ED on plant status, radiological conditions and plant related EALs
- Security Interface

- 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

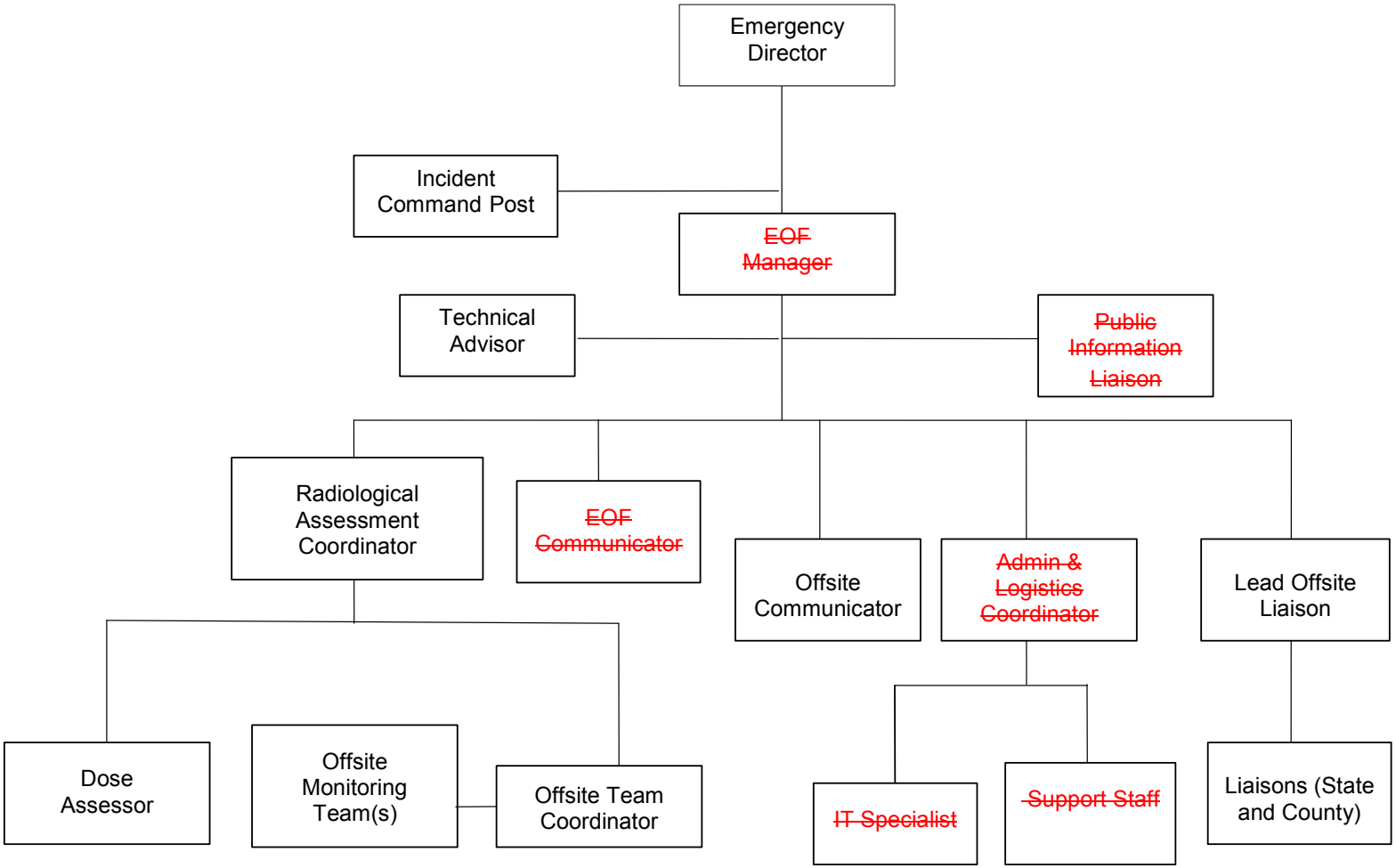
## Figure B-1.2b Emergency Response Organization – Onsite






- TBD

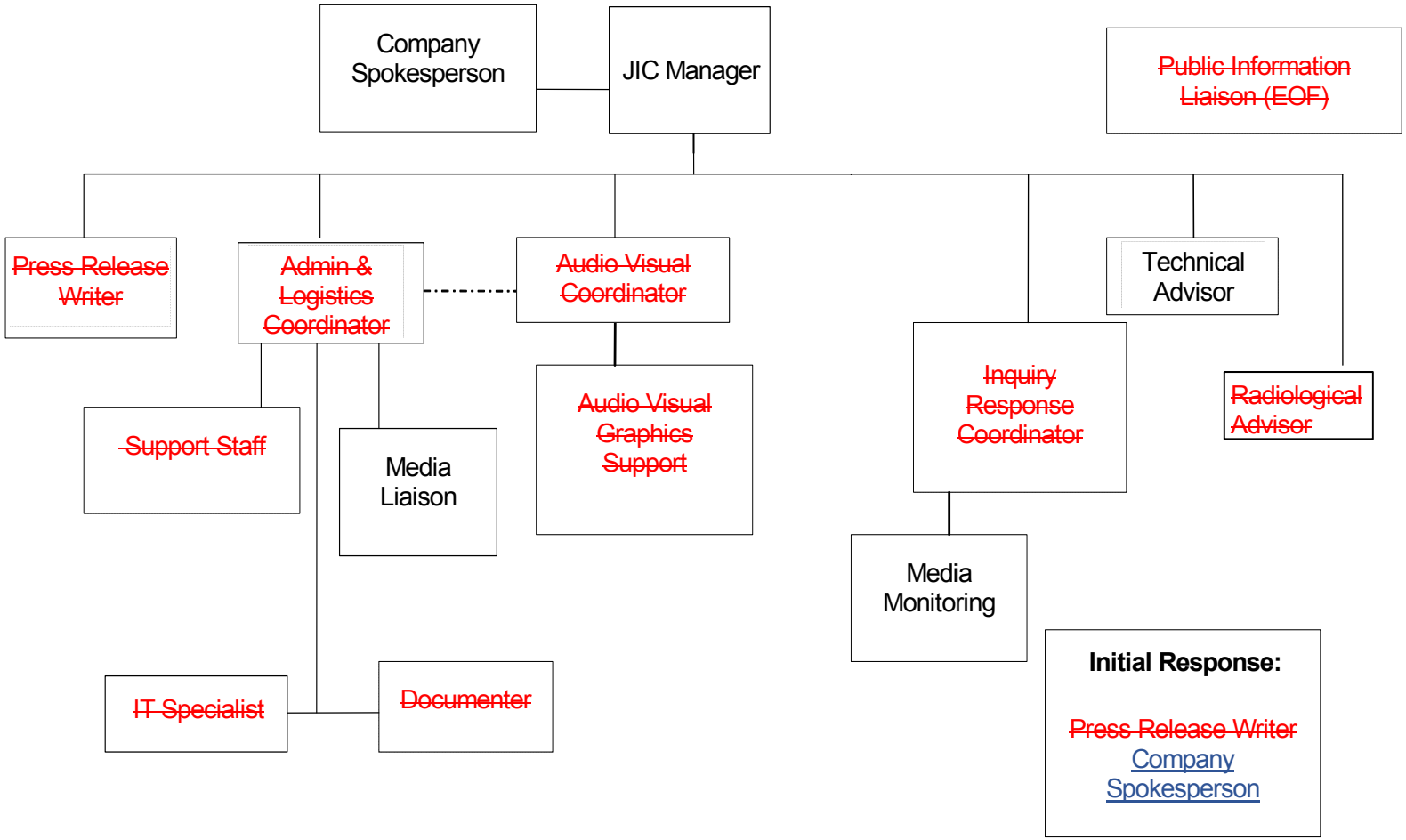
## Figure B-1.2c Emergency Response Organization – EOF






TBD

## Figure B-1.2d Emergency Response Organization – Public Information



## Figure B-1.3 Normal Station Organization

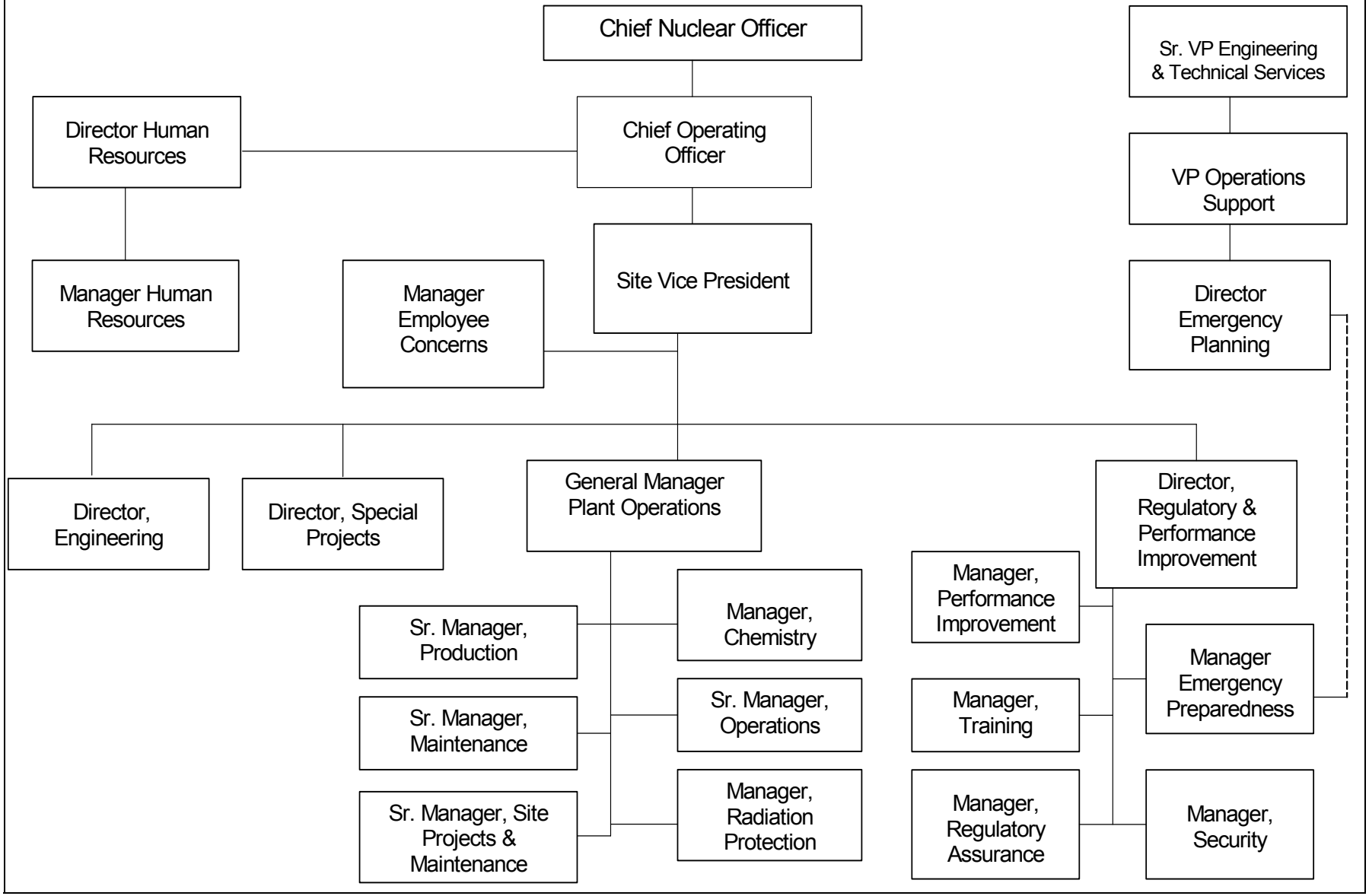


TABLE B – 1 Comparison of NUREG – 0654 to Indian Point Energy Center

| 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 U 2 | On Shift U 3 | On Shift U 1 | 60 Min. | [1] [2] |
| **Plant Operations and Assessment** | | | | | | | | | | |
| 1 | Shift Supervisor (SRO) | 1 | -- | -- | Shift Manager | 1 | 1 | 0 | -- | |
| 2 | Shift Foreman (SRO) | 1 | -- | -- | Control Room Supervisor | 0 | ~~1~~ 0 | 0 | -- | |
| 3 | Control Room Operators | 2 | -- | -- | Reactor Operators or Field Support Supervisor | 0 | ~~2~~ 0 | 0 | -- | [3] |
| 4 | Auxiliary Operators | 2 | -- | -- | Nuclear Plant Operators | 1 | ~~4~~ 1 | 0 | -- | [12] |
| **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 | 1 | 0 | -- | [4] [10] |
| **Notification / Communication** | | | | | **Communicator** | | | | | |
| 6 | Communicator – notify licensee, State, Local and Federal personnel and maintain communication | 1 | 1 | 2 | ~~Nuclear Plant Operator~~Qualified individual provides notifications for both units<br>Offsite Communicator plus<br>~~Any two of the following:~~ Offsite Team Coordinator ~~Control Room Communicator~~ ~~TSC Communicator~~ | ** ~~1~~ | | | --<br>1<br>~~2~~1 | [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 | -- | 1 | -- | Radiological Assessment Coordinator | -- | | | 1 | |



- TBD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Assessment | | | | | | | | |

| **NUREG – 0654** | | | | | **Indian Point Energy Center**<br>**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.** | [1]<br>[2] |
| 9 | Offsite Surveys | -- | 2 | 2 | Two Teams of Field Monitors | -- | | | 4 | [6] |
| 10 | Onsite (out-of-plant) Surveys | -- | 1 | 1 | RP Technicians | -- | | | ~~2~~1 | |
| 11 | RP Technicians | 1 | 1 | 1 | RP Technicians | 1 | 1 | 0 | ~~2~~1 | [11] |
| 12 | Rad / Chem Technicians | 1 | -- | 1 | ~~Chemistry~~ RP Technicians | 1 | 1 | 0 | ~~1~~0 | [10] |
| **Plant System Engineering, Repair and Corrective Action** | | | | | | | | | | |
| 13 | Shift Technical Advisor | 1 | -- | -- | Field Support Supervisor or Shift Technical Advisor | 0 | ~~1~~<br>0 | 0 | -- | |
| 14 | Core / Thermal Hydraulics | -- | 1 | -- | Reactor Engineer | -- | | | ~~1~~0 | |
| 15 | Electrical | -- | -- | 1 | Electrical Engineer | -- | | | 1 | [13] |
| 16 | Mechanical | -- | -- | 1 | Mechanical Engineer | -- | | | 1 | [13] |
| 17 | Mechanical Maintenance / Radwaste Operator | 1<br>-- | --<br>-- | 1<br>1 | Mechanical Maintenance | 1 | 0 | | ~~2~~1 | [7]<br>[10] |
| 18 | Electrical Maintenance | 1 | 1 | 1 | Electrical Maintenance | 0 | 1 | | ~~2~~1 | [8]<br>[10] |
| 19 | Instrument & Control Technician | -- | 1 | -- | Instrument & Control Technician | -- | | | ~~1~~0 | |
| **Protective Actions (In-Plant)** | | | | | | | | | | |
| 20 | RP Technicians | 2 | 2 | 2 | RP Technicians or other qualified personnel | 2 | | | ~~4~~1 | [9]<br>[10] |



- TBD

| **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.** | [1] [2] |
| **Fire Fighting** | | | | | | | | | |
| 21 | Fire Brigade | Fire Brigade per TS | Local Support | | Fire Brigade | ~~1~~-- | | Local Support | [12] ~~[13]~~ |
| **Rescue Operations and First Aid** | | | | | | | | | |
| 22 | Rescue – First Aid | 2 | Local Support | | Rescue – First Aid | 2 | | Local Support | [10] |
| **Site Access Control and Personnel Accountability** | | | | | | | | | |
| 23 | Security Personnel | Per Security Plan | | | Security Personnel | Per Security Plan | | | |
| **Totals** | | 10 | 11 | 15 | | ~~4~~3 | ~~13~~ 3 | 0 | ~~26~~14 | |

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

(b) On-shift staffing is in accord with guidance of NRC's NSIR/DPR-ISG-01 Interim Staff Guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities.

** This is not an additional on-shift individual. This function can be performed by any on-shift position qualified as a Communicator. Once designated, the individual will have no other assigned responsibilities.~~If the Communicator function is assigned to Unit 2, a dedicated individual would be assigned on-shift to address the Major Functional Area of Notification / Communication and the total number of Unit 2 on-shift staff is 5.~~

**Note:**

[1] For Emergency Response Organization purposes resources may be shared between units. ~~Unit 2 must maintain a CFH qualified Shift Manager and a Nuclear Plant Operator. Unit 3 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~~Nuclear Plant Operators.

[4] The Emergency Coordinator (Emergency Director) position is initially filled by the Shift Manager ~~or Unit 3 Control Room Supervisor~~. He is relieved of this duty by the ~~Plant Operations Manager (POM) or the~~ EOF Emergency Director who ~~are~~ is a one-hour responder~~s~~.

[5] IPEC has a designated ~~Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units and an~~ Offsite Communicator in the EOF as a required one-hour responder. ~~The on shift communicator has been counted in the Unit 3 total, but can be provided by either unit.~~ The additional ~~two~~ communicator~~s~~ ~~are~~ is filled by the ~~following: TSC Communicator and~~ 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~~ One additional maintenance mechanic~~s~~ who ~~are~~ is a one hour responder~~s~~ 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~~ One additional electrical maintenance mechanic~~s~~ who ~~are~~ is a one-hour responder~~s~~ 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~~ One additional RP Technician~~s~~ or other qualified personnel ~~are~~ is required as a one-hour responder~~s~~.

[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

[12] The Fire Brigade is staffed per the Fire Protection Program Plan.

~~[13] One (1) designated FBL. This is a person on shift qualified as FBL. This person has been counted in the Unit 3 total, but can come from either unit.~~

[13] Function will be performed by the TSC Engineering Coordinator, who is a one-hour responder.

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Control Room (CR)** | | |
| Shift Manager | ~~POM~~EPM | Acts as ED until relieved. |
| ~~Control Room Supervisor (CRS) (Unit 3)~~ | ~~Shift Manager (Unit 3)~~ | ~~Immediate supervision of plant operations~~ |
| ~~Field Support Supervisor/Shift Technical Advisor (Unit 3)~~ | ~~Shift Manager (Unit 3)~~ | ~~Provide technical support to operations shift~~ |
| ~~Reactor Operator (RO)[s] (Unit 3)~~ | ~~CRS (Unit 3)~~ | ~~Control Room operations / communications~~ |
| Nuclear Plant Operator (NPO)[s] (Nuclear, Conventional, Roving) | ~~CRS (Unit 3) (Unit 2 personnel report to Unit 2~~ Shift Manager~~)~~ | Operates equipment outside the control room, minor maintenance |
| Offsite (CCR) Communicator (as directed by the Shift Manager) | ~~CRS (Unit 3) or the Unit 2~~ Shift Manager | 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, water chemistry~~ |
| Watch Radiation Protection (RP) Technician (OSC when activated) | Shift Manager | Provide RP support as needed, rad monitoring, decon and surveillance<br>Provide chemistry support as needed, water chemistry |
| ~~Facility Communicator~~ | ~~Shift Manager~~ | ~~Provides data to the other emergency response facilities~~ |
| ~~Plant Operations Manager (POM)~~ | ~~EPM~~ | ~~Relieves the SM as ED and acts as ED until relieved by the ED in the EOF. Manages emergency response operations activities in the Control Room and keeps 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) | Shift Manager~~ / 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. |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Emergency Operations Facility (EOF)** | | |
| Emergency Director (ED) | | Overall Direction of Entergy Emergency Response<br>Manages Entergy Offsite response activities |
| ~~EOF Manager~~ | ~~ED~~ | ~~Manages Entergy Offsite response activities~~ |
| Technical Advisor | ~~EOF Manager~~ED | Provide technical advice to ED and track EALs<br>Coordinate Entergy corporate support to the onsite Emergency Response Organization and provide logistics support to ERO<br>Provide technical expertise to JIC<br>Communicates with other ERFs |
| Radiological Assessment Coordinator | ~~EOF Manager~~ED | 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 support to EOF Staff~~ |
| ~~IT Specialist~~ | ~~EOF Manager / Admin & Logistics Coordinator~~ | ~~Assist EOF Staff in operation of EOF Equipment~~ |
| Offsite Communicator | ~~EOF Manager~~ED | Communicate with offsite emergency organizations |
| ~~Public Information Liaison~~ | ~~EOF Manager~~ | ~~Provide information to JIC~~ |
| Lead Offsite Liaison | ~~EOF Manager~~ED | Liaison to Offsite Representatives arriving at the EOF and coordinates information flow to State and County Liaisons located at offsite EOCs |



- TBD

Table B-5 - Emergency Response Organization Functions

| | | |
|---|---|---|
| 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. |
| ~~EOF Communicator~~ | ~~EOF Manager~~ | ~~Communicates with other ERFs~~ |



TBD

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Function |
|---|---|---|
| **Operations Support Center (OSC)** | | |
| Operations Support Center (OSC) Manager | EPM | Manages repair and assessment activities of team sent into the plant.<br>Assemble, brief, dispatch, track and debrief OSC teams sent out from the OSC<br>Coordinate Maintenance activities<br>Coordinate I&C activities<br>Coordinate Operations support to the CCR |
| ~~Work Control Coordinator~~ | ~~OSC Manager~~ | ~~Assemble, brief, dispatch, track and debrief OSC teams sent out from the OSC~~ |
| ~~OSC Rad/Chem Coordinator~~ | ~~OSC Manger~~ | ~~Coordinate radiological controls inside the Protected Area and assist in coordination of chemistry sampling~~ |
| ~~Mechanical Coordinator~~ | ~~OSC Manager~~ | ~~Coordinate Maintenance activities~~ |
| ~~I&C/Electrical Coordinator~~ | ~~OSC Manager~~ | ~~Coordinate I&C activities~~ |
| ~~Operations Support~~ | ~~OSC Manager~~ | ~~Coordinate Operations support to the CCR~~ |
| Radiation Protection Technicians | ~~Rad/Chem~~TSC Radiological Coordinator | Perform radiological surveys, sampling and analysis as needed, provide RP coverage for OSC operations<br>Perform chemistry sampling and analysis as needed, assist in OSC operations |
| ~~Chemistry Technician~~ | ~~Rad/Chem Coordinator~~ | ~~Perform chemistry sampling and analysis as needed, assist in OSC operations~~ |
| Maintenance Mechanic(s) | ~~Maintenance Coordinator~~OSC Manager | Perform mechanical repairs and assessment activities as needed |
| ~~Instrument & Control (I&C)~~Electrical Maintenance Technician(s) | ~~I&C Coordinator~~OSC Manager | Perform ~~I&C~~electrical repairs and assessment activities as needed |



- TBD

Table B-5 - Emergency Response Organization Functions

| | | |
|---|---|---|
| ~~OSC Operators~~ | ~~Operations Support~~ | ~~Operate plant systems as directed by Operations Support in an SAE or GE. Assist OSC teams in repair and assessment activities.~~ |
| ~~OSC Log Keeper~~ | ~~OSC Manager~~ | ~~Coordinate Accountability with Security Coordinator and as necessary verify/set up equipment. Provide support as needed.~~ |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major 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.<br>Manage Engineering Assessments |
| ~~Technical Support Center (TSC) Manager~~ | ~~EPM~~ | ~~Manage technical assessment activities.~~ |
| Engineering Coordinator | ~~TSC MGR~~ED | ~~Coordinate~~ Perform TSC Engineering Assessment Activities<br>Manage technical assessment activities.<br>Perform TSC communications as needed |
| ~~Reactor Engineer~~ | ~~Engineering Coordinator~~ | ~~Perform Core Physics Assessments and assist EPM in implementation of Severe Accident Management Guidelines~~ |
| ~~Mechanical Engineer~~ | ~~Engineering Coordinator~~ | ~~Perform Mechanical Engineering Assessments~~ |
| ~~Electrical / I&C Engineer~~ | ~~Engineering Coordinator~~ | ~~Perform Electrical / I&C Engineering Assessments~~ |
| ~~Operations Coordinator~~ | ~~TSC MGR~~ | ~~Perform Operations Engineering Assessments~~ |
| TSC Radiological Coordinator | TSC MGR | Radiological Oversight<br>Coordinate radiological controls inside the Protected Area and assist in coordination of chemistry sampling |
| ~~IT Specialist~~ | ~~TSC MGR~~ | ~~ERDS Activation/Verification and maintain IT equipment (computers, phones) operational.~~ |
| TSC Security Coordinator | ~~TSC MGR~~E~~D~~PM | Direct Physical Security |
| ~~TSC Communicator~~ | ~~TSC MGR~~ | ~~Perform TSC communications as needed~~ |



- TBD

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Joint Information Center (JIC)** | | |
| Company Spokesperson | JIC Manager | Act as official spokesperson for Entergy, coordinate public information with other Public Information Officers<br>Writes News Releases<br>Interacts with New York State and Counties on information and rumors |
| JIC Manager | ED | Manage operations of the Joint Information Center<br>Maintains access control to the JIC. Ensures distribution of press releases.<br>Maintain facility log on WebEOC. Ensure timeliness of facility briefings. |
| Technical Advisor | JIC Manager | Provide technical expertise to JIC Staff<br>Manages Audio/Visual Operations |
| ~~Admin & Logistics Coordinator~~ | ~~JIC Manager~~ | ~~Maintains access control to the JIC. Ensures distribution of press releases.~~ |
| ~~Documenter~~ | ~~JIC Admin & Logistics Coordinator~~ | ~~Maintain facility log on WebEOC. Ensure timeliness of facility briefings.~~ |
| ~~IT Specialist~~ | ~~JIC Admin & Logistics Coordinator~~ | ~~Assist JIC Staff with computer hardware and software use~~ |
| ~~Audiovisual Coordinator~~ | ~~JIC Manager~~ | ~~Manages Audio/Video operations~~ |
| ~~Support Staff~~ | ~~Admin & Logistics Coordinator~~ | ~~Provide 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~~ |



- TBD

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Joint Information Center (JIC)** | | |
| Media Monitoring | ~~Inquiry response Coordinator~~JIC Manager | Monitor media for rumors and items to be addressed in news releases or media briefings |
| Media Liaison | ~~Admin & Logistics Coordinator~~JIC Manager | Acts as Entergy's interface for media present at the JIC<br>Supports Audio/Video operations. |
| ~~Audio Visual Graphics Support~~ | ~~Audio Visual Coordinator~~ | ~~Supports A/V equipment and graphics at the JIC~~ |



TBD

## 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 Energy Center 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 Energy Center, 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 Energy Center in the event of an accident are identified in Section A of this plan. If needed, Federal resources are made available to Indian Point Energy Center in an expeditious and timely manner.

   c. Each Indian Point Energy Center 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. A conference/working area has 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 Energy Center 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, Entergy Offsite Liaisons are dispatched to the State and local government EOCs to act as communications liaisons and to provide clarification of emergency response information.

3. Radiological Laboratories

In addition to Indian Point Energy Center's radiological assessment facilities, contracted services may be utilized to analyze inplant and offsite environmental samples. Outside analytical assistance may be requested from State and Federal agencies and other licensees if the offsite radiological monitoring and environmental sampling operation exceeds the capacity of the Indian Point Energy Center 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 the Indian Point Energy Center. The availability of services has been ascertained and agreement letters are listed 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;~~
- ~~Access to 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 the Emergency Telephone Directory (ETD), 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 Energy Center 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 ERO. Indian Point Energy Center emergency planning personnel work closely with State and local agencies to ensure consistency in classification schemes and procedural interfaces.

Indian Point Energy Center maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and promptly declares the emergency condition as soon as possible following identification of the appropriate emergency classification level.

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 progress or have occurred, which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site 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.

The Shift Manager/ED will ensure:

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

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 or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of Hostile Action. Any releases are expected to be limited to small fractions of the EPA PAG 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 on plant status and parameters. 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/ED will ensure:

a) Initiation of activation of the ERO 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;

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 in emergency class by verbal discussion with offsite authorities followed by written summary within eight (8) hours of entering recovery after an Alert or higher classified event.

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 Area Emergency indicates events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public, or Hostile Action that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to, equipment needed for protection of the public. Any releases are not

expected to result in exposure levels which exceed EPA PAG exposure levels beyond 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).

The Shift Manager/ED will ensure:

a) Initiation of activation of the ERO 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;

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 involve actual or imminent substantial ~~core~~ fuel degradation or melting with potential for ~~loss of containment integrity~~significant release or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels beyond the site boundary.

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/ED will ensure:

a) Initiation of activation of the ERO which would staff 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) A recommendation is made, as a minimum, sheltering or evacuation for 2 mile radius and 5 miles downwind and assess need to extend distances; consider advisability of evacuation (projected time available vs. Evacuation Time Estimates);

d) Prompt notification of the NRC (not to exceed one hour);

e) Continued Assessment and response as necessary;

f) Dispatch of field monitoring teams and associated communications;

g) An individual is provided for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities);

h) Senior technical and management staff on-site are made available for consultation with NRC and State on a periodic basis;

i) Meteorological and dose estimates are provided to offsite authorities for actual releases;

j) Release and dose projections based on available plant condition information and foreseeable contingencies are performed and provided to offsite authorities;

k) Accountability process is initiated;

l) 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) Augment resources by activating EOC's and any other primary response centers;

d) Dispatch key emergency personnel including monitoring teams and establish associated communications;

e) Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status;

f) Provide offsite monitoring results to licensee, DOE and others and jointly assess them;

g) Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective actions;

h) Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance;

i) Provide news media briefings, perhaps with a licensee;

j) Maintain General Emergency status until closeout.

**Classification Downgrading**

The Indian Point Energy Center 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 NEI 99-01 REV 5 "Methodology for Development of Emergency Action Levels" were evaluated to establish an emergency classification and emergency action level scheme. NEI 99-01 REV 5 has been accepted by the NRC as an alternative to NUREG-0654-REV 1.

This classification scheme is presented in six 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 Plan Implementing Procedures. The Emergency Action Levels (EALs) are grouped into six categories to simplify their presentation and promote a rapid understanding by their users. (See Table D-1 for a description of each of the EAL initiating conditions for each EAL category).

These categories are:

(1) Abnormal Rad Release/Rad Effluent

(2) Hazards

(3) ISFSI

(4) Systems

(5) Fission Product Barriers

(6) Cold Shutdown/Refueling System Malfunction

Table D-1, Summary of IPEC EAL Initiating Conditions, provides a description of the initiating conditions associated with the above categories which would cause the Plan to be implemented. Detailed emergency action levels are provided in a Plan Implementing Procedure and an associated EAL Technical Bases Administrative Procedure. It is important to note that some EALs in the NRC-approved EAL scheme are not possible ~~for Unit 2~~ in the permanently shut down and defueled condition.

3. Offsite Classification Systems:

Indian Point Energy Center 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 Energy Center 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 Energy Center accounting for local offsite conditions that exist at the time of the emergency.

## Table D-1

## SUMMARY OF IPEC EAL INITIATING CONDITIONS

**Category A – Abnormal Radiation Levels/Radiological Effluent**

This category encompasses the spectrum of potential uncontrolled radionuclide releases via liquid or gaseous effluents for all modes of operation. It also includes other incidents related to high levels of radioactivity, but which may not result in a release to the environment. Potential sources of radionuclide releases are from the Primary Auxiliary Building (PAB), Vapor Containment (VC) and Fuel Storage Building (FSB). Appropriate monitoring is provided for potential gaseous and liquid release paths. The ICs within this category are keyed to Radiation Monitoring System (RMS) indications, radiological survey results and offsite dose assessment calculations.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any release of gaseous or liquid radioactivity to the environment > 2 times the radiological effluent ODCM limits for ≥ 60 minutes.

2. Unplanned rise in plant radiation levels.

ALERT

1. Any release of gaseous or liquid radioactivity to the environment that exceeds significant multiples of the Offsite Dose Calculation Manual (ODCM) limits for 15 minutes or longer.

2. Damage to irradiated fuel or loss of water level that has or will result in the uncovering of irradiated fuel outside the reactor vessel

3. Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions.

SITE AREA EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release.

GENERAL EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 1,000 mRem TEDE or 5,000 mRem thyroid CDE for the actual or projected duration of the release using actual meteorology

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards**

This category encompasses the spectrum of man-caused or non-naturally occurring hazards that jeopardize the level of safety of the plant in all modes of operation. The ICs are keyed to offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of naturally occurring events that jeopardize the level of safety of the plant. The ICs are keyed to specific instrument indications, offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of security infractions as addressed in the Security Contingency Plan. The ICs are keyed to notification from the security force or another credible source of a site specific credible threat.

This category is the location for the miscellaneous ICs that are provided to allow for Emergency Director judgment classifications.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Confirmed security condition or threat which indicates a potential degradation in the level of safety of the plant.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Unusual Event.

3. Fire within the Protected Area not extinguished within 15 minutes of detection or explosion within the Protected Area.
4. Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to normal plant operations.

5. Natural or destructive phenomena affecting the Protected Area.

ALERT

1. Hostile Action within the Owner Controlled Area or airborne attack threat.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards and Other Conditions Affecting Plant Safety (Cont'd)**

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert.

3. Control Room evacuation has been initiated.

4. Fire or Explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown.

5. Access to a vital area is prohibited due to release of toxic, corrosive, asphyxiant or flammable gases which jeopardizes operation of systems required to maintain safe operations or safely shutdown the reactor

6. Natural or destructive phenomena affecting Vital Areas.

SITE AREA EMERGENCY

1. Hostile Action within the Protected Area.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency.

3. Control Room evacuation has been initiated and plant control cannot be established.

GENERAL EMERGENCY

1. Hostile Action resulting in loss of physical control of the facility.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY E – ISFSI Malfunction**

This category addresses events of sufficient magnitude that a loaded spent fuel dry cask storage confinement boundary is damaged or violated.

UNUSUAL EVENT

1. Damage to a loaded cask confinement boundary.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the power operations, startup, hot standby and hot shutdown operating modes. In general, the ICs relate to equipment or system malfunctions or failures. The ICs include RCS leakage, loss of Control Room instrument indications and failure of the Reactor Protection System as well as those events dealing with power losses. This category also includes inadvertent criticality and loss of decay heat removal capability ICs.

NOTE:

Category S EALs are not possible ~~for Unit 2~~ in the permanently shut down and defueled condition.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

3. Loss of all offsite AC power to emergency buses for 15 minutes or longer.

4. Unplanned loss of safety system annunciation or indication in the control room for 15 minutes or longer.

5. RCS Leakage.

4. Loss of all onsite or offsite communications capabilities.

5. Fuel clad degradation.

6. Inadvertent criticality.

7. Inability to reach required shutdown within Technical Specification limits

ALERT

1. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguard buses.

2. Automatic trip fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction (Continued)**

3. Unplanned loss of safety system annunciation or indication in the control room with either (1) a significant transient in progress, or (2) compensatory indicators unavailable.

SITE AREA EMERGENCY

1. Loss of all offsite power and loss of all onsite AC power to safeguards buses for 15 minutes or longer.

2. Automatic trip fails to shut down the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor

3. Loss of all vital DC power for 15 minutes or longer.

4. Inability to monitor a significant transient in progress.

GENERAL EMERGENCY

1. Prolonged loss of all offsite and all onsite AC power to safeguards buses.

2. Automatic trip and all manual actions fail to shut down the reactor and indication of an extreme challenge to the ability to cool the core exists

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY F – Fission Product Barrier Degradation**

This category addresses losses and potential losses of the three fission product barriers – fuel clad, RCS and containment. The category is designed for events in the power operations, startup, hot standby and hot shutdown modes of operation.

NOTE:

Category F EALs are not possible ~~for Unit 2~~ in the permanently shut down and defueled condition.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any loss or any potential loss of Containment.

ALERT

1. Any loss or any potential loss of either Fuel Clad or RCS

SITE AREA EMERGENCY

1. Loss or potential loss of any two barriers.

GENERAL EMERGENCY

1. Loss of any two barriers and loss or potential loss of the third barrier.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the shutdown and refueling modes. These include RCS leakage and loss of reactor vessel inventory events as well as those events dealing with power losses.

This category also encompasses events that directly affect the integrity of the reactor core when in cold shutdown or refueling. This includes inadvertent criticality and loss of decay heat removal capability.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. RCS leakage.

2. Unplanned loss of reactor vessel inventory.

3. Unplanned loss of decay heat removal capability with irradiated fuel in the reactor vessel.

4. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguards buses

5. Loss of required DC power for 15 minutes or longer

6. Inadvertent criticality.

7. Loss of all onsite or offsite communications capabilities.

ALERT

1. Loss of reactor vessel inventory.

2. Inability to maintain plant in cold shutdown.

3. Loss of all offsite and all onsite AC power to safeguards buses for 15 minutes or longer.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction (Cont'd)**

SITE AREA EMERGENCY

1. Loss of reactor vessel inventory affecting core decay heat removal capability.

GENERAL EMERGENCY

1. Loss of reactor vessel inventory affecting fuel clad integrity with Containment challenged.

## 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 Energy Center 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 Energy Center, 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 the unit 3 Control Room Supervisor if the Unit 3 SM is unavailable)~~ if any Unusual Event threshold listed in Section D (Table D-1) is met or exceeded.

      2) Depending on the particular circumstances of the situation, the Control Room personnel 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) 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, an electronic notification system or alternate methods. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the

Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) 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.

5) The Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) phone or commercial phone lines.

6) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

7) 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable)~~ in the event an Alert threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room personnel initiating the site assembly alarm and/or via public address announcements. In addition, the affected unit's Control Room personnel 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 or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification 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 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) or commercial phone lines.

7) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

8) If there is a radiological release involved with the event, the Shift Manager/ED or ~~his~~ designee will provide information on the release to the offsite authorities.

9) Close out 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable)~~ in the event a Site Area Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room personnel 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 affected unit's Control Room personnel also contact the unaffected unit's Control Room personnel.

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, or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

5) Immediate Notification (within 15 minutes) of a Site Area Emergency is made by the Shift Manager/ED 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) Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) 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/ED or ~~his~~ designee shall provide information on the release to the offsite authorities.

9) Close out 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 the Unit 3 Control Room Supervisor if the Unit 3 SM is unavailable)~~ in the event a General Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

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 ERO are notified and can 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 ERO positions and related facilities is required. Based on the event, the ED 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, electronic notification system or alternate methods are used to notify the ERO.

**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 an electronic notification system and/or phone calls. 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 local 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 local authorities are responsible for the process of notification of their personnel and 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;

f) recommended protective measures if necessary;

g) the date and time of classification and notification.

In a General Emergency, the notification includes, at a minimum, a recommendation for sheltering or evacuation of the general public within the two (2) mile radius of Indian Point Energy Center and five (5) miles downwind, and implement the NY State KI plan. All remaining areas should monitor the Emergency Alert System (EAS).

4. Follow-up Messages:

The ED 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 Energy Center personnel, have established a system for disseminating appropriate information to the public. The system includes notification through appropriate broadcast media, e.g. the Emergency Alert 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 supplemented with individual alerting devices for residences and special facilities in EPZ areas where acoustic coverage is reduced.

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.

Tone Alert Radios are distributed within the 10-mile EPZ to supplement siren alerting for residents and special facilities in EPZ areas where acoustic coverage is reduced or when requested. On an annual basis, guidance is provided on the use and testing of the tone alert radios.

Given that automated dialing is an accepted method that can be selected to provide primary alerting in accordance with FEMA-REP-10 guidance in consultation with New York State, Westchester, Rockland, Orange and Putnam Counties, the plan is to use "*automated dialing*" capability as the back-up method of alert and notification in the case of a siren failure.

7. Messages to the Public:

The State has developed draft messages for the Emergency Alert 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 licensee, 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 (IPEC) ERO. It outlines the available communications equipment to:

- Notify the Indian Point ERO
- Provide Initial Notification to 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 Energy Center.

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 Systems**

   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. These systems are used to call personnel and announce emergencies in the Indian Point Energy Center Protected Area(s).

   In the event the Public Address Systems are 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 (EOF), Technical Support Center (TSC), Operations Support Center (OSC), Joint Information Center (JIC), Incident Command Post (ICP), Corporate Headquarters, Alternate Emergency Operations Facility (AEOF) and Alternative Technical Support Center / Operational Support Center (Alternative TSC/OSC).

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 Energy Center 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 operation of this system and their respective organization responses.

Figure F-1.1 depicts RECS.

- Dedicated 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 ED 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.

**Electronic Notification System**

A commercial electronic notification service is used for contacting personnel at the start of an emergency. When activated by station personnel, the notification service transmits a message via various communications pathways to all ERO personnel to report to their assigned ERO facilities.

**Computer Systems**

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

~~Other c~~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 ERO are in place.

a. The Nuclear Regulatory Commission is Indian Point's primary point of contact for communications with the Federal ERO. (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 Energy Center.
c. Section E.2 describes the provisions for alerting and activating the ERO.
d. Procedures are in place for the ERO to continuously provide information to the NRC as requested.

**Medical Communications**:

Indian Point Energy Center establishes communications with the primary medical supplier, New York-Presbyterian/Hudson Valley Hospital, Peekskill/Cortlandt, and if needed the backup hospital, Phelps Memorial Hospital Center, Sleepy Hollow, via commercial telephone that is accessed by station personnel either via commercial onsite telephone or by an Indian Point Energy Center 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 Energy Center or transporting personnel from the Station.

**Communications Drills and Testing:**

Communications drills between Indian Point Energy Center and State and local governments are conducted in accordance with criteria contained in Section N.2. Also, Indian Point Energy Center 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.

Figure F-1.1 Radiological Emergency Communications System

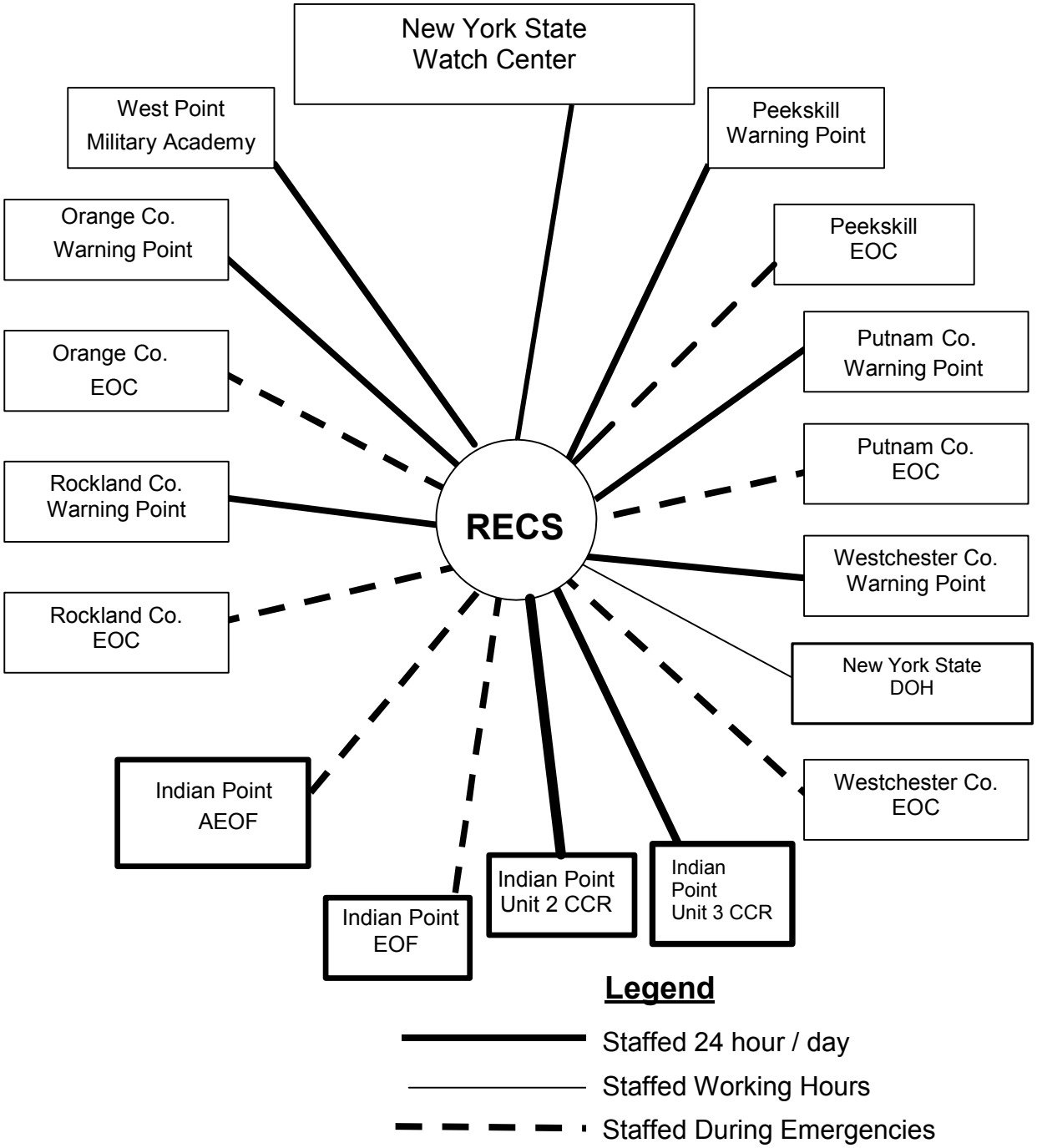


Figure F-1.2 Local Government Radio System

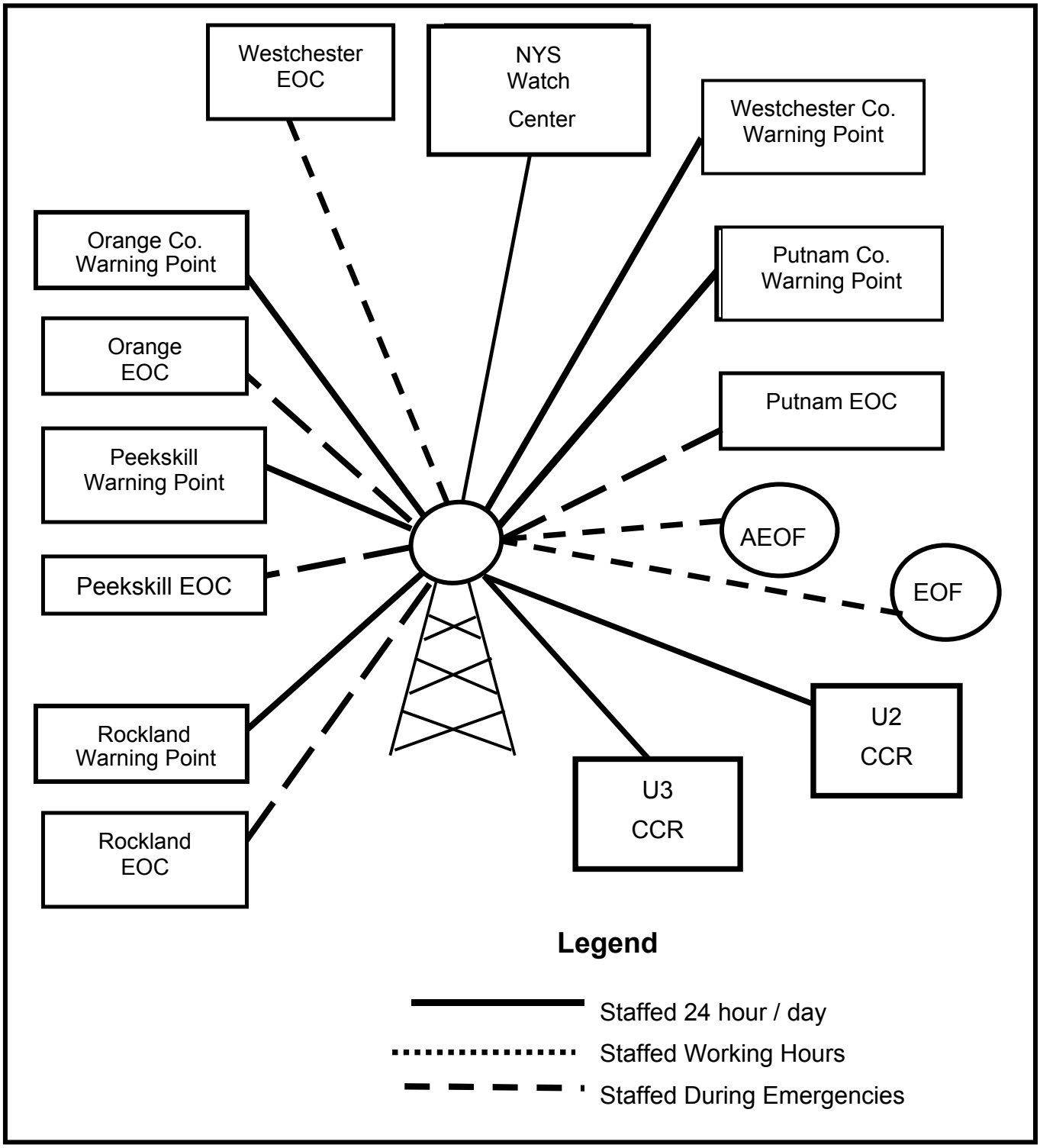
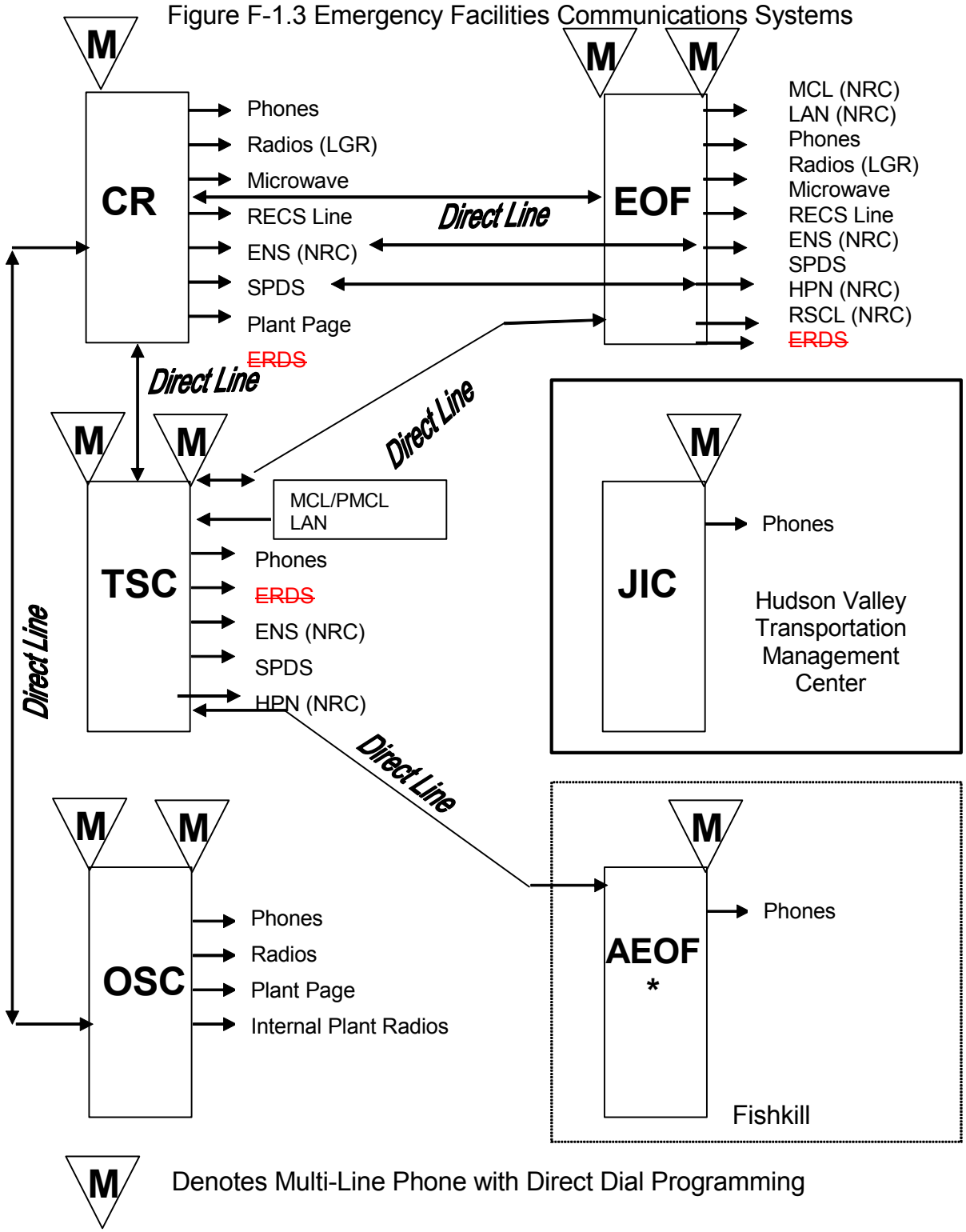


Figure F-1.3 Emergency Facilities Communications Systems




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

## 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 (EPZ).

   County-specific emergency planning educational booklets are provided to the public. The booklets contain public safety information about emergencies at Indian Point Energy Center 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 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.

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. Press releases are reviewed by appropriate law enforcement agencies during hostile action events.

c. Call Centers respond to public inquiries. Entergy, NYS, and each county respond to 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 Energy Center.

## 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 Plan are distributed among the functions of the following Emergency Response Facilities (ERF):

- Control Rooms (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)
- Alternative Technical Support Center / Operations Support 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~~The Shift Manager makes the initial declaration and classification of an emergency and on-shift personnel perform activities of other Emergency Response Facilities until those facilities are operational. Manipulations of ~~the reactor or the~~ plant equipment to mitigate the consequences of an accident and restore safe conditions, however, remain as the primary function of the CR.

   Once the entire ERO is operational, if required, 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 ~~ED in the CR, (Plant Operations Manager) or the~~ ED located in the EOF. Meteorological, plant parameter, offsite radiation monitor, 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.

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 ED in the EOF.

The TSC is operational with minimum staff within 60 minutes after a declaration of an Alert, SAE, or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the TSC.

The ~~TSC Manager~~ Emergency Plant Manager directs and coordinates activities in the TSC. Plant parameter data is available for accident assessment~~ including Unit 3 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, and NRC Conference/workspace. The Ventilation System assures that the General Design 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~~Shift Manager 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 and teams dispatched to the field.
- 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 with minimum staff within 60 minutes after a declaration of an Alert, SAE or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the OSC.

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

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

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

In the event the OSC becomes uninhabitable, Plan 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 Facility Gate on Broadway. Functions performed at the EOF include:

- Overall management of the Indian Point Energy Center 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 EPZ;
- Coordination with Federal, New York State and local government;
- Radiological exposure control for the individuals on-site outside of the Protected Area.

The EOF is operational with minimum staff within 60 minutes of a declaration of an Alert, SAE or GE. Activation of the ERO at a NUE is discretionary. In declaring the facility operational, the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the EOF. Accommodations are available for Federal, State and local government representatives.

The ED 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 facility. 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.

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 2nd floor of 60 Merritt Boulevard, Fishkill, NY. Procedures, staff, accommodations, equipment, services and supplies for the AEOF are similar to those for the EOF including the capability to perform offsite notifications.

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 ED and the Indian Point ERO 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 with minimum staff within 2 hours after a declaration of an Alert, SAE or GE. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the JIC.

4. Alternative TSC/OSC

The Alternative TSC/OSC has communication capabilities for contacting the Control Room, plant security, EOF, and the AEOF, is available to serve as a staging area for augmented emergency response staff if the site is under threat of or experiencing hostile action. The Alternative TSC/OSC also has the capability for engineering assessment activities.

5. 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 Training and Operations Center, Carmel, NY |
| Rockland County | Fire Training Center, Pomona, NY |
| Westchester County | Transportation Management Center, Hawthorne, NY |
| NY State | Public Safety Building<br>State Campus Building #22, Albany, NY |

6. 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 then declared operational when facility managers determine they can perform required functions based on minimum 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.

If the site is under threat of or experiencing hostile action 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 alternate facility. TSC/OSC/CR staffs will provide any possible assistance from this offsite staging area until such time as site access is restored.

7. 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 Energy Center Site 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 digital 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.

~~Unit 3 Post accident Sampling~~

~~Plant design includes the capability to sample the Unit 3 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 ERO.

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 Unit 3 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 Unit 3 Core Cooling~~

~~Instrumentation for detecting inadequate Unit 3 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~~

~~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.

8. 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. Government agencies and other technical data resources are available to the Indian Point Energy Center staff regarding seismic monitoring of the Indian Point Energy Center 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 are referenced in Appendix 2 of this plan.

d. Environmental sample preparation and counting are available through the use of an offsite laboratory. The offsite laboratory contract is available through the Indian Point Energy Center contracts department.

9. Facilities and Equipment for Offsite Monitoring

a. Survey Vehicles

Indian Point Energy Center 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 $1 \times 10^{-7}$ µCi/cc), and personnel dosimeters are available for offsite monitoring. A more detailed list of equipment is available in the Plan Implementing Procedures.

During an emergency, the survey vehicles are sent to pre-selected locations within the EPZ. 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 the 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). The information from these systems is 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. Data from these fixed field measurement sites may be used to verify the travel path of a radiological release and to estimate whole body exposure rates offsite.

10. Meteorological Monitoring

The meteorological system at the Indian Point Energy Center 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 Energy Center 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.

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 (sigma-theta) 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 (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.8.

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

11. 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 or by another qualified calibration service 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.

12. 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 emergency supplies.

13. Collection and Analysis of Field Monitoring Data

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-Contamination 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, Joint Information 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 Joint Information Center provides interface with the public. 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 (or Control Room~~on-shift staff ~~at Unit 2)~~ 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.

Alert

For emergency situations that are classified as Alerts, the Shift Manager/ED 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 ED at the start of the emergency, and the on call ED after taking over control at the Emergency Operations Facility, will continually direct assessment of ~~the relative~~plant conditions ~~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/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, ~~containment integrity~~ and the status of safeguards equipment, if applicable.

An immediate assessment of the projected exposure to the offsite populace is made by using Dose Assessment Computer Programs or by using an Implementing 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 Unit 3 containment building released from the Unit 3 reactor core.~~ Area radiation monitor R-5 (Fuel Storage Building Area Monitor) indicates radioactivity in the Fuel Storage Building.

- 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 Implementing 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 program or Implementing 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.

- 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.

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 ED. 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 ED transmits updated assessment information to the New York State Office of Emergency Management and to 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 Offsite Dose Calculation Manual (ODCM) is utilized to determine the extent of contamination.

Radiological assessment personnel in accordance with an Implementing 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 10-mile EPZ.

1. <u>Plant Parameters and Corresponding Emergency Classification</u>

   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 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 Plan.

2. <u>Onsite Accident Assessment Capabilities</u>

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

   a. ~~Unit 3~~ Sampling System

   ~~Plant design includes the capability to sample the Unit 3 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 Energy Center 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 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 Unit 3 core damage. These monitor readings are utilized as a method for core damage determination. This is accomplished through use of established procedures based on Pressurized Water Reactor 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 computer programs.

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. The computer software also has the capability of performing multiple accident dose assessment involving simultaneous releases from one or both of the Indian Point Energy Center units. Dose projections may also be performed without the use of a computer through a series of hand calculations. Indian Point Energy Center 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.

5. Meteorological Information:

Meteorological data is available from the station meteorological tower. The data available includes wind speed, wind direction, stability class (Pasquill). This data is utilized by the licensee, locals, State and other Federal Agencies to provide near real-time predictions of the atmospheric effluent transport and diffusion. Section H.10 provides more details on the Meteorological Monitoring System.

6. Unmonitored Release:

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 the use of actual sample data and/or field monitor team readings.

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 sectors around the Indian Point Energy Center 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 local 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 Energy Center.

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 Energy Center Site. Large-scale maps showing the locations are in the Control Room and Emergency Operations Facility (EOF) or AEOF, for use by the ED. Readings taken by these teams are relayed back to the site via radio or phone communications.

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 Implementing 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 licensee 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 Owner Controlled Area (OCA) badged personnel are notified of an emergency by 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 persons within the site Protected Area from the Control Rooms. Personnel 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/ ED 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/ED. 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 Energy Center.

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 area is the Indian Point Energy Center Generation Support Building (GSB) and the Energy Education Center (EEC). The Indian Point Energy Center Training Center serves as the back-up assembly area and may be used during periods of high volume, such as an outage. Personnel assigned emergency response functions respond to their assigned emergency facilities.

   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 and IPEC Training Building) are within the range of the plant paging system.

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

5. Accountability:

   At the declaration of an Alert, all non-essential 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 identified within 30 minutes of a declared emergency. 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 Security. The results are forwarded to the Emergency Plant Manager and/or ED.

   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.

6. Provisions for Onsite Personnel:

   The station maintains an inventory of respiratory protection equipment, anti-contamination clothing, and a supply of KI that is made available to emergency workers remaining onsite should conditions warrant.

   a. 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.

   b. 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.

   c. 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 KI may be authorized only by the ED or by the Emergency Plant Manager.

   d. Precautions shall be taken to prevent the contamination of drinking water and food supplies by using bottled water and packaged foods.

   e. A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to maintain SFP cooling and inventory, and~~safely shut down the Unit 3 reactor and~~ perform the functions of the emergency plan.

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" and NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 3, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Guidance for Protective Action Strategies”.

   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 ED makes protective action recommendations.

   Recommendations issued by Indian Point Energy Center 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 monitor EAS messages for further direction. The Indian Point Entergy Center’s rationale and methodology for plant-based and dose-based protective action recommendations has been coordinated with local and state response organizations as required by NUREG-0654, Supplement 3.

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 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 by state and local organizations 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.

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 decisions by offsite authorities would include several of the above factors as well as the following considerations:

- 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.

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 TEDE may be authorized for members of the ERO. |
| 5 - 10 | Protecting critical infrastructure necessary for public welfare | Lower dose not practicable.<br>Must be authorized on individual bases. |
| 10 - 25 | Lifesaving or protection of large populations | Lower dose not practicable.<br>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.<br>Must be authorized on individual bases. |
| * Limit dose to the lens of the eye and dose to any other organ (including skin and body extremities) to 10CFR20.1201 limits unless higher doses are evaluated and authorized on individual bases. | | |

   Any emergency response action requiring greater exposure than 25 Rem should be limited to only volunteers. Individuals over forty-five years of age are considered first. Females who declare pregnancy are restricted to 10CFR20.1208 limits.

2. Emergency Radiological Control Program:

The Radiological Assessment Coordinator (EOF) and the ~~Rad/Chem~~Radiological Coordinator (~~OSC~~TSC)~~—~~ensure~~s~~ 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 critical infrastructure, lifesaving or 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~~ Radiological Assessment Coordinator (EOF) or ~~Rad/Chem~~Radiological Coordinator (~~OSC~~TSC), 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.

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

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 Plan Implementing Procedures and Radiation Protection Procedures.

4. Non-Entergy Personnel Exposure Authorization:

   The responsibility for authorizing non-Entergy emergency workers (i.e. State and local agency emergency workers such as Fire Department, Police or Medical teams sent to the site) to receive exposures in excess of the EPA Emergency Worker Protective Action Guides rests with the respective State and local organizations.

5. Decontamination and First Aid

   a. Normal contamination control limits apply in emergency conditions. However, these limits may be modified by ~~Rad/Chem~~the Radiological 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.

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 New York-Presbyterian/Hudson Valley Hospital (primary), to Phelps Memorial Hospital Center (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 ~~Rad/Chem~~Radiological 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 personnel released from the Protected Area 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 emergency worker personnel monitoring 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 New York-Presbyterian/Hudson Valley Hospital in Cortlandt Manor has agreed to accept patients from the Indian Point Energy Center 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 referenced in Appendix 2.

   The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital. A written agreement is referenced 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, then Radiation Emergency Assistance Center/Training Site (REAC/TS), available 24 hrs/day, would be contacted for guidance. A written agreement is referenced in Appendix 2.

2. Onsite First Aid Capability:

   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.

   First Aid and Decontamination facilities for Units 2 and 3 are located just beyond the Radiation Protection Control Points. These facilities consist of a stainless steel interior with decontamination table, showers and sinks draining into holdup tanks. These facilities contain general first aid equipment and medical supplies for treatment of injuries.

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

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

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 Energy Center 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 District (Fire/Ambulance) that provides 24-hour services. Backup ambulance service is available through a mutual aid system. A written agreement is listed in Appendix 2. The Verplanck Fire District (Fire/Ambulance), or other backup ambulance agency, 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 Unit 3 Control Room Supervisor~~ directs 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.

**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 ED, after consulting with the EOF ~~Manager~~ Technical Advisor, Company Spokesperson, the Emergency Plant Manager and the ~~Plant Operations~~Shift 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 Unit 2 and 3 SFPs ~~and/or the Unit 3 reactor~~ are in a stable ~~shutdown~~ condition and long-term ~~core~~ cooling is available and adequate. There is no foreseeable danger of losing heat removal capability
- ~~Unit 3 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.

- At an Alert or higher classification (non-transitory classification), the ERO 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 ERO, 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 ~~for maintaining safe shutdown of Unit 3~~to maintain SFP cooling and inventory and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY classifications) the Indian Point and Corporate Emergency Center 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 Emergency Center Manager reports to the Site Recovery Director and is responsible for:

   - Ensuring adequate corporate support to maintain Indian Point Energy Center (IPEC) units in a safe condition;
   - Overseeing development of corporate recovery issues dealing with support of the site;
   - 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.

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 ERO 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 ERO 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 Energy Center 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 Energy Center;
- Designating other Indian Point Energy Center recovery positions required in support of onsite recovery activities; and
- Developing of a Root Cause Report.

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 Energy Center assistance for offsite recovery activities;
- Coordinating Indian Point Energy Center 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 Energy Center 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 Energy Center on all matters relating to the accident or recovery;
- Coordinating non-Indian Point Energy Center public information groups (Federal, State, local, etc.);
- Coordinating media monitoring and rumor control; and
- Determining what public information portions of the Indian Point ERO will remain activated.

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

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 Energy Center 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 ERO are informed of the change. Additional Indian Point Energy Center 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 ERO records to estimate the source term. Data are obtained from offsite agencies to estimate the total exposed population. Environmental Dosimeter of Legal Record (DLRs), 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 Emergency Preparedness Program.
- Develop, maintain and evaluate the capabilities of the Indian Point ERO to respond to emergency conditions and safeguard the health and safety of Station personnel and the general public.
- Identify deficiencies in the 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 may result in the release or potential 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 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 Energy Center (IPEC) Eight-Year Exercise Cycle 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. Exercises are scheduled to be conducted at different times of the year. An unannounced drill/exercise is included in the Eight-Year Exercise Cycle Plan.

2. Drills:

In addition to the exercises described above, IPEC 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 IPEC 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 (ENS) with the NRC will be tested.
- Quarterly: The telephone links with Federal response organizations (i.e., Department of Energy Radiological Assistance Program) and local 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 Rooms 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 Station procedures.

c. Medical Emergency Drills: a medical emergency involving a simulated contaminated individual whereby 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 IPEC Protected Area. These drills include provisions for communications and record keeping.

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, in the Eight Year Exercise Cycle Plan, 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. <u>Conduct of Drills and Exercises:</u>

For each emergency preparedness exercise or drill conducted, a scenario package is developed. The information included in the scenario package is in accordance with Entergy Fleet Procedures which include 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.

Prior approval of Drill and Exercise Dates, by appropriate IPEC 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 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 IPEC Emergency Preparedness Program that require improvement. The Manager of Emergency Preparedness 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 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.) that 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 Plan. This requirement will normally be met by performing training observations.

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

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 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, ED, ~~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

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~~Individuals qualified as Certified Fuel Handlers receive routine classroom ~~and simulator~~ training, ~~as applicable,~~ to ensure proficiency in this area.

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

c. Radiological Monitoring Teams and Radiological Analysis Personnel

1. 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

2. 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

3. 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
- Radiological Monitoring Team Interface
- Protective Action Guidelines associated with offsite plume exposure doses
- Basic Meteorology

d. Police, Security and Fire Fighting Personnel

1. 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.
2. 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
3. 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 instructs personnel as to the appropriate protective clothing requirements, respiratory protection requirements, time limits, and other protective actions specific to the conditions present.

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 Energy Center. 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 Energy Center provides initial emergency response overview and specific training to assigned ERO members as outlined in the ERO Training Program. Additionally, Indian Point Energy Center 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 is placed on the ERO roster. The completed training documents certify that the individual is qualified to perform their emergency functions.

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 ERO, 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 distribution of the Plan and actions that must be performed to maintain the Indian Point Emergency Preparedness Program. It also outlines the criteria for ensuring 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 Planning 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 Energy Center (IPEC) 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 Program. This includes the authority to provide the necessary resources to ensure the continuous state of readiness for the ERO.

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

3. Manager of Emergency Preparedness:

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

   - Development, maintenance and revision of the Plan and Implementing Procedures is accomplished in accordance with applicable regulations and industry standards.

- 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 and the local communities involved in response to an incident at Indian Point Energy Center.
- 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 EP 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 Program Public Information program.
- IPEC 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 Planning 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 Planning staff provides technical assistance to other IPEC 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.
- Corrective actions identified during the conduct of Exercises, Drills, Training, Audits and Inspections are tracked using the station's corrective action program.

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 Manager of Emergency Preparedness 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 reduce the effectiveness of the Plan, when determined through the technical review process or other changes deemed appropriate by the Manager of Emergency Preparedness 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 reduce 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 reduce or have a potential to reduce the effectiveness of the approved Plan are not implemented without prior approval by the NRC.

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

Technical reviews of the Plan and procedures shall be conducted in accordance with station procedures. The reviewer shall determine the need for cross-disciplinary reviews. Revisions to the Plan and Implementing Procedures shall be reviewed and approved by the Manager of Emergency Preparedness 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 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 Plan only. Verified copies may be used for position specific procedure sets used by the ERO. 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.

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. The 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 Oversight (NOS) organization. The assessment will be performed either at intervals not to exceed 12 months or as necessary, based on an assessment by NOS 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.

Results of this audit are submitted for review to the Site Vice President. The Manager of Emergency Preparedness 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 Manager of Emergency Preparedness.

10. Maintenance of Emergency Telephone List

A phone list contains telephone numbers used by the ERO during an emergency. These numbers are verified and updated at least quarterly.

## 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, Title10, 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, 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-0737, Clarification of TMI Action Plan Requirements, dated October 1980.
14. NUREG-0737, Supplement 1, Requirements for Emergency Response Capability, December 1982.
15. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
16. “FEMA REP Program Manual"
17. Indian Point Energy Center Unit 1, 2 and 3 FSARs
18. Indian Point Energy Center Unit 1, 2 and 3 Tech Specs
19. USNRC Reg. Guide 1.101, "Emergency Planning & Preparedness for Nuclear Power Plants"
20. 10CFR50, Appendix R
21. SAND 77-1725, Public Protection Strategies for Potential Nuclear Reactor Accidents: Sheltering Concepts With Existing Public and Private Structures, February 1978
22. ~~INPO Emergency Resources Manual~~

**Appendix 1: References (cont.)**

~~23.~~22. "Maintaining Emergency Preparedness Manual," dated November, 1987 INPO 87-019.

~~24.~~23. "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.

~~25.~~24. "Voluntary Assistance Agreement By and Among Electric Utilities involved in Transportation of Nuclear Materials," dated November 1, 1980.

~~26.~~25. Comprehensive Environmental Response, Compensation and Liability Act of 1980.

~~27.~~26. Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendation for State and Local Agencies, Volume 47, No. 205, October 22, 1982.

~~28.~~27. American Nuclear Insurers Bulletin #5B (1981), "Accident Notification Procedures for Liability Insured's".

~~29.~~28. "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency: Final Recommendations on Use," Federal Register Vol. 47, No. 125, June 29, 1982.

~~30. INPO Coordination agreement on emergency information among USCEA, EPRI, INPO, NUMARC and their member utilities, dated April (1988).~~

~~31.~~29. Babcock and Wilcox Company, Post Accident Sample Offsite Analysis Program (1982).

~~32.~~30. ANI/MAELU Engineering Inspection Criteria For Nuclear Liability Insurance, Section 6.0, Rev. 1, "Emergency Planning."

~~33.~~31. NEI 99-01 Rev 5, "Methodology for Development of Emergency Action Levels"

~~34.~~32. USNRC Reg. Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants", March 2007

~~35.~~33. INPO 09-006 Guidelines for Training and Qualification of Emergency Response Organization Personnel

~~36.~~34. New York State Comprehensive Emergency Management Plan Radiological Hazards Annex for Fixed Nuclear Facilities

~~37.~~35. NUREG-0654 – FEMA – REP – 1, Revision.1, Supplement 3, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.

~~38~~36. Westchester County Fire Mutual Aid Plan

~~39~~37. IPEC Security Safeguards Contingency Plan and Incident Response Plan

~~40~~38. NSIR/DPR – ISG-01 "Interim Staff Guidance – Emergency Planning For Nuclear Power Plants", ADAMS Accession No. ML113010523 pages 18 to 21.

~~41~~39. 2014 IPEC ETE Addendum (KLD TR-557, dated October 17, 2014)

## Appendix 2: Letters of Agreement

Copies of agreement letters for the offsite emergency response supporting organizations listed below are maintained in the Emergency Planning Department files.

1. Verplanck Fire District (Fire/Ambulance)
2. Buchanan Engine Co. No. 1, Inc.
3. New York-Presbyterian/Hudson Valley Hospital
4. Phelps Memorial Hospital Center
5. Department of Energy – Radiation Emergency Assistance
6. Westinghouse Electric Corporation

~~7. Institute of Nuclear Power Operations (INPO)~~

~~8.~~7. New York State Police

~~9.~~8. New York State Division of Homeland Security and Emergency Services

~~10.~~9. Department of Energy – Radiological Assistance Program Region 1 (Brookhaven)

As Letters of Agreement are received and updated they will be listed in this section. Regular updates that do not change the level of service do not require an EPLAN change unless they impact the planning standards. Letters listed 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.

For hostile action based events, response is provided by Verplanck Fire District, Buchanan Engine Co. No. 1 Inc., and the New York State Police.

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

Emergency Plan Implementing Procedures to Plan Sections

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-115<br>EN-EP-900 | Emergency Plan Forms | All |
| IP-EP-120 | Emergency Classification | D, Table D-1 |
| IP-EP-210<br>IP-EP-251<br>IP-EP-260<br>EN-EP-609<br>EN-EP-610<br>EN-EP-611<br>EN-EP-900 | Emergency Management | A, B, Table B-1, B-7, C, Appendix 2 |
| IP-EP-210 | Control Room Augmentation | B, Table B-1 |
| EN-EP-610 | TSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-611 | OSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-609 | EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-350<br>EN-EP-611 | Radiation Protection, Emergency Exposure Controls and Response | J, K, L |
| IP-EP-240 | Emergency Security Organization Activation and Response | B, Table B-1, E, O |
| IP-EP-241 | Incident Command Post | B, Table B-1, E |
| IP-EP-310<br>IP-EP-340 | Offsite Dose Assessment | I, Table B-1 |
| IP-EP-330<br>IP-EP-340 | Airborne Sample Analysis | C, Appendix 2, I |
| IP-EP-350 | Emergency Contamination Control | K, L |
| IP-EP-360 | Core Damage Assessment | I |
| IP-EP-410 | Protective Action Recommendations | J |
| IP-EP-420 | Use of Potassium Iodide by Indian Point Personnel During and Emergency | K.2 |

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-251<br>EN-EP-609 | Alternate EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-510 | Data Equipment Operation | Table B-1, B.5, H |
| IP-EP-320<br>EN-EP-609 | Offsite Monitoring Team Activation and Response | I |
| IP-EP-430<br>EN-EP-611 | Evacuation/Accountability | J |
| IP-EP-430 | Search and Rescue | J |
| EN-EP-613 | Recovery | M |
| IP-EP-340<br>IP-EP-620 | Estimating Total Population Exposure | I, M |
| IP-EP-260 | Joint Information Center Procedure Set | B, G |
| EN-EP-613 | Emergency Preparedness Corporate Support | A, B |
| EN-EP-311 | Emergency Response Data System (ERDS) | Table B-1, H, I |
| 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 |

Emergency Planning Administrative Procedures to Plan Sections

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.

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD1 | Emergency Preparedness Department Organization and Responsibilities | P |
| IP-EP-AD2 | Emergency Plan Controlled Documents | P |
| EN-TQ-110 | Emergency Response Training Program | O |
| EN-TQ-110-01 | Fleet E-Plan Training Course Summary | O |
| EN-EP-306 | Drills and Exercises | N |
| EN-EP-307 | Hostile Action Based Drills and Exercises | N |
| EN-EP-308 | Emergency Planning Critiques | N |
| EN-FAP-EP-005 | Emergency Preparedness Performance Indicator Program | N |
| IP-EP-AD6 | Emergency Preparedness Department Facilities and Equipment Surveillances | E, F, H, I, J, N |
| EN-EP-310 | Notifications Systems Testing and Maintenance | F, N |
| IP-EP-AD10 | Offsite Emergency Preparedness Support | A, G, L, O |
| IP-EP-AD13 | Emergency Action Levels Technical Basis Document | D, I, J |
| IPEP-AD-16 | Emergency Planning Records | All |
| IP-EP-AD 17 | Emergency Planning Equipment Administration | E, F, H, I, J |
| EN-EP-801 | Emergency Response Organization | A, B, C |
| IP-EP-AD40 | Equipment Important to Emergency Response | D, E, F, G, H, I, J |

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD12<br>IP-EP-AD20<br>IP-EP-AD30<br>IP-EP-AD31<br>IP-EP-AD32<br>IP-EP-AD33<br>IP-EP-AD34<br>IP-EP-AD35<br>IP-EP-AD36<br>IP-EP-AD38<br>IP-EP-AD39<br>IP-EP-AD41 | IPEC Alert Notification System | E, E.6 |

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

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

AC ..... Alternating Current
AD ..... Administrative Directive
AEOF ..... Alternate Emergency Operations Facility
ALARA ..... As Low As Reasonably Achievable
ANI ..... American Nuclear Insurers
ANS ..... Alert and Notification System
ANSI ..... American National Standards Institute
ARM ..... Area Radiation Monitor
Ci ..... Curie
CDE ..... Committed Dose Equivalent
cc ..... cubic centimeter
CR ..... Control Room
CFR ..... Code of Federal Regulations
CEC ..... Corporate Emergency Center
$cm^2$ ..... square centimeter
Cs ..... Cesium
DC ..... direct current
DE ..... Dose Equivalent
DHS ..... Department of Homeland Security
DLR ..... Dosimeter of Legal Record
DOE ..... U. S. Department of Energy
DOT ..... U. S. Department of Transportation
dpm ..... disintegration per minute
EAL ..... Emergency Action Level
EAS ..... Emergency Alert System
ED ..... Emergency Director
ENS ..... (NRC) Emergency Notification System
EOC ..... Emergency Operations Center
EOF ..... Emergency Operations Facility
EOP ..... Emergency Operating Procedure
EPA ..... U. S. Environmental Protection Agency
EPZ ..... Emergency Planning Zone
ERDS ..... Emergency Response Data System
ERO ..... Emergency Response Organization
ETD ..... Emergency Telephone Directory
FEMA ..... Federal Emergency Management Agency

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

FRERP .....Federal Radiological Emergency Response Plan
FSAR..... Final Safety Analysis Report
Ge .....Germanium
GE ..... General Emergency
GET.....General Employee Training
I .....Iodine
ICP ..... Incident Command Post
I&C .....Instrument and Control
~~INPO .....Institute of Nuclear Power Operations~~
IP ..... Implementing Procedure
IP1, IP2, or IP3 .....Indian Point Energy Center Unit 1, 2 or 3
IPEC..... Indian Point Energy Center
IPZ.....Ingestion Pathway Zone
IRAP..... Interagency Radiological Assistance Program
ISFSI .....Independent Spent Fuel Storage Installation
JIC..... Joint Information Center
KI.....Potassium Iodide
Kr.....Krypton
Li .....Lithium
LGR.....Local Government Radio
LOCA .....Loss of Coolant Accident
mR..... milliroentgen
MWt.....Megawatt Thermal
NRC ..... U. S. Nuclear Regulatory Commission
NUE..... Notification of Unusual Event
NYSOEM.....NYS Office of Emergency Management
OSC .....Operations Support Center
OSRC..... On-Site Safety Review Committee
PAG.....Protective Action Guide
PAR..... Protective Action Recommendation
PASS.....Post Accident Sampling System
POM .....Plant Operations Manager
R..... roentgen
RACES ..... Radio Amateur Civil Emergency Services
RCA..... Radiologically Controlled Area
RECS ..... Radiological Emergency Communications System
RERP .....Radiological Emergency Response Plan
OMT ..... Offsite Monitoring Team

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

RP ..... Radiation Protection
SAE ..... Site Area Emergency
SCBA ..... Self-Contained Breathing Apparatus
SM ..... Shift Manager
SPDS ..... Safety Parameter Display System
Sr ..... Strontium
STA ..... Shift Technical Advisor
TCP/IP ..... Transfer Communication Protocol/Internet Protocol
TDD ..... Telecommunications Device for the Deaf
TLD ..... Thermoluminescent Dosimeter
TSC ..... Technical Support Center
μCi ..... microcuries
UFSAR ..... Updated Final Safety Analysis Report
Xe ..... Xenon

## 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.

**Activated –** An order has been made to activate an emergency response facility, and the facility is in the process of being staffed.

**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 Energy Center 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** - 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.

**Dose Equivalent** - 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.

**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 Entergy 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 Entergy 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.

**Emergency Planning Zone (EPZ)** - The area around the Indian Point Energy Center 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 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 the licensee has the 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 Energy Center Site** - The combined areas immediately surrounding Units 1, 2 and 3 that are owned and operated by Entergy.

**Joint Information Center** – 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 principal Emergency Operations Centers in the Public Security Building, in Harriman State Office Campus in Albany, New York and at the Hudson Valley Transportation Center in Hawthorne, New York.

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

**Offsite** - Locations outside of the Indian Point Energy Center Site boundary.

**Onsite** - The area within the Indian Point Energy Center Site boundary.

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

**Operational** – Status of an emergency facility declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is setup and available to perform the emergency functions assigned to that facility.

**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** - An area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 5mRem (0.05 mSv) in one hour at 30 cm (~ 12 inches) from the radiation source or from any surface that the radiation penetrates.

**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** - 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.

**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.

**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.

**Staffed** – The emergency response facility has been activated and sufficient personnel are available to perform the required functions as determined by the facility manager.

**Station** - The three Entergy Nuclear Generating Units (1, 2 and 3) located on the Indian Point Energy Center 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.

**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 fifteen temporal 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 facility (e.g., schools, nursing homes, and hospitals) population, as well as variations in roadway conditions. The fifteen 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 | Winter | Weekend | Midday | Good | West Point Football |
| 14 | Summer | Weekend | Midday | Good | Event at Croton Point Park |
| 15 | Summer | Midweek | Midday | Good | Roadway impact Rt. 6; Rt. 9W; Palisades Pkwy; Taconic Pkwy |

The traffic demand and trip-generation rate of evacuating vehicles were estimated from the gathered data. Sources of data include the 2010 Census, New York agencies, county agencies, a telephone survey and special concern facilities. (See Section 3/Appendix E and

**Appendix 5**

**EVACUATION PLANS**

Section 5/Appendix F of the ETE of the 2012 ETE Report (Indian Point Energy Center, Development of Evacuation Time Estimates, KLD Engineering PC, KLD TR-537, December 2012) for a complete discussion of traffic demand and trip generation time, respectively.)

Following federal guidelines, the Indian Point Energy Center (IPEC) Emergency Planning Zone (EPZ) is subdivided into 38 Protective Action Areas. The Protective Action Area definitions are provided in Section II. The 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 H of the 2012 ETE Report. Additional Regions were defined in the 2014 ETE Addendum (Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering PC, KLD TR-557, October 17, 2014). For each Protective Action Area within the EPZ, primary evacuation routes have been identified. Descriptions of the Protective Action Areas and their associated evacuation routes are given in the county plan procedures and in Section 10 and Appendix L of the 2012 ETE Report. Listings and maps of reception centers for each Protective Action Area are also included in the county procedures and in Section 10 of the 2012 ETE Report.

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.

## II. PROTECTIVE ACTION AREAS

The plume exposure EPZ for the IPEC has been subdivided into 38 discrete Protective Action Areas as shown in Figure 1. The 2010 US Census permanent resident population estimates for each of the Protective Action Areas are presented in the 2014 ETE Addendum and are provided in Table 1. The boundaries of the various Protective Action Areas are described by county in Tables 2 through 5.

## III. EVACUATION TIME ESTIMATES

Evacuation time estimates by Region for each of the scenarios are presented in Section 7 of the 2012 ETE Report. Updated evacuation time estimates for 90% and 100% of the population within the Protective Action Areas included in the regions defined by the two-mile and five-mile rings and for the full EPZ are presented in the 2014 ETE Addendum and provided in Tables 6-A, 6-B and 6-C.

## IV. 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.

**Appendix 5**

**EVACUATION PLANS**

**TABLE 1**

**EPZ Permanent Population 2010 Census**

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Briarcliff Manor | | | | 8,370 |
| Central Town of Clarkstown | | | 23,052 | |
| Northeastern Town of Ramapo | | | 25,941 | |
| Northeastern & Eastern Town of Clarkstown | | | 15,127 | |
| Northwestern Town of Clarkstown | | | 7,453 | |
| Ossining | | | | 30,478 |
| Village of Haverstraw | | | 11,910 | |
| Town of New Castle (west of Hardscrabble Road) | | | | 4,686 |
| Village of West Haverstraw | | | 10,376 | |
| Unincorporated Areas of the Town of West Haverstraw | | | 11,483 | |
| Town of Tuxedo east of NYS Thruway | 204 | | | |
| Village of Pomona | | | 4,520 | |
| Grassy Point | | | 142 | |
| Croton-on-Hudson | | | | 8,078 |
| Stony Point | | | 13,111 | |
| Verplanck | | | | 2,183 |
| Tompkins Cove | | | 1,797 | |
| Buchanan | | | | 2,232 |
| Montrose | | | | 2,593 |
| Jones Point | | | 125 | |
| Village of Harriman east of NYS Thruway | 0 | | | |
| Peekskill | | | | 23,565 |
| Cortlandt | | | | 26,565 |
| Bear Mountain State Park | 16 | | 5 | |
| Harriman State Park | 6 | | 9 | |

## TABLE 1 (cont.)

**EPZ Permanent Population**
**2010 Census[1]**

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Yorktown | | | | 36,275 |
| Somers (west of Route 118) | | | | 4,436 |
| Fort Montgomery | 1,837 | | | |
| Southwest Carmel | | 2,597 | | |
| Village of Highland Falls | 4,175 | | | |
| Lower Phillipstown | | 2,581 | | |
| Village of Woodbury (east of NYS Thruway) | 2,386 | | | |
| West Point | 6,464 | | | |
| Southern Putnam Valley | | 10,171 | | |
| Town of Highlands | 0 | | | |
| Hudson River | Hudson River | | | |
| Town of Cornwall (south of Angola Road) | 1,035 | | | |
| Southern Phillipstown | | 4,569 | | |
| **Total Population by County:** | **16,123** | **19,918** | **125,051** | **149,461** |
| **Total EPZ Population** | **310,553** | | | |

1. Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering P.C, KLD TR-557, Section 2, October 17, 2014

**Table 2. Orange County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Town of Tuxedo east of NYS Thruway | 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). |
| Village of Harriman east of NYS Thruway | Village of Harriman east of NYS Thruway. |
| Fort Montgomery | The Hamlet of Fort Montgomery. |
| Village of Highland Falls | Village of Highland Falls. |
| Village of Woodbury east of NYS Thruway | The Village of Woodbury east of the NYS Thruway from the Town of Tuxedo to the Town of Cornwall. |
| West Point | The United States Military Academy (West Point) |
| Town of Highlands | The Town of Highlands excluding the Village of Highland Falls and the Hamlet of Fort Montgomery. |
| Town of Cornwall (south of Angola Road) | 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. |
| Bear Mountain State Park | The portion of Bear Mountain State Park in Orange County. |
| Harriman State Park | The portion of Harriman State Park in Orange County. |

**Table 3. Putnam County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Southwest Carmel | 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. |
| Lower Phillipstown | The most southern part of the Town of Phillipstown; that is, south of Canopus Hollow Road; Old West Point Road east, east of US Route 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. |
| Southern Putnam Valley | 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. |
| Southern Phillipstown | The southern half of Phillipstown, not including the area defined as Lower Phillipstown; that is, the Village of Garrison and the Village of Nelsonville except for the portion of Hudson Highlands State Park, and the portion of Phillipstown 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. |

**Table 4. Rockland County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Central Town of Clarkstown | 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. |
| Northeastern Town of Ramapo | 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. |
| Northeastern & Eastern Town of Clarkstown | 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. |
| Northwestern Town of Clarkstown | 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. |
| Village of Haverstraw | In the Town of Haverstraw, the Village of Haverstraw. |
| Village of West Haverstraw | In the Town of Haverstraw, the Village of West Haverstraw. |
| Unincorporated Areas of the Town of Haverstraw | The unincorporated areas of the Town of Haverstraw including the Hamlets of Thiells and Mount Ivy. |

**Table 4 Rockland County Protective Action Area Descriptions (continued)**

| Protective Action Area | Description |
|---|---|
| Village of Pomona | In the Towns of Haverstraw and Ramapo, the Village of Pomona and the unincorporated portions of the Hamlet of Pomona. |
| Grassy Point | Grassy Point east of the Penny Bridge, Minisceongo Yacht Club, Haverstraw Marina, Haverstraw Bay County Park, Bowline Park. |
| Stony Point | The Town of Stony Point east of Bear Mountain and Harriman State Parks, south of Tompkins Cove and west of Grassy Point. |
| Tompkins Cove | Tompkins Cove zip code area. |
| Jones Point | 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. |
| Bear Mountain State Park | 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. |
| Harriman State Park | The central and western parts of Harriman State Park bounded on the east by the Palisades Interstate Parkway (PIP) northbound and a line connecting PIP/US. Route 6 to the West Point Military Reservation boundary where they are very close, about 1 1/2 miles W of the Bear Mountain Bridge; on the south by the Ramapo/Haverstraw Town Line and the Rockland/Orange County Line southwestward; and on the west by the New York State Thruway (Interstate Route 87/287, not included in the EPZ) and the NW/SE running utility right-of-way crossing Smith Rock and Pound Mountain. |

**Table 5. Westchester County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Briarcliff Manor | The Village of Briarcliff Manor. |
| Ossining | The Town and Village of Ossining. |
| Town of New Castle (west of Hardscrabble Rd) | The Town of New Castle west of Hardscrabble Road. |
| Croton-on-Hudson | The Village of Croton-on-Hudson. |
| Verplanck | The Hamlet of Verplanck. |
| Buchanan | The Village of Buchanan. |
| Montrose | The Hamlet of Montrose. |
| Peekskill | The City of Peekskill. |
| Cortlandt | 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. |
| Yorktown | The Town of Yorktown. |
| Somers (west of Route 118) | The Town of Somers west of State Route 118/Tomahawk Street. |

**Table 6-A. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Summer Scenarios**

| | Summer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Midweek | | | | Weekend | | | | Midweek, Weekend | |
| **Scenario:** | 1 | | 2 | | 3 | | 4 | | 5 | |
| **Region** | Midday | | | | Midday | | | | Evening | |
| | Good Weather | | Rain | | Good Weather | | Rain | | Good Weather | |
| | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% |
| **R1 (2 Mile)** | 2:25 | 5:20 | 2:25 | 5:20 | 2:10 | 5:15 | 2:15 | 5:15 | 2:10 | 5:15 |
| **R2 (5 Mile)** | 3:05 | 5:20 | 3:20 | 5:20 | 3:10 | 5:20 | 3:20 | 5:20 | 2:40 | 5:20 |
| **R3 (Full EPZ)** | 3:55 | 6:55 | 4:10 | 7:10 | 3:35 | 6:10 | 3:45 | 6:10 | 3:15 | 5:55 |

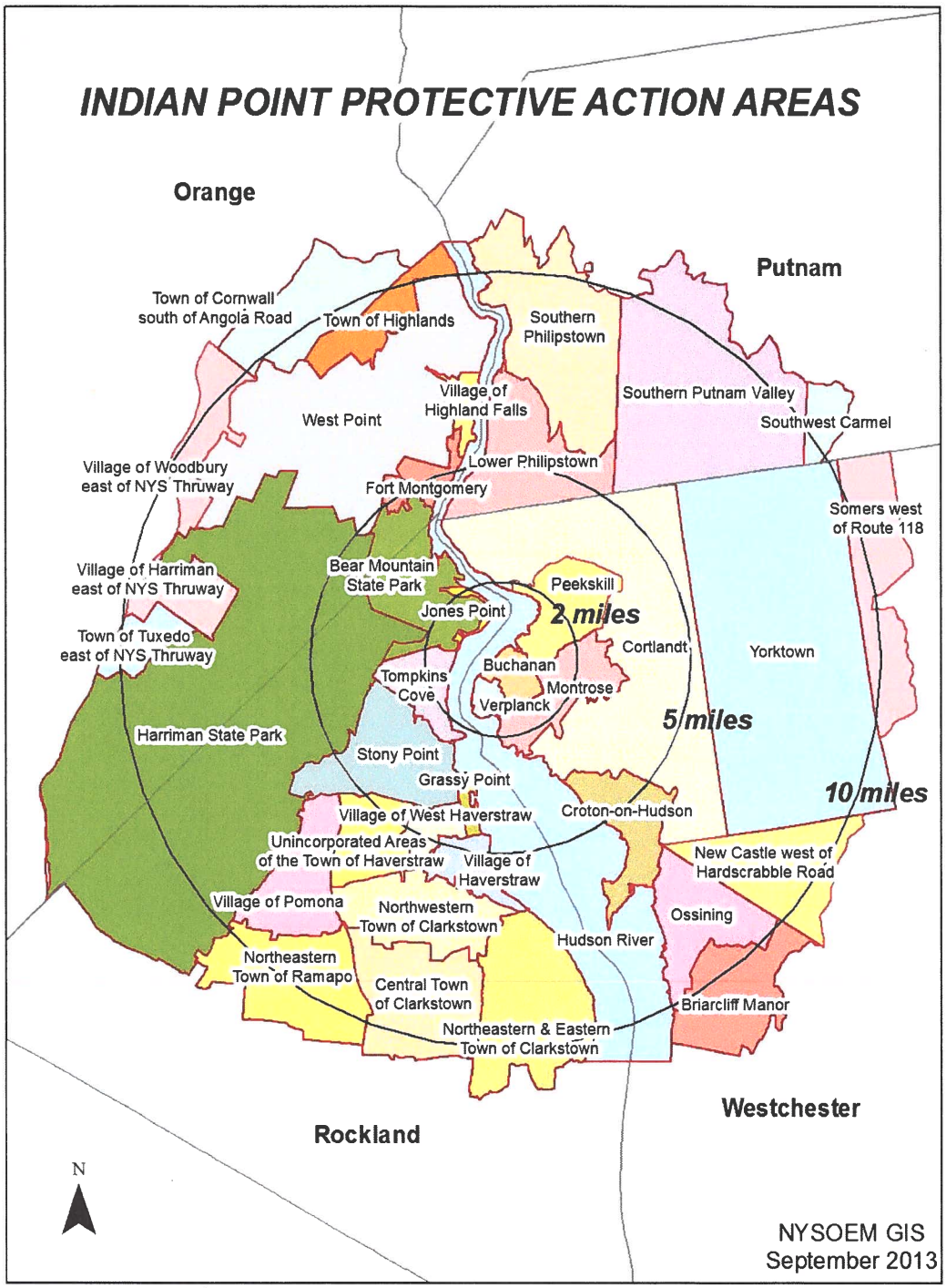
**Table 6-B. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Winter Scenarios**

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

**Table 6-C. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Special Events**

| | Winter | | Summer | | | |
|---|---|---|---|---|---|---|
| | Weekend | | Weekend | | Midweek | |
| Scenario: | 13 | | 14 | | 15 | |
| Region | Midday | | Midday | | Midday | |
| | Good Weather | | Good Weather | | Good Weather | |
| | West Point Football | | Croton Point Park Event | | Roadway Impact | |
| | 90% | 100% | 90% | 100% | 90% | 100% |
| R1 (2 Mile) | 2:10 | 5:15 | 2:10 | 5:15 | 2:25 | 5:20 |
| R2 (5 Mile) | 2:45 | 5:20 | 3:05 | 5:20 | 3:05 | 5:20 |
| R3 (Full EPZ) | 3:30 | 5:55 | 3:35 | 6:10 | 4:40 | 7:00 |

**FIGURE 1**




EMERGENCY PLANNING PROTECTIVE ACTION AREAS



TBD

**ATTACHMENT 7**

**NL-19-001**

**Proposed Stage II Revision to the Indian Point Energy Center Site Emergency Plan (Clean Version)**

# Indian Point Energy Center

# Emergency Plan

| | | | |
|---|---|---|---|
| Prepared by: | Antonio Iraola | | |
| | Print Name | Signature | Date |
| Approval: | Frank J Mitchell | | |
| | Print Name | Signature | Date |

Effective Date: TBD

LIST OF EFFECTIVE PAGES

| Page | Revision |
|---|---|
| Table of Contents | TBD |
| Part I | TBD |
| Part 2, Section A | TBD |
| Part 2, Section B | TBD |
| Part 2, Section C | TBD |
| Part 2, Section D | TBD |
| Part 2, Section E | TBD |
| Part 2, Section F | TBD |
| Part 2, Section G | TBD |
| Part 2, Section H | TBD |
| Part 2, Section I | TBD |
| Part 2, Section J | TBD |
| Part 2, Section K | TBD |
| Part 2, Section L | TBD |
| Part 2, Section M | TBD |
| Part 2, Section N | TBD |
| Part 2, Section O | TBD |
| Part 2, Section P | TBD |
| Appendix 1 | TBD |
| Appendix 2 | TBD |
| Appendix 3 | TBD |
| Appendix 4 | TBD |
| Appendix 5 | TBD |

Page

**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
Figure 1.B-1 10-Mile Emergency Planning Zone… ..... 7
Figure 1.B-2 50-Mile Emergency Planning Zone… ..... 8
Figure 1.B-3 Indian Point Energy Center Site Map... ..... 9

**Part 2: PLANNING STANDARDS AND CRITERIA**

**Section A: ..... Assignment of Responsibility**

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

Section B: Station Emergency Response Organization

1. Indian Point 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

Section C: Emergency Response Support and Resources

1. Federal Response Support and Resources ..... C-1
2. Liaisons ..... C-1
3. Radiological Laboratories ..... C-2

Page

4. Other Assistance ..... C-2

Section D: Emergency Classification System

1. Emergency Classification ..... D-1
2. Emergency Action Levels ..... D-7
3. Offsite Classification Systems ..... D-7
4. Offsite Emergency Procedures ..... D-8

Section E: Notification Methods and Procedures

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

Section F: Emergency Communications

1. Description of Primary Communications Systems ..... F-1

Section G: Public Education and Information

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

Section H: Emergency Facilities and Equipment

1. In-Plant Emergency Response Facilities ..... H-1
2. Emergency Operations Facilities ..... H-3
3 Joint Information Center ..... H-4
4 Alternative TSC/OSC ..... H-5
5. Offsite Emergency Operations Centers ..... H-5
6. Activation and Staffing of Emergency Response Facilities ..... H-5
7. Emergency Onsite Monitoring Systems ..... H-5
8. Offsite Emergency Data Acquisition ..... H-7
9. Facilities and Equipment for Offsite Monitoring ..... H-8

..... Page

10. Meteorological Monitoring ..... H-9
11. Facility and Equipment Readiness ..... ……H-10
12. Identification of Emergency Equipment and Supplies ..... H-10
13. Collection and Analysis of Field Monitoring Data ..... H-10

Section I: Accident Assessment

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. Offsite 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

Section J: Protective Response

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-4
8. Evacuation Time Estimates ..... J-4
9. Protective Measure Implementation ..... J-4
10. Factors Affecting Protective Measure Implementation ..... J-4
11. Ingestion Pathway Protective Measures ..... J-6
12. Monitoring of Evacuees ..... J-6

**Table of Contents (Cont.)**

Page

Section K: Radiological Exposure Control

1. Emergency Exposure Guidelines ..... K-1
2. Emergency Radiological Control 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

Section L: Medical and Public Health Support

1. Hospital Services ..... L-1
2. Onsite First Aid Capability ..... L-1
3. Medical Service Facilities ..... L-2
4. Medical Transportation ..... L-2

Section M: Re-entry and Recovery Planning

1. Re-entry and Recovery ..... M-1
2. Recovery Organization ..... M-3
3. Recovery Phase Notifications ..... M-6
4. Total Population Exposure ..... M-6

Section N: Drill and Exercise Program

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

Section O: Emergency Response Training

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

**Table of Contents (Cont.)**

Page

Section P: Responsibility for the Maintenance of the Planning Effort

1. Emergency Planning Staff Training ..... P-1
2. Authority for Emergency Preparedness Effort ..... P-1
3. Manager of Emergency Preparedness ..... 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 ..... P-5

**APPENDIXES**

Appendix 1: References ..... Appendix-1-1
Appendix 2: Letters of Agreement ..... 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

# 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 Energy Center units and the personnel who work at the plant.

The Indian Point Energy Center Emergency Plan (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 Plan 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. Units 1, 2, and 3 are permanently defueled and only those areas that either store or process radioactive materials and spent fuel (the Fuel Handling Building and waste storage/process areas in the Chemical Systems Building and the Integrated Liquid Radwaste Systems Building and the Independent Spent Fuel Storage Installation (ISFSI)) were considered in evaluating radiological hazards.

This Plan is solely dedicated to Indian Point Energy Center 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 permanently shutdown and defueled 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).

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 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 2010 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 Energy Center 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.

Plant

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

## 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 Energy Center Site during emergencies. It identifies an IPEC Emergency Response Organization (ERO), 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. Implementing Procedures have been developed to implement this Plan. These procedures identify the elements of the ERO and the interface with supporting offsite organizations. In addition to the Implementing Procedures (IP), Plan Administrative Directives (AD) have been developed to ensure proper maintenance of the program. A listing of procedures cross-referenced to sections of the Plan are contained in Appendix 3. Complete copies of the 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.

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. These agreements are listed 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 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 Corporation 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 Energy Center. 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

contained in the Plan 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 actions to maintain or bring the plant to a safe 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 (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 (ED) 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 condition, 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 Energy Center.

**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-0728, "Concept of Operations: NRC Incident Response", was used in the development of the 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 Plan.

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

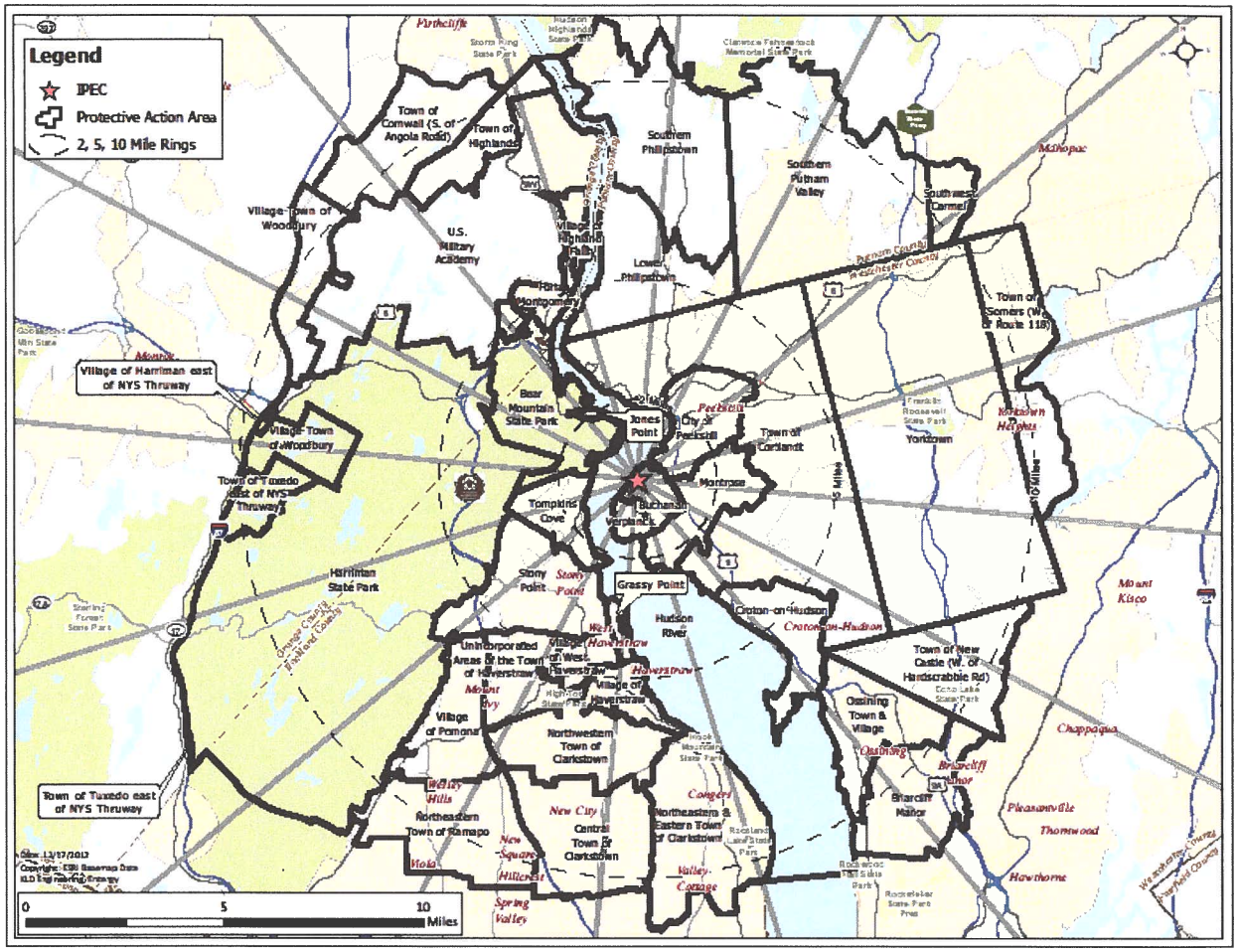
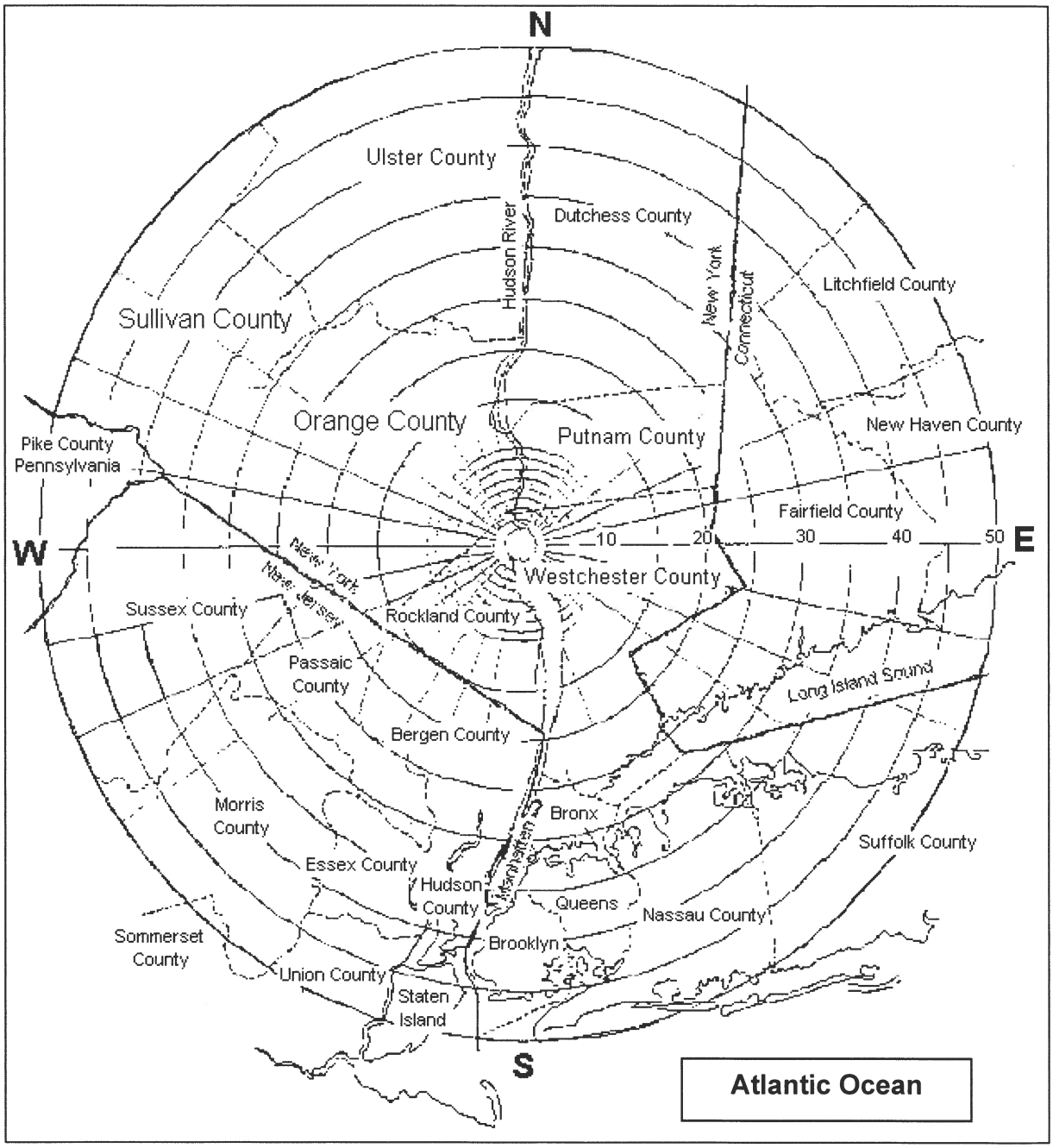
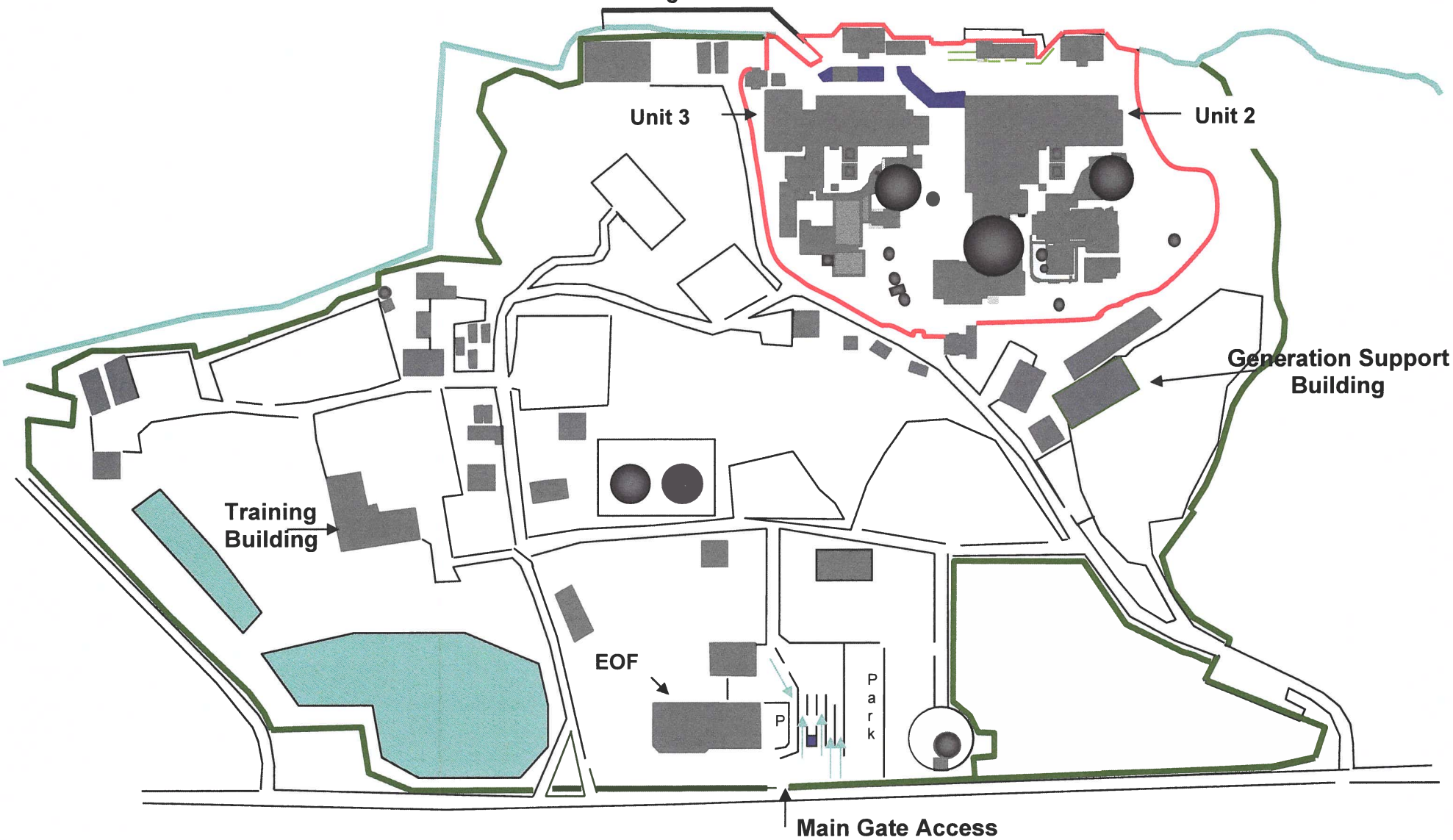


**Figure 1.B-2**
**50 Mile Emergency Planning Zone**



**INDIAN POINT ENERGY CENTER SITE MAP**

**Figure 1.B-3**



INTENTIONALLY LEFT BLANK

## Part 2: PLANNING STANDARDS AND CRITERIA

### Section A: Assignment of Responsibility

This section describes the primary responsibilities for emergency response by IPEC, 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 Energy Center.

      Federal Agencies

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

      - Nuclear Regulatory Commission (NRC), who act as technical/regulatory advisors to Indian Point Energy Center 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 Program 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 ED 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.

- 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 Energy Center 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 New York State Office of Emergency Management (NYSOEM). 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 Comprehensive Emergency Plan, Radiological Hazards Annex for Fixed Nuclear Facilities. Notification to the State of emergency conditions would be as indicated in Part 2, Section E.

- New York State has Emergency Operation Centers in Albany, Westchester and other areas in the state. All of the state EOCs are equipped with communication capability.

County Offices of Disaster and Emergency Services/Emergency Management

The four (4) counties located within the 10 mile Emergency Planning Zone (EPZ) that are involved in emergency response activities at the Indian Point Energy Center 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 Energy Center;

- 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 Energy Center.

- 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 Energy Center.

Each county has an Office of Emergency Management. The Director of each of these offices, or their designee, will act as the County Emergency Operations Manager 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 Energy Center 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 ERO replaces the normal plant organization. Indian Point Energy Center 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 Energy Center.

d. The Shift Manager is in charge of the Indian Point Energy Center emergency response until relieved by another qualified ED who is then in charge of the entire IPEC ERO.

e. Continuously manned communication points have been identified for all agencies involved in the planning effort.

2. <u>State and Local Functions and Responsibilities</u>

The State, and local counties 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.

3. Agreements in Planning Effort

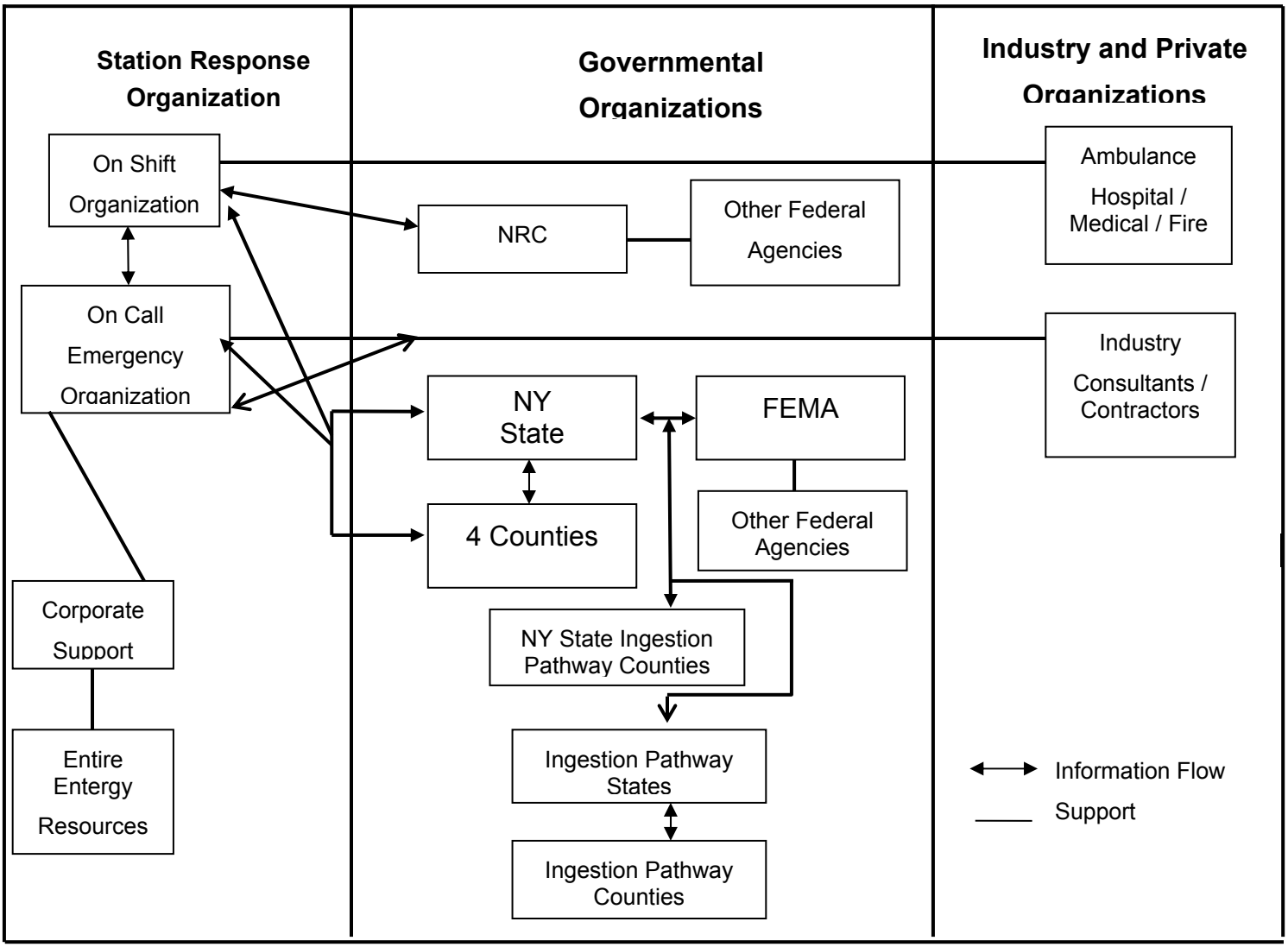
   Agreements establishing the concept of operations developed between IPEC and other support organizations having an emergency response role within the Indian Point Emergency Planning Zones (including hospitals and medical transportation) are provided in Appendix 2, "Letters of Agreement." These agreements 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 Energy Center. 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 ERO has sufficient numbers of qualified, trained personnel to provide the capability of continuous (24-hour) operations. The Manager of Emergency Preparedness administers programs to ensure availability of resources in the event of an emergency. The ED 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 ERO.

Figure A-1

Emergency Response Organizations Interrelationships




Notes:

1. Until the On-Call ERO is in place the Shift Manager 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 ED, 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 ERO, 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 Energy Center 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 on-shift and other key responders capable of responding within 60 minutes of a declared emergency to support the on-shift 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 ERO. The full ERO will be activated at an Alert, Site Area Emergency or General Emergency.

   a. Normal Plant Organization

      The normal Indian Point Energy Center 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 Energy Center.

      Each Unit's normal watch organization [Figure B-1.1] functions twenty-four [24] hours per day, seven [7] days per week. The minimum on-shift staffing is shown in Table B-1 and includes the following qualified individuals at Unit 2 and Unit 3:

      One [1] Shift Manager, who is qualified as a Certified Fuel Handler and is in charge of on-shift personnel during his/her shift and is responsible for assuring that all activities are conducted in accordance with approved procedures and the limitations set forth in Unit Technical Specifications;

      One [1] Nuclear Plant Operator who performs plant operations, minor maintenance and monitoring under the direction of the Shift Manager.

      One [1] Radiation Protection Technician who performs radiation monitoring, surveillance, decontamination, and water chemistry as necessary. The Radiation Protection Technician can perform emergency duties at the Unit 2 and/or Unit 3 during emergencies.

      One [1] qualified individual is assigned as Fire Brigade Leader (FBL) for both units in accordance with the Fire Protection Program Plan.

      One [1] qualified on-shift individual is the Communicator for notifications for both units.

The watch organization is augmented during normal working hours Monday through Friday by the Indian Point Energy Center 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 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. On call Emergency Response Organization

The 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 Energy Center, 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 and on-shift staffing in accordance with guidance of NRC's NSIR/DPR-ISG-01 interim staff guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities. An analysis of the IPEC On-Shift staffing was conducted and a final analysis report was issued. The analysis report is available as a separate document. The analysis resulted in a total of six persons on-shift.

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

Those personnel identified to augment the Watch Force within 60 minutes of the declaration of an Alert or higher are part of the on-call ERO. These personnel are notified by an electronic notification system and public address announcements, and are immediately available during normal working hours. These personnel are notified by an electronic notification system during non-working hours. An alternate notification system using an automated telephone notification process is used in the event that the normal electronic notification system is unavailable.

The activation phase consists of 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 ED 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 illustrate 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, acting as the ED, 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 ED. He/she activates the ERO as necessary and continues to direct the emergency response until relieved by another qualified ED.

The relieving ED 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. Overall control of the Onsite ERO is maintained by the Emergency Plant Manager (EPM) in the TSC. After command and control is transferred to the ED in the EOF/AEOF, it remains there until the event is terminated. In the event that the ED becomes unavailable or personnel at the EOF are required to transfer to the AEOF, command and control may be transferred to the CCR until such time as a new ED assumes command and control or the ED assumes command and control upon arrival at the AEOF.

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

3. Succession to Emergency Director:

The duties and responsibilities of the ED are initially assumed by the Shift Manager. 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 position of on-call ED is normally staffed by high level station management personnel.

4. Emergency Director Responsibilities:

The ED 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 EDs are designated in an Emergency Telephone Directory. The ED is stationed in the EOF 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 ED include:

- Declares and upgrades the emergency as warranted and initiates recovery phase when appropriate (non-delegable);
- Coordination of Entergy's emergency response efforts outside the Protected Area Fence;
- Interpretation of offsite radiological assessments for emergency classifications and Protective Action Recommendations in terms of both real-time measurements and projected radiological exposures;
- 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;
- Ensure proper communications between the Indian Point ERO and offsite response organizations;
- Review all radiological, meteorological and operational data and update the offsite authorities and the JIC;
- Receive designated responding representatives from offsite emergency agencies responding to Entergy facilities 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;
- Release of non-essential personnel from the site; and
- Approves information to the public prior to the JIC activation.

The ED is assisted in these activities by the entire ERO. Although the ED 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 ED. He/she directs and coordinates the operational aspects of the In-Plant ERO. He/she assures proper coordination and direction of the efforts of each element of the In-Plant ERO in returning the plant to and maintaining it in a safe and stable condition. The EPM is located in the TSC. 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. Company Spokesperson

The Company Spokesperson reports directly to the JIC Manager. 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.

c. 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 TSC under the direction of the TSC Engineering Coordinator. It is the central facility for the accumulation and re-transmittal of plant parameters;

Specific functions of the TSC include;

- Analyzing and developing plans and procedures in direct support of Plant Operations personnel;
- Analyzing and resolving thermodynamic, hydraulic, mechanical, electrical and instrument problems;
- Designing and coordinating short-term modification to plant systems;
- Keeping the ED apprised of plant conditions; and

- Interfacing with NRC personnel in the TSC.

Personnel from the plant's engineering departments are assigned to these functions, as necessary to respond to an emergency declaration. In addition personnel with operational experience are assigned to perform 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 Emergency Plant Manager, responsibility for plant systems operations remains with the Nuclear Plant Operators under the direction of the Shift Manager.

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 ERO personnel is initiated by the Shift Manager. Communications with offsite authorities are maintained from the Control Room until the ED takes over the responsibility at the EOF. A communicator is designated at the EOF 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 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 Assessor and the Offsite Team Coordinator who function directly under authority of the Radiological Assessment Coordinator (RAC). These individuals ensure that sufficient monitoring activities are instituted, evaluate and assess the results and apprise the RAC of all activities, results and recommendations. Offsite radiological monitoring is provided by responding Radiation Protection Personnel or 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, technicians and operations personnel (NPOs) who respond to the OSC perform repair and corrective actions directed by the OSC 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.

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 or EPM and the rest of the onsite area which is handled by the ED. 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 TSC Security Coordinator. 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 Energy Center communications personnel and/or individuals assigned to the JIC. A Company Spokesperson 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 JIC being operational.

The JIC 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 Company Spokesperson and the JIC Manager have access to all necessary information, either directly available to them or available through the onsite ERO. An EOF Technical Advisor reports to the EOF with the initial augmentation of the watch force to facilitate information flow regarding the emergency to the JIC Technical Advisor. The ED prior to the activation of the JIC

approves information that is used to notify the public. Once the JIC is operational, the Company Spokesperson prepares the press release, and once approved by the ED, the JIC Manager or Company Spokesperson 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 ERO 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, the ED and 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 EOF Technical Advisor and/or the Corporate Duty Manager coordinates corporate support into the ERO once the on call ERO is activated. With the full activation of the ERO, Entergy is capable of continuous (24 hour) operations for a protracted period. The ED 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.

b. Additional Technical Assistance

If the need for additional technical assistance is identified, this may be obtained by the EPM and the ED. 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 referenced in Appendix 2. Other assistance is also available using existing contracts, i.e.: Radiation Protection support.

American Nuclear Insurers (ANI): In the event of an extraordinary nuclear occurrence (as defined in the Price Anderson Law) ANI has 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 referenced in Appendix 2. All support, including support during hostile action events, is provided utilizing the National Incident Management System (NIMS) tool called the Incident Command System (ICS).

a. Ambulance Service

Twenty-four (24) hour ambulance service is provided by the Verplanck Fire District Ambulance with mutual aid backup from other ambulance services. Mutual aid backup from other ambulance services provides for additional Emergency Medical Services (EMS), ambulances and EMS personnel. 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.

c. Hospitals

The Hudson Valley Hospital Center at Peekskill / Cortlandt has agreed to accept patients from the Indian Point Energy Center 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.

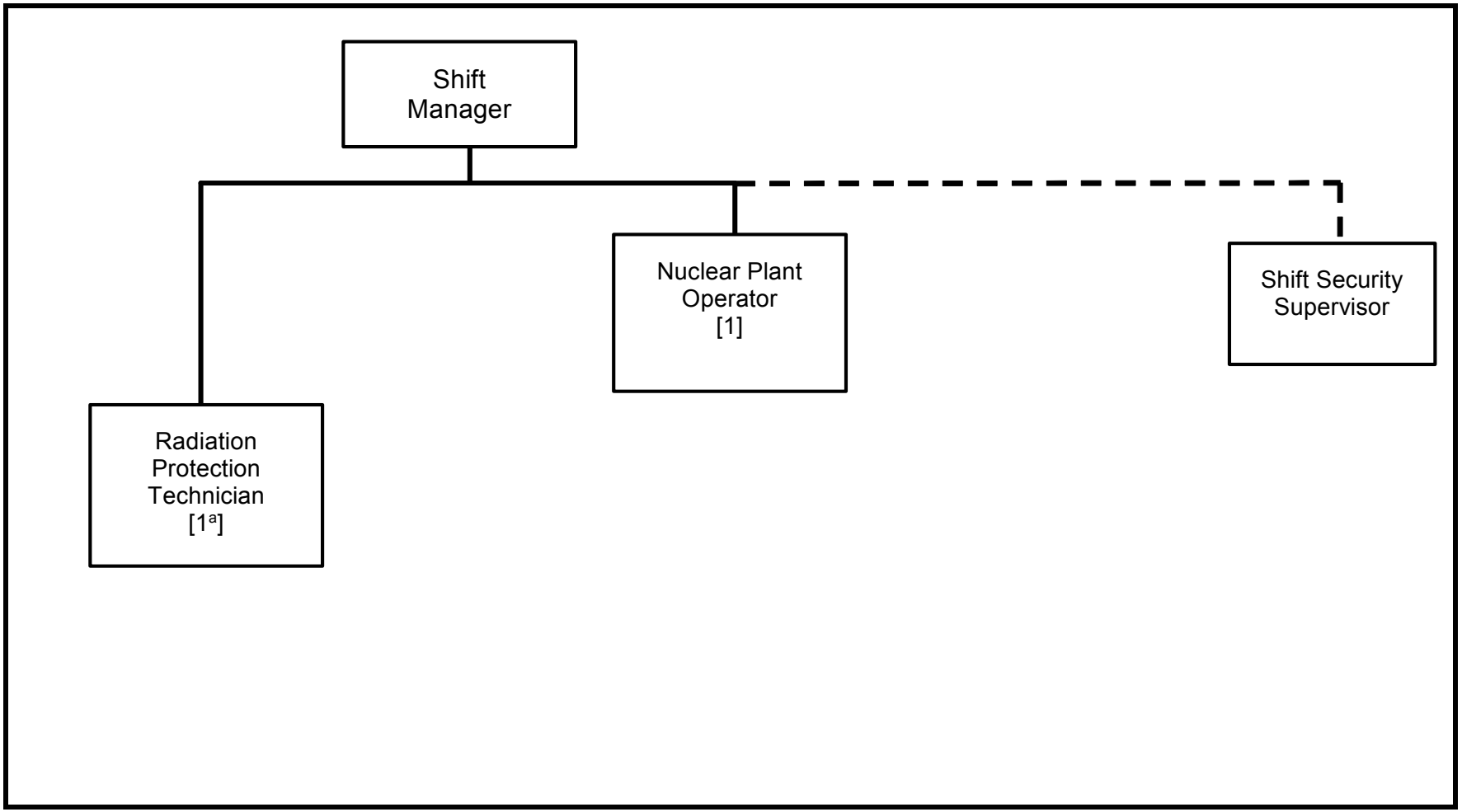
The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital.

d. Law Enforcement

When notified that assistance is required, IPEC Security will notify the New York State Police which is the lead LLEA. As the situation demands, the Westchester County Police serve as the back-up to the State Police to provide timely reinforcement. The handling of security matters including those involving hostile action for the Indian Point Energy Center site is covered in the Security Safeguards Contingency Plan and Incident Response Plan.

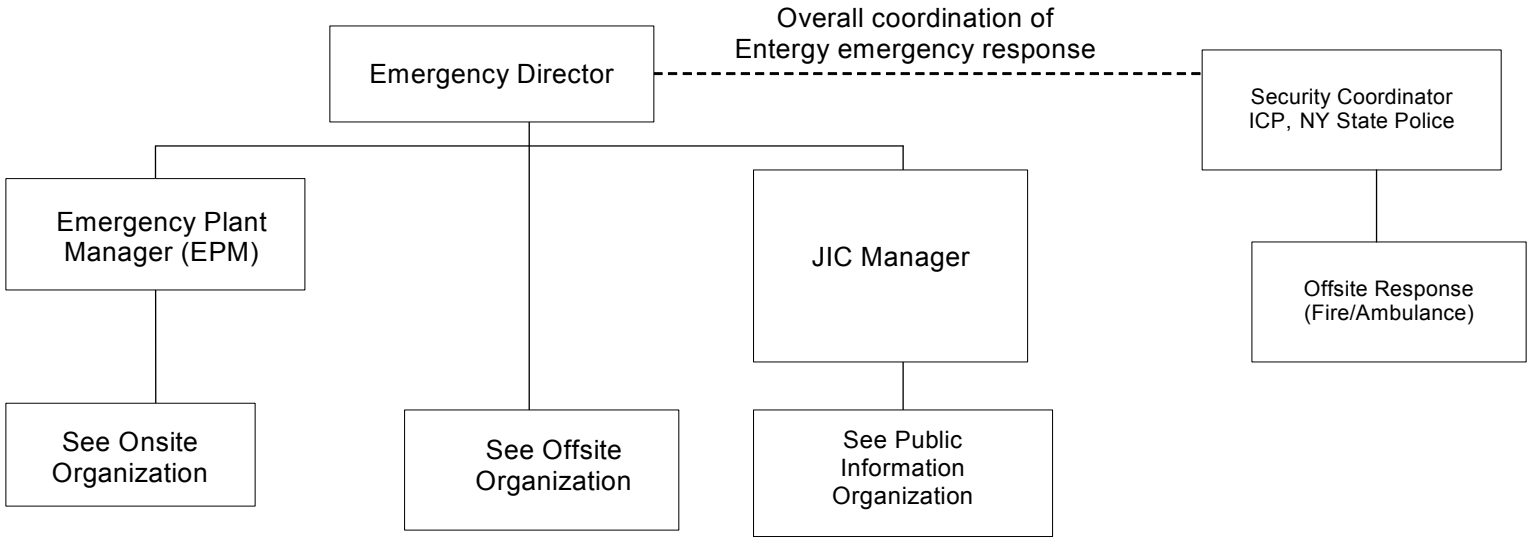
e. Fire

Offsite firefighting support is provided by the Verplanck, Buchanan, and/or Montrose Fire Departments, as resources permit, with mutual aid backup from other fire departments. Mutual aid for fire response, fire apparatus, and firefighter resources is described in the Westchester County Fire Mutual Aid Plan.




[a] This RP Technician would assist at affected unit if needed

## Figure B-1.2a Emergency Response Organization – Major Areas



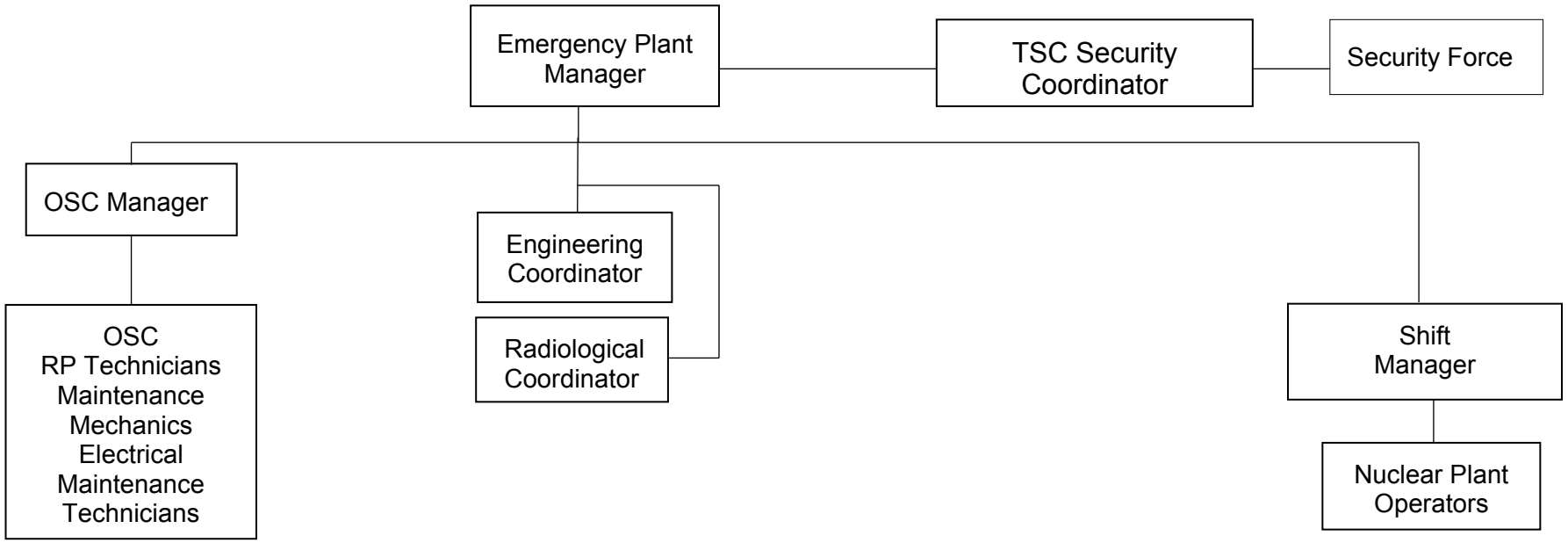

- Overall coordination of onsite response
- Safety of onsite personnel
- Advise ED on plant status, radiological conditions and plant related EALs
- Security Interface

- 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

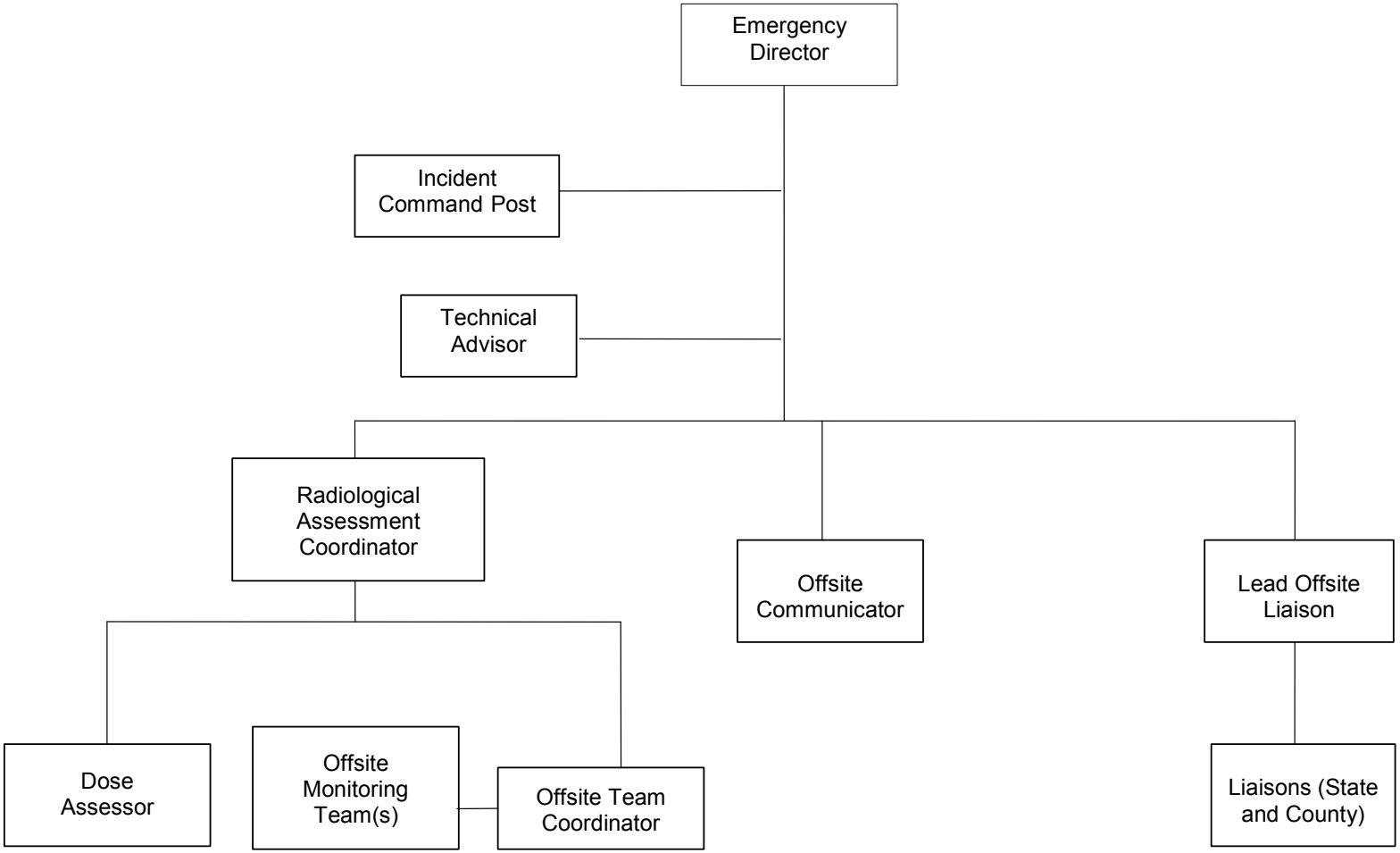
- Overall coordination of Entergy Public Information response
- Act as representative to the media
- Keep ED informed of any Public Information concerns

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

## Figure B-1.2b Emergency Response Organization – Onsite



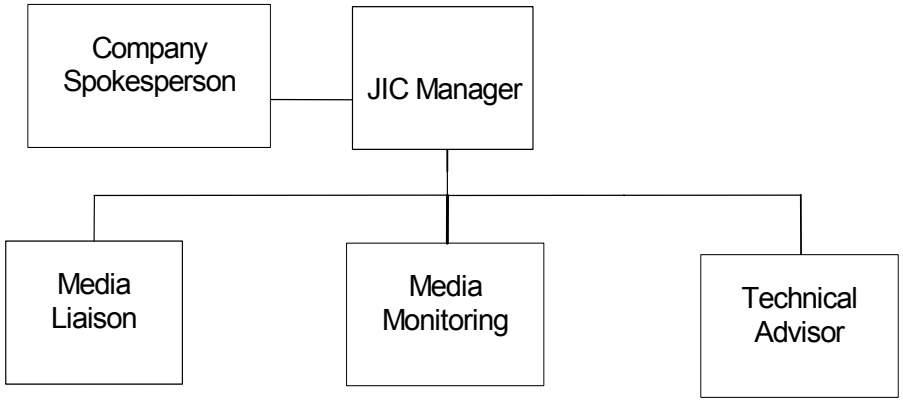
## Figure B-1.2c Emergency Response Organization – EOF






TBD

## Figure B-1.2d Emergency Response Organization – Public Information




**Initial Response:**

Company Spokesperson

## Figure B-1.3 Normal Station Organization

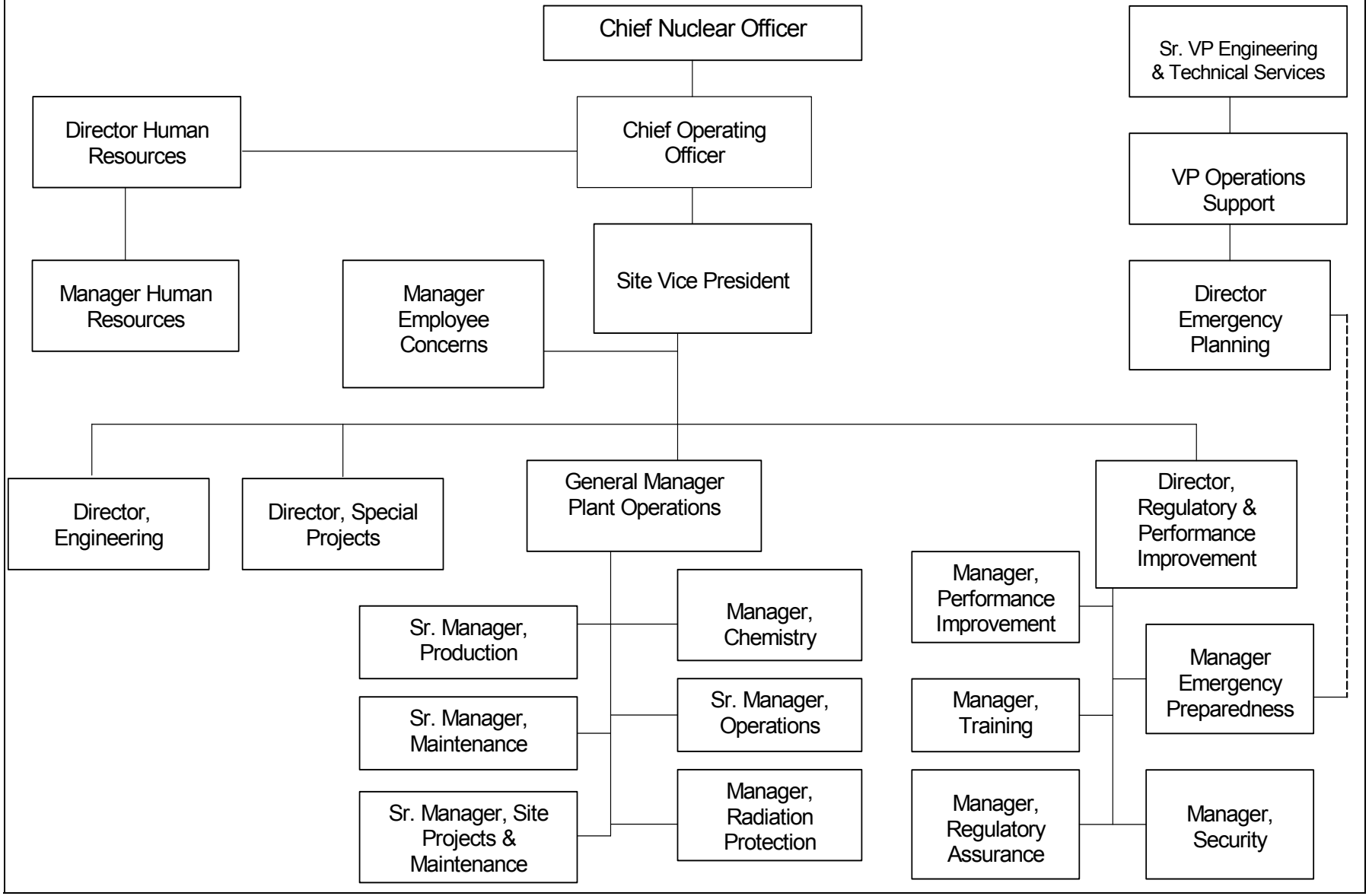


TABLE B – 1 Comparison of NUREG – 0654 to Indian Point Energy Center

| 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 U 2 | On Shift U 3 | On Shift U 1 | 60 Min. | [1] [2] |
| **Plant Operations and Assessment** | | | | | | | | | | |
| 1 | Shift Supervisor (SRO) | 1 | -- | -- | Shift Manager | 1 | 1 | 0 | -- | |
| 2 | Shift Foreman (SRO) | 1 | -- | -- | Control Room Supervisor | 0 | 0 | 0 | -- | |
| 3 | Control Room Operators | 2 | -- | -- | Reactor Operators or Field Support Supervisor | 0 | 0 | 0 | -- | [3] |
| 4 | Auxiliary Operators | 2 | -- | -- | Nuclear Plant Operators | 1 | 1 | 0 | -- | [12] |
| **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 | 1 | 0 | -- | [4] [10] |
| **Notification / Communication** | | | | | **Communicator** | | | | | |
| 6 | Communicator – notify licensee, State, Local and Federal personnel and maintain communication | 1 | 1 | 2 | Qualified individual provides notifications for both units | ** | | | -- | [5] |
| | | | | | Offsite Communicator plus | | | | 1 | |
| | | | | | Offsite Team Coordinator | | | | 1 | |
| **Radiological Accident Assessment and Support of Operational Accident Assessment** | | | | | | | | | | |
| 7 | Senior Manager – EOF Director | | | 1 | Emergency Director | -- | | | 1 | |
| 8 | Senior Health Physics (HP) Expertise – Offsite Dose Assessment | -- | 1 | -- | Radiological Assessment Coordinator | -- | | | 1 | |

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

| NUREG – 0654 | | | | | Indian Point Energy Center<br>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. | [1]<br>[2] |
| 9 | Offsite Surveys | -- | 2 | 2 | Two Teams of Field Monitors | -- | | | 4 | [6] |
| 10 | Onsite (out-of-plant) Surveys | -- | 1 | 1 | RP Technicians | -- | | | 1 | |
| 11 | RP Technicians | 1 | 1 | 1 | RP Technicians | 1 | 1 | 0 | 1 | [11] |
| 12 | Rad / Chem Technicians | 1 | -- | 1 | RP Technicians | 1 | 1 | 0 | 0 | [10] |
| **Plant System Engineering, Repair and Corrective Action** | | | | | | | | | | |
| 13 | Shift Technical Advisor | 1 | -- | -- | Field Support Supervisor or Shift Technical Advisor | 0 | 0 | 0 | -- | |
| 14 | Core / Thermal Hydraulics | -- | 1 | -- | Reactor Engineer | -- | | | 0 | |
| 15 | Electrical | -- | -- | 1 | Electrical Engineer | -- | | | 1 | [13] |
| 16 | Mechanical | -- | -- | 1 | Mechanical Engineer | -- | | | 1 | [13] |
| 17 | Mechanical Maintenance / Radwaste Operator | 1<br>-- | --<br>-- | 1<br>1 | Mechanical Maintenance | 1 | 0 | | 1 | [7]<br>[10] |
| 18 | Electrical Maintenance | 1 | 1 | 1 | Electrical Maintenance | 0 | 1 | | 1 | [8]<br>[10] |
| 19 | Instrument & Control Technician | -- | 1 | -- | Instrument & Control Technician | -- | | | 0 | |
| **Protective Actions (In-Plant)** | | | | | | | | | | |
| 20 | RP Technicians | 2 | 2 | 2 | RP Technicians or other qualified personnel | 2 | | | 1 | [9]<br>[10] |

| **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.** | [1] [2] |
| **Fire Fighting** | | | | | | | | | |
| 21 | Fire Brigade | Fire Brigade per TS | Local Support | | Fire Brigade | -- | | Local Support | [12] |
| **Rescue Operations and First Aid** | | | | | | | | | |
| 22 | Rescue – First Aid | 2 | Local Support | | Rescue – First Aid | 2 | | Local Support | [10] |
| **Site Access Control and Personnel Accountability** | | | | | | | | | |
| 23 | Security Personnel | Per Security Plan | | | Security Personnel | Per Security Plan | | | |
| **Totals** | | 10 | 11 | 15 | | 3 | 3 | 0 | 14 |

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

(b) On-shift staffing is in accord with guidance of NRC's NSIR/DPR-ISG-01 Interim Staff Guidance and NEI 10-05 Assessment of On-Shift Emergency Response Organization Staffing and Capabilities.

** This is not an additional on-shift individual. This function can be performed by any on-shift position qualified as a Communicator. Once designated, the individual will have no other assigned responsibilities.

**Note:**

[1] For Emergency Response Organization purposes resources may be shared between units.

[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 Nuclear Plant Operators.

[4] The Emergency Coordinator (Emergency Director) position is initially filled by the Shift Manager. He is relieved of this duty by the EOF Emergency Director who is a one-hour responder.

[5] IPEC has a designated Offsite Communicator in the EOF as a required one-hour responder. The additional communicator is filled by the 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. One additional maintenance mechanic who is a one hour responder 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. One additional electrical maintenance mechanic who is a one-hour responder 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. One additional RP Technician or other qualified personnel is required as a one-hour responder.

[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

[12] The Fire Brigade is staffed per the Fire Protection Program Plan.

[13] Function will be performed by the TSC Engineering Coordinator, who is a one-hour responder.

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Control Room (CR)** | | |
| Shift Manager | EPM | Acts as ED until relieved. |
| Nuclear Plant Operator (NPO)[s] (Nuclear, Conventional, Roving) | Shift Manager | Operates equipment outside the control room, minor maintenance |
| Offsite (CCR) Communicator (as directed by the Shift Manager) | Shift Manager | Communications with outside organizations |
| Watch Radiation Protection (RP) Technician (OSC when activated) | Shift Manager | Provide RP support as needed, rad monitoring, decon and surveillance<br>Provide chemistry support as needed, water chemistry |
| **Command Guard House (CGH)** | | |
| Security Shift Supervisor (SSS) | Shift Manager | 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. |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Emergency Operations Facility (EOF)** | | |
| Emergency Director (ED) | | Overall Direction of Entergy Emergency Response<br>Manages Entergy Offsite response activities |
| Technical Advisor | ED | Provide technical advice to ED and track EALs<br>Coordinate Entergy corporate support to the onsite Emergency Response Organization and provide logistics support to ERO<br>Provide technical expertise to JIC<br>Communicates with other ERFs |
| Radiological Assessment Coordinator | ED | 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 |
| Offsite Communicator | ED | Communicate with offsite emergency organizations |
| Lead Offsite Liaison | ED | 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. |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Function |
|---|---|---|
| **Operations Support Center (OSC)** | | |
| Operations Support Center (OSC) Manager | EPM | Manages repair and assessment activities of team sent into the plant.<br>Assemble, brief, dispatch, track and debrief OSC teams sent out from the OSC<br>Coordinate Maintenance activities<br>Coordinate I&C activities<br>Coordinate Operations support to the CCR |
| Radiation Protection Technicians | TSC Radiological Coordinator | Perform radiological surveys, sampling and analysis as needed, provide RP coverage for OSC operations<br>Perform chemistry sampling and analysis as needed, assist in OSC operations |
| Maintenance Mechanic(s) | OSC Manager | Perform mechanical repairs and assessment activities as needed |
| Electrical Maintenance Technician(s) | OSC Manager | Perform electrical repairs and assessment activities as needed |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major 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.<br>Manage Engineering Assessments |
| Engineering Coordinator | ED | Perform TSC Engineering Assessment Activities<br>Manage technical assessment activities.<br>Perform TSC communications as needed |
| TSC Radiological Coordinator | TSC MGR | Radiological Oversight<br>Coordinate radiological controls inside the Protected Area and assist in coordination of chemistry sampling |
| TSC Security Coordinator | EPM | Direct Physical Security |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Joint Information Center (JIC)** | | |
| Company Spokesperson | JIC Manager | Act as official spokesperson for Entergy, coordinate public information with other Public Information Officers<br>Writes News Releases<br>Interacts with New York State and Counties on information and rumors |
| JIC Manager | ED | Manage operations of the Joint Information Center<br>Maintains access control to the JIC. Ensures distribution of press releases.<br>Maintain facility log on WebEOC. Ensure timeliness of facility briefings. |
| Technical Advisor | JIC Manager | Provide technical expertise to JIC Staff<br>Manages Audio/Visual Operations |

Table B-5 - Emergency Response Organization Functions

| Position / Assigned Location | Reports To | Major Functions |
|---|---|---|
| **Joint Information Center (JIC)** | | |
| Media Monitoring | JIC Manager | Monitor media for rumors and items to be addressed in news releases or media briefings |
| Media Liaison | JIC Manager | Acts as Entergy's interface for media present at the JIC<br>Supports Audio/Video operations. |

## 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 Energy Center 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 Energy Center, 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 Energy Center in the event of an accident are identified in Section A of this plan. If needed, Federal resources are made available to Indian Point Energy Center in an expeditious and timely manner.

   c. Each Indian Point Energy Center 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. A conference/working area has 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 Energy Center 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, Entergy Offsite Liaisons are dispatched to the State and local government EOCs to act as communications liaisons and to provide clarification of emergency response information.

3. Radiological Laboratories

In addition to Indian Point Energy Center's radiological assessment facilities, contracted services may be utilized to analyze inplant and offsite environmental samples. Outside analytical assistance may be requested from State and Federal agencies and other licensees if the offsite radiological monitoring and environmental sampling operation exceeds the capacity of the Indian Point Energy Center 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 the Indian Point Energy Center. The availability of services has been ascertained and agreement letters are listed in Appendix 2.

Additional facilities, organizations and individuals as listed in the Emergency Telephone Directory (ETD), 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 Energy Center 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 ERO. Indian Point Energy Center emergency planning personnel work closely with State and local agencies to ensure consistency in classification schemes and procedural interfaces.

Indian Point Energy Center maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and promptly declares the emergency condition as soon as possible following identification of the appropriate emergency classification level.

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 progress or have occurred, which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site 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.

The Shift Manager/ED will ensure:

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

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 or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of Hostile Action. Any releases are expected to be limited to small fractions of the EPA PAG 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 on plant status and parameters. 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/ED will ensure:

a) Initiation of activation of the ERO 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;

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 in emergency class by verbal discussion with offsite authorities followed by written summary within eight (8) hours of entering recovery after an Alert or higher classified event.

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 Area Emergency indicates events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public, or Hostile Action that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to, equipment needed for protection of the public. Any releases are not

expected to result in exposure levels which exceed EPA PAG exposure levels beyond 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).

The Shift Manager/ED will ensure:

a) Initiation of activation of the ERO 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;

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 involve actual or imminent substantial fuel degradation or melting with potential for significant release or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels beyond the site boundary.

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/ED will ensure:

a) Initiation of activation of the ERO which would staff 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) A recommendation is made, as a minimum, sheltering or evacuation for 2 mile radius and 5 miles downwind and assess need to extend distances; consider advisability of evacuation (projected time available vs. Evacuation Time Estimates);

d) Prompt notification of the NRC (not to exceed one hour);

e) Continued Assessment and response as necessary;

f) Dispatch of field monitoring teams and associated communications;

g) An individual is provided for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities);

h) Senior technical and management staff on-site are made available for consultation with NRC and State on a periodic basis;

i) Meteorological and dose estimates are provided to offsite authorities for actual releases;

j) Release and dose projections based on available plant condition information and foreseeable contingencies are performed and provided to offsite authorities;

k) Accountability process is initiated;

l) 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) Augment resources by activating EOC's and any other primary response centers;

d) Dispatch key emergency personnel including monitoring teams and establish associated communications;

e) Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status;

f) Provide offsite monitoring results to licensee, DOE and others and jointly assess them;

g) Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective actions;

h) Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance;

i) Provide news media briefings, perhaps with a licensee;

j) Maintain General Emergency status until closeout.

**Classification Downgrading**

The Indian Point Energy Center 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 NEI 99-01 REV 5 "Methodology for Development of Emergency Action Levels" were evaluated to establish an emergency classification and emergency action level scheme. NEI 99-01 REV 5 has been accepted by the NRC as an alternative to NUREG-0654-REV 1.

This classification scheme is presented in six 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 Plan Implementing Procedures. The Emergency Action Levels (EALs) are grouped into six categories to simplify their presentation and promote a rapid understanding by their users. (See Table D-1 for a description of each of the EAL initiating conditions for each EAL category).

These categories are:

(1) Abnormal Rad Release/Rad Effluent

(2) Hazards

(3) ISFSI

(4) Systems

(5) Fission Product Barriers

(6) Cold Shutdown/Refueling System Malfunction

Table D-1, Summary of IPEC EAL Initiating Conditions, provides a description of the initiating conditions associated with the above categories which would cause the Plan to be implemented. Detailed emergency action levels are provided in a Plan Implementing Procedure and an associated EAL Technical Bases Administrative Procedure. It is important to note that some EALs in the NRC-approved EAL scheme are not possible in the permanently shut down and defueled condition.

3. Offsite Classification Systems:

Indian Point Energy Center 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 Energy Center 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 Energy Center accounting for local offsite conditions that exist at the time of the emergency.

## Table D-1

## SUMMARY OF IPEC EAL INITIATING CONDITIONS

**Category A – Abnormal Radiation Levels/Radiological Effluent**

This category encompasses the spectrum of potential uncontrolled radionuclide releases via liquid or gaseous effluents for all modes of operation. It also includes other incidents related to high levels of radioactivity, but which may not result in a release to the environment. Potential sources of radionuclide releases are from the Primary Auxiliary Building (PAB), Vapor Containment (VC) and Fuel Storage Building (FSB). Appropriate monitoring is provided for potential gaseous and liquid release paths. The ICs within this category are keyed to Radiation Monitoring System (RMS) indications, radiological survey results and offsite dose assessment calculations.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any release of gaseous or liquid radioactivity to the environment > 2 times the radiological effluent ODCM limits for ≥ 60 minutes.

2. Unplanned rise in plant radiation levels.

ALERT

1. Any release of gaseous or liquid radioactivity to the environment that exceeds significant multiples of the Offsite Dose Calculation Manual (ODCM) limits for 15 minutes or longer.

2. Damage to irradiated fuel or loss of water level that has or will result in the uncovering of irradiated fuel outside the reactor vessel

3. Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions.

SITE AREA EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release.

GENERAL EMERGENCY

1. Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 1,000 mRem TEDE or 5,000 mRem thyroid CDE for the actual or projected duration of the release using actual meteorology

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards**

This category encompasses the spectrum of man-caused or non-naturally occurring hazards that jeopardize the level of safety of the plant in all modes of operation. The ICs are keyed to offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of naturally occurring events that jeopardize the level of safety of the plant. The ICs are keyed to specific instrument indications, offsite notifications or personal observation and assessment.

This category also encompasses the spectrum of security infractions as addressed in the Security Contingency Plan. The ICs are keyed to notification from the security force or another credible source of a site specific credible threat.

This category is the location for the miscellaneous ICs that are provided to allow for Emergency Director judgment classifications.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Confirmed security condition or threat which indicates a potential degradation in the level of safety of the plant.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Unusual Event.

3. Fire within the Protected Area not extinguished within 15 minutes of detection or explosion within the Protected Area.
4. Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to normal plant operations.

5. Natural or destructive phenomena affecting the Protected Area.

ALERT

1. Hostile Action within the Owner Controlled Area or airborne attack threat.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY H - Hazards and Other Conditions Affecting Plant Safety (Cont'd)**

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert.

3. Control Room evacuation has been initiated.

4. Fire or Explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown.

5. Access to a vital area is prohibited due to release of toxic, corrosive, asphyxiant or flammable gases which jeopardizes operation of systems required to maintain safe operations or safely shutdown the reactor

6. Natural or destructive phenomena affecting Vital Areas.

SITE AREA EMERGENCY

1. Hostile Action within the Protected Area.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency.

3. Control Room evacuation has been initiated and plant control cannot be established.

GENERAL EMERGENCY

1. Hostile Action resulting in loss of physical control of the facility.

2. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY E – ISFSI Malfunction**

This category addresses events of sufficient magnitude that a loaded spent fuel dry cask storage confinement boundary is damaged or violated.

UNUSUAL EVENT

1. Damage to a loaded cask confinement boundary.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the power operations, startup, hot standby and hot shutdown operating modes. In general, the ICs relate to equipment or system malfunctions or failures. The ICs include RCS leakage, loss of Control Room instrument indications and failure of the Reactor Protection System as well as those events dealing with power losses. This category also includes inadvertent criticality and loss of decay heat removal capability ICs.

NOTE:

Category S EALs are not possible in the permanently shut down and defueled condition.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

3. Loss of all offsite AC power to emergency buses for 15 minutes or longer.

4. Unplanned loss of safety system annunciation or indication in the control room for 15 minutes or longer.

5. RCS Leakage.

4. Loss of all onsite or offsite communications capabilities.

5. Fuel clad degradation.

6. Inadvertent criticality.

7. Inability to reach required shutdown within Technical Specification limits

ALERT

1. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguard buses.

2. Automatic trip fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY S – System Malfunction (Continued)**

3. Unplanned loss of safety system annunciation or indication in the control room with either (1) a significant transient in progress, or (2) compensatory indicators unavailable.

SITE AREA EMERGENCY

1. Loss of all offsite power and loss of all onsite AC power to safeguards buses for 15 minutes or longer.

2. Automatic trip fails to shut down the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor

3. Loss of all vital DC power for 15 minutes or longer.

4. Inability to monitor a significant transient in progress.

GENERAL EMERGENCY

1. Prolonged loss of all offsite and all onsite AC power to safeguards buses.

2. Automatic trip and all manual actions fail to shut down the reactor and indication of an extreme challenge to the ability to cool the core exists

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY F – Fission Product Barrier Degradation**

This category addresses losses and potential losses of the three fission product barriers – fuel clad, RCS and containment. The category is designed for events in the power operations, startup, hot standby and hot shutdown modes of operation.

| NOTE: |
| --- |
| Category F EALs are not possible in the permanently shut down and defueled condition. |

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. Any loss or any potential loss of Containment.

ALERT

1. Any loss or any potential loss of either Fuel Clad or RCS

SITE AREA EMERGENCY

1. Loss or potential loss of any two barriers.

GENERAL EMERGENCY

1. Loss of any two barriers and loss or potential loss of the third barrier.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction**

This category encompasses the spectrum of events related to the reactor and its supporting systems that may occur in the shutdown and refueling modes. These include RCS leakage and loss of reactor vessel inventory events as well as those events dealing with power losses.

This category also encompasses events that directly affect the integrity of the reactor core when in cold shutdown or refueling. This includes inadvertent criticality and loss of decay heat removal capability.

The initiating conditions within this category are as follows:

UNUSUAL EVENT

1. RCS leakage.

2. Unplanned loss of reactor vessel inventory.

3. Unplanned loss of decay heat removal capability with irradiated fuel in the reactor vessel.

4. AC power capability to safeguards buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in loss of all AC power to safeguards buses

5. Loss of required DC power for 15 minutes or longer

6. Inadvertent criticality.

7. Loss of all onsite or offsite communications capabilities.

ALERT

1. Loss of reactor vessel inventory.

2. Inability to maintain plant in cold shutdown.

3. Loss of all offsite and all onsite AC power to safeguards buses for 15 minutes or longer.

**TABLE D-1 (Continued)**
**SUMMARY OF IPEC EAL INITIATING CONDITIONS**

**CATEGORY C – Cold Shutdown/Refueling System Malfunction (Cont'd)**

SITE AREA EMERGENCY

1. Loss of reactor vessel inventory affecting core decay heat removal capability.

GENERAL EMERGENCY

1. Loss of reactor vessel inventory affecting fuel clad integrity with Containment challenged.

## 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 Energy Center 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 Energy Center, 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 if any Unusual Event threshold listed in Section D (Table D-1) is met or exceeded.

      2) Depending on the particular circumstances of the situation, the Control Room personnel 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) 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, an electronic notification system or alternate methods. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the

Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) Immediate Notification (within 15 minutes) of an Unusual Event is made by the Shift Manager or 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.

5) The Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) phone or commercial phone lines.

6) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

7) 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 in the event an Alert threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room personnel initiating the site assembly alarm and/or via public address announcements. In addition, the affected unit's Control Room personnel 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 or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification 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 Alert is made by the Shift Manager or 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) or commercial phone lines.

7) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

8) If there is a radiological release involved with the event, the Shift Manager/ED or designee will provide information on the release to the offsite authorities.

9) Close out 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 in the event a Site Area Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

2) Notification of site personnel is accomplished by the Control Room personnel 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 affected unit's Control Room personnel also contact the unaffected unit's Control Room personnel.

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, or electronic notification system. During off-hours, individuals can be contacted at their homes by telephone or electronic notification system. ERO member telephone numbers are in the Emergency Telephone Directory available in the Control Rooms and Emergency Response Facilities.

4) Individuals from Corporate Headquarters are notified by phone or other electronic notification system.

5) Immediate Notification (within 15 minutes) of a Site Area Emergency is made by the Shift Manager/ED or 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) Nuclear Regulatory Commission's Operations Center is notified using the Emergency Notification System (ENS) 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/ED or designee shall provide information on the release to the offsite authorities.

9) Close out 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 in the event a General Emergency threshold listed in Section D (Table D-1) is met or exceeded. If the EOF is Operational, this function would be performed by the ED.

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 ERO are notified and can 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 ERO positions and related facilities is required. Based on the event, the ED 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, electronic notification system or alternate methods are used to notify the ERO.

**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 an electronic notification system and/or phone calls. 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 local 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 local authorities are responsible for the process of notification of their personnel and 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;

f) recommended protective measures if necessary;

g) the date and time of classification and notification.

In a General Emergency, the notification includes, at a minimum, a recommendation for sheltering or evacuation of the general public within the two (2) mile radius of Indian Point Energy Center and five (5) miles downwind, and implement the NY State KI plan. All remaining areas should monitor the Emergency Alert System (EAS).

4. Follow-up Messages:

The ED 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 Energy Center personnel, have established a system for disseminating appropriate information to the public. The system includes notification through appropriate broadcast media, e.g. the Emergency Alert 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 supplemented with individual alerting devices for residences and special facilities in EPZ areas where acoustic coverage is reduced.

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.

Tone Alert Radios are distributed within the 10-mile EPZ to supplement siren alerting for residents and special facilities in EPZ areas where acoustic coverage is reduced or when requested. On an annual basis, guidance is provided on the use and testing of the tone alert radios.

Given that automated dialing is an accepted method that can be selected to provide primary alerting in accordance with FEMA-REP-10 guidance in consultation with New York State, Westchester, Rockland, Orange and Putnam Counties, the plan is to use "*automated dialing*" capability as the back-up method of alert and notification in the case of a siren failure.

7. Messages to the Public:

The State has developed draft messages for the Emergency Alert 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 licensee, 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 (IPEC) ERO. It outlines the available communications equipment to:

- Notify the Indian Point ERO
- Provide Initial Notification to 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 Energy Center.

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 Systems**

   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 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. These systems are used to call personnel and announce emergencies in the Indian Point Energy Center Protected Area(s).

   In the event the Public Address Systems are 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 (EOF), Technical Support Center (TSC), Operations Support Center (OSC), Joint Information Center (JIC), Incident Command Post (ICP), Corporate Headquarters, Alternate Emergency Operations Facility (AEOF) and Alternative Technical Support Center / Operational Support Center (Alternative TSC/OSC).

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 Energy Center 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 operation of this system and their respective organization responses.

Figure F-1.1 depicts RECS.

- Dedicated 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 ED 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.

**Electronic Notification System**

A commercial electronic notification service is used for contacting personnel at the start of an emergency. When activated by station personnel, the notification service transmits a message via various communications pathways to all ERO personnel to report to their assigned ERO facilities.

**Computer Systems**

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 ERO are in place.

a. The Nuclear Regulatory Commission is Indian Point's primary point of contact for communications with the Federal ERO. (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 Energy Center.
c. Section E.2 describes the provisions for alerting and activating the ERO.
d. Procedures are in place for the ERO to continuously provide information to the NRC as requested.

**Medical Communications**:

Indian Point Energy Center establishes communications with the primary medical supplier, New York-Presbyterian/Hudson Valley Hospital, Peekskill/Cortlandt, and if needed the backup hospital, Phelps Memorial Hospital Center, Sleepy Hollow, via commercial telephone that is accessed by station personnel either via commercial onsite telephone or by an Indian Point Energy Center 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 Energy Center or transporting personnel from the Station.

**Communications Drills and Testing:**

Communications drills between Indian Point Energy Center and State and local governments are conducted in accordance with criteria contained in Section N.2. Also, Indian Point Energy Center 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.

Figure F-1.1 Radiological Emergency Communications System

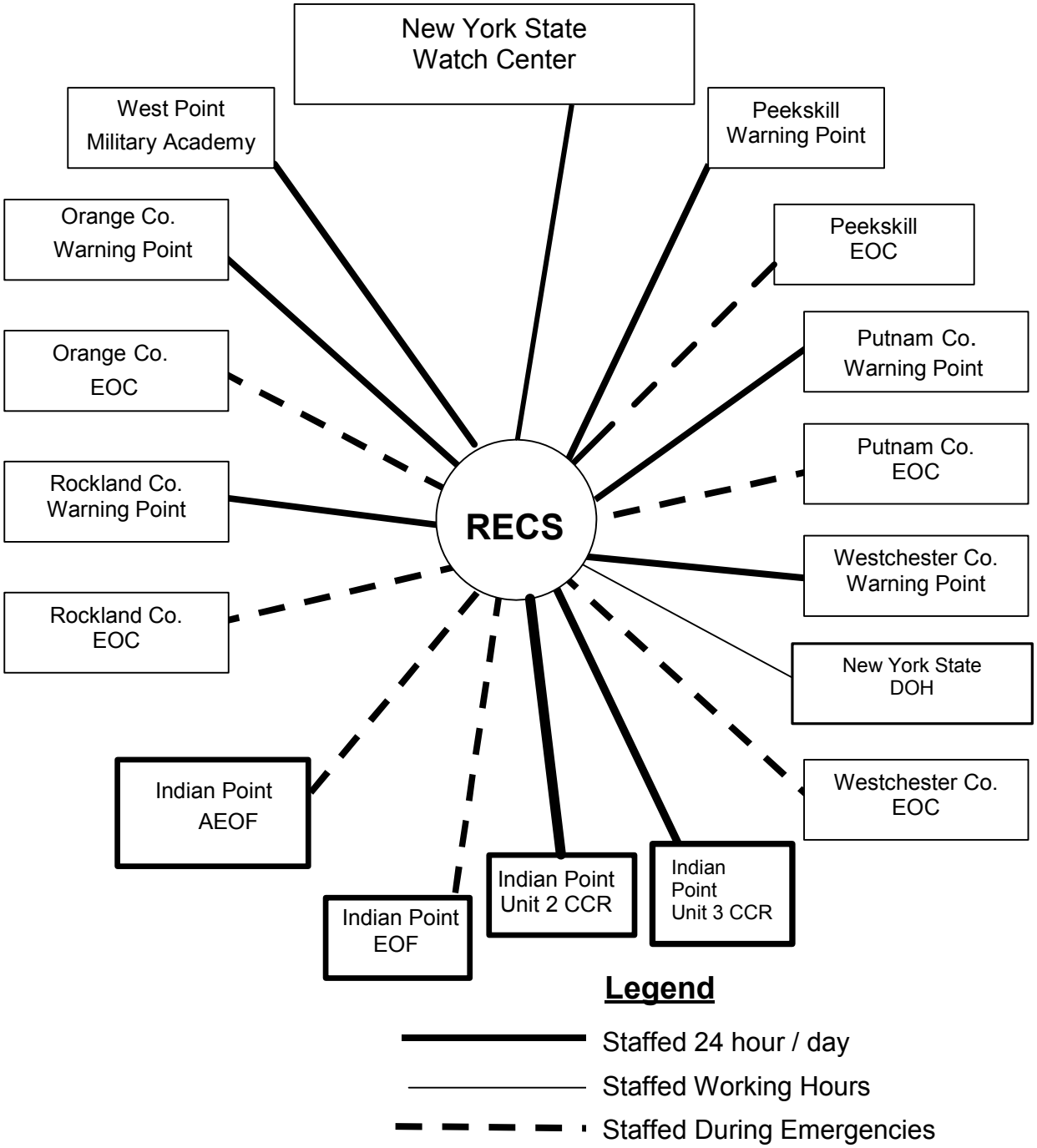


Figure F-1.2 Local Government Radio System

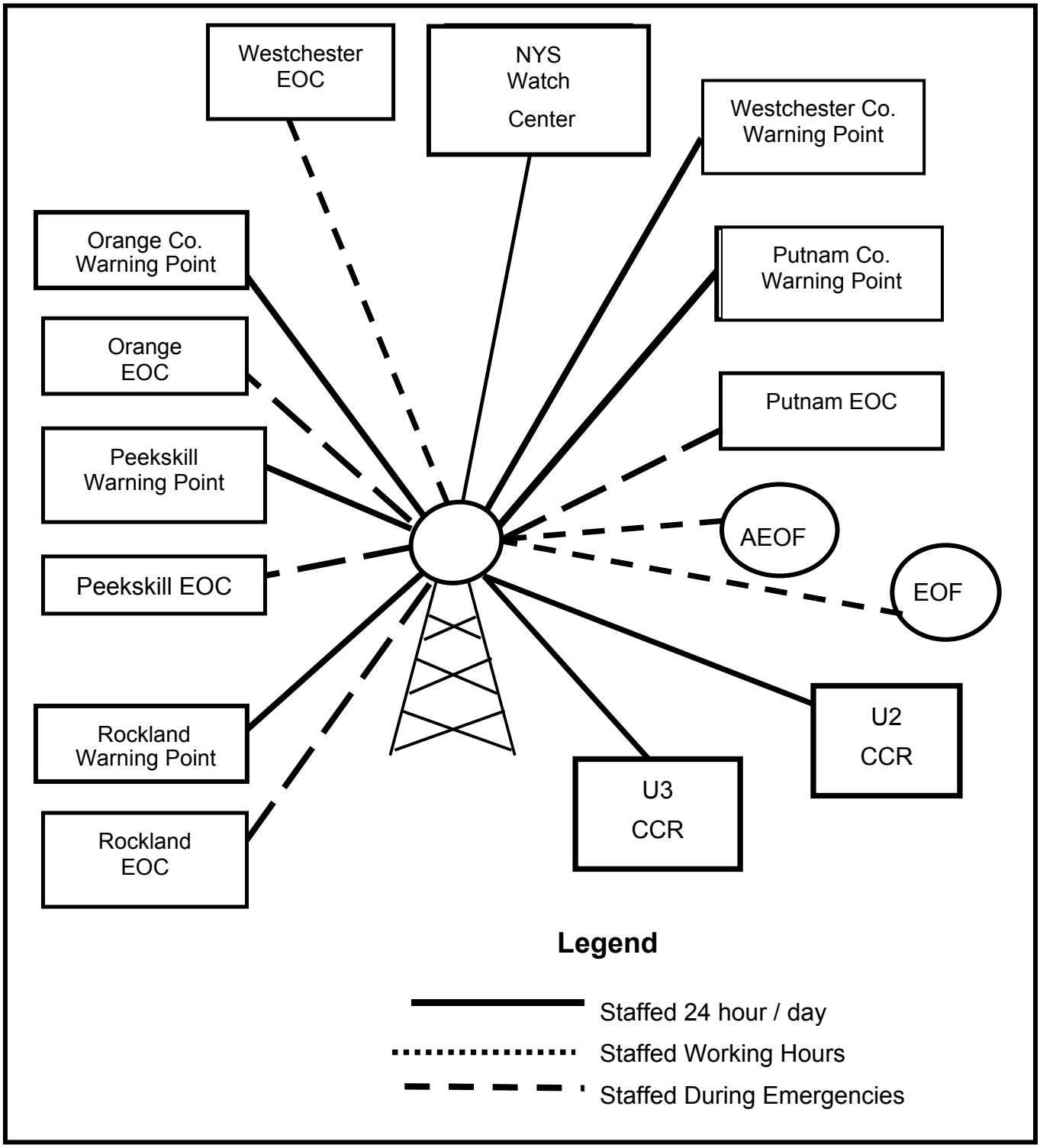
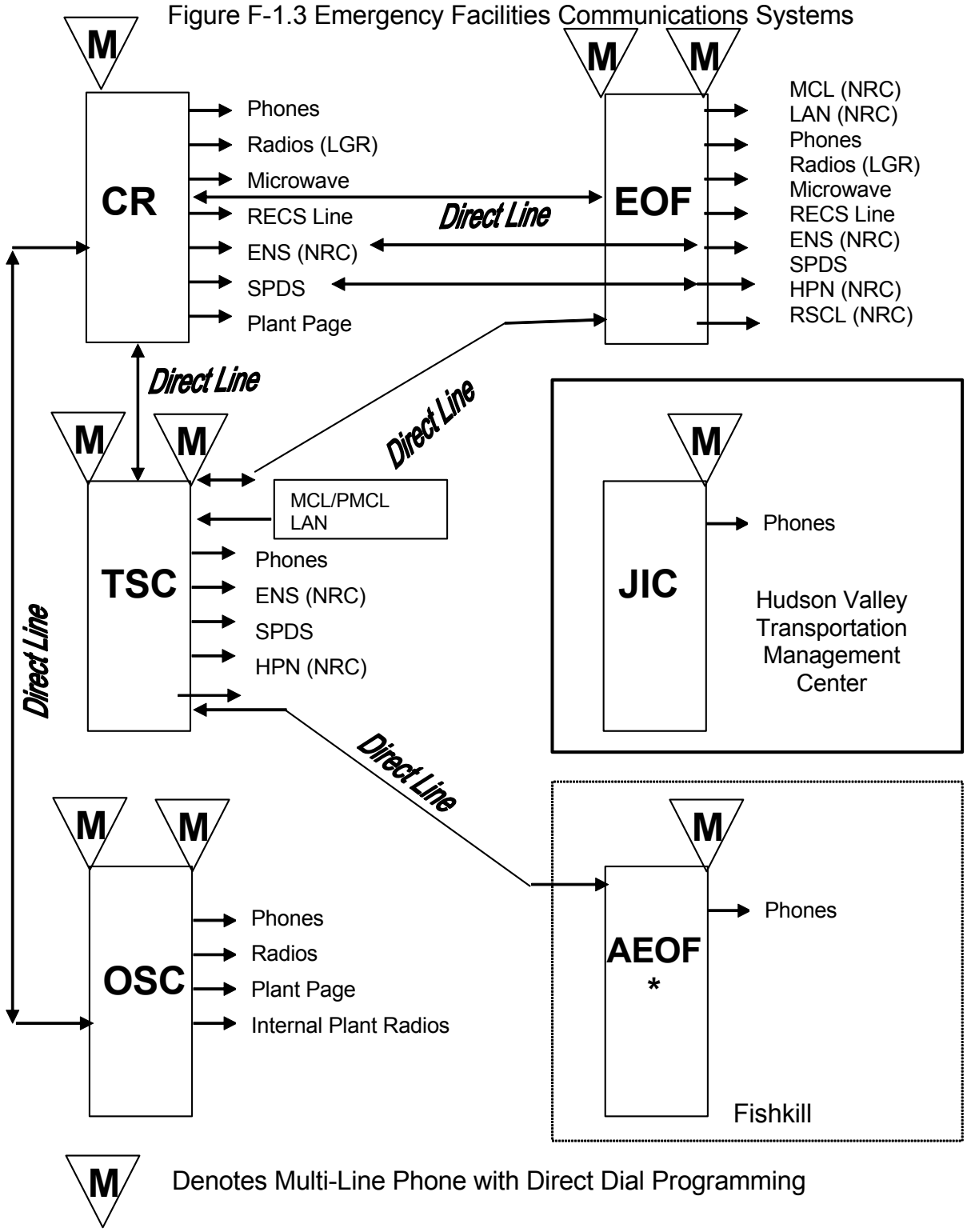


Figure F-1.3 Emergency Facilities Communications Systems




M Denotes Multi-Line Phone with Direct Dial Programming

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

## 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 (EPZ).

   County-specific emergency planning educational booklets are provided to the public. The booklets contain public safety information about emergencies at Indian Point Energy Center 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 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.

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. Press releases are reviewed by appropriate law enforcement agencies during hostile action events.

c. Call Centers respond to public inquiries. Entergy, NYS, and each county respond to 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 Energy Center.

## 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 Plan are distributed among the functions of the following Emergency Response Facilities (ERF):

- Control Rooms (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)
- Alternative Technical Support Center / Operations Support 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. The Shift Manager makes the initial declaration and classification of an emergency and on-shift personnel perform activities of other Emergency Response Facilities until those facilities are operational. Manipulations of plant equipment to mitigate the consequences of an accident and restore safe conditions, however, remain as the primary function of the CR.

   Once the entire ERO is operational, if required, 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 another qualified ED located in the EOF. Meteorological, plant parameter, offsite radiation monitor, 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.

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 personnel in the Control Room (CR) and
- Information on plant events and conditions, including plant parameter data, to the ED in the EOF.

The TSC is operational with minimum staff within 60 minutes after a declaration of an Alert, SAE, or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the TSC.

The Emergency Plant Manager directs and coordinates activities in the TSC. Plant parameter data is available for accident 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, and NRC Conference/workspace. The Ventilation System assures that the General Design 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 Shift Manager 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 and teams dispatched to the field.
- 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 with minimum staff within 60 minutes after a declaration of an Alert, SAE or GE. Activation of the ERO at an NUE is discretionary. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the OSC.

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

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

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

In the event the OSC becomes uninhabitable, Plan 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 Facility Gate on Broadway. Functions performed at the EOF include:

- Overall management of the Indian Point Energy Center 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 EPZ;
- Coordination with Federal, New York State and local government;
- Radiological exposure control for the individuals on-site outside of the Protected Area.

The EOF is operational with minimum staff within 60 minutes of a declaration of an Alert, SAE or GE. Activation of the ERO at a NUE is discretionary. In declaring the facility operational, the manager should consider that the staff is appropriate to the need, that the equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the EOF. Accommodations are available for Federal, State and local government representatives.

The ED 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 facility. 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.

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 2nd floor of 60 Merritt Boulevard, Fishkill, NY. Procedures, staff, accommodations, equipment, services and supplies for the AEOF are similar to those for the EOF including the capability to perform offsite notifications.

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 ED and the Indian Point ERO 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 with minimum staff within 2 hours after a declaration of an Alert, SAE or GE. In declaring the facility operational the manager should consider that the staff is appropriate to the need, that equipment is set up and that the facility is available to assume/perform the emergency functions assigned to the JIC.

4. Alternative TSC/OSC

The Alternative TSC/OSC has communication capabilities for contacting the Control Room, plant security, EOF, and the AEOF, is available to serve as a staging area for augmented emergency response staff if the site is under threat of or experiencing hostile action. The Alternative TSC/OSC also has the capability for engineering assessment activities.

5. 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 Training and Operations Center, Carmel, NY |
| Rockland County | Fire Training Center, Pomona, NY |
| Westchester County | Transportation Management Center, Hawthorne, NY |
| NY State | Public Safety Building<br>State Campus Building #22, Albany, NY |

6. 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 then declared operational when facility managers determine they can perform required functions based on minimum 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.

If the site is under threat of or experiencing hostile action 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 alternate facility. TSC/OSC/CR staffs will provide any possible assistance from this offsite staging area until such time as site access is restored.

7. 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 Energy Center Site 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 digital 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.

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 ERO.

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.

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.

8. <u>Offsite Emergency Data Acquisition</u>

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. Government agencies and other technical data resources are available to the Indian Point Energy Center staff regarding seismic monitoring of the Indian Point Energy Center vicinity.

c. Backup radiological monitoring equipment and assistance can be obtained from other utilities or the Department of Energy's Brookhaven Area Office. Letters of agreement for these services are referenced in Appendix 2 of this plan.

d. Environmental sample preparation and counting are available through the use of an offsite laboratory. The offsite laboratory contract is available through the Indian Point Energy Center contracts department.

9. Facilities and Equipment for Offsite Monitoring

a. Survey Vehicles

Indian Point Energy Center 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 $1 \times 10^{-7}$ µCi/cc), and personnel dosimeters are available for offsite monitoring. A more detailed list of equipment is available in the Plan Implementing Procedures.

During an emergency, the survey vehicles are sent to pre-selected locations within the EPZ. 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 the 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). The information from these systems is 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. Data from these fixed field measurement sites may be used to verify the travel path of a radiological release and to estimate whole body exposure rates offsite.

10. Meteorological Monitoring

The meteorological system at the Indian Point Energy Center 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 Energy Center 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.

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 (sigma-theta) 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 (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.8.

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

11. 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 or by another qualified calibration service 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.

12. 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 emergency supplies.

13. Collection and Analysis of Field Monitoring Data

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-Contamination 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, Joint Information 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 Joint Information Center provides interface with the public. 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 on-shift staff 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.

Alert

For emergency situations that are classified as Alerts, the Shift Manager/ED 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, acting as the ED at the start of the emergency, and the on call ED after taking over control at the Emergency Operations Facility, will continually direct assessment of plant conditions 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/ED evaluates information available in the Control Room regarding radiation monitor readings, nuclear and process instrumentation readings, and the status of safeguards equipment, if applicable.

An immediate assessment of the projected exposure to the offsite populace is made by using Dose Assessment Computer Programs or by using an Implementing 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:

Area radiation monitor R-5 (Fuel Storage Building Area Monitor) indicates radioactivity in the Fuel Storage Building.

- The release rate is determined from the Plant Vent Monitor. 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 Implementing 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 program or Implementing 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.
- 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.

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

ED. 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 ED transmits updated assessment information to the New York State Office of Emergency Management and to 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 Offsite Dose Calculation Manual (ODCM) is utilized to determine the extent of contamination.

Radiological assessment personnel in accordance with an Implementing 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 10-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 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 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

      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 Energy Center 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 computer programs that display the projected whole body and child thyroid exposures to the populace in the plume exposure pathway.

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 Process Monitors.

   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 computer programs.

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. The computer software also has the capability of performing multiple accident dose assessment involving simultaneous releases from one or both of the Indian Point Energy Center units. Dose projections may also be performed without the use of a computer through a series of hand calculations. Indian Point Energy Center 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.

5. Meteorological Information:

Meteorological data is available from the station meteorological tower. The data available includes wind speed, wind direction, stability class (Pasquill). This data is utilized by the licensee, locals, State and other Federal Agencies to provide near real-time predictions of the atmospheric effluent transport and diffusion. Section H.10 provides more details on the Meteorological Monitoring System.

6. Unmonitored Release:

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 the use of actual sample data and/or field monitor team readings.

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 sectors around the Indian Point Energy Center 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 local 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 Energy Center.

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 Energy Center Site. Large-scale maps showing the locations are in the Control Room and Emergency Operations Facility (EOF) or AEOF, for use by the ED. Readings taken by these teams are relayed back to the site via radio or phone communications.

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. <u>Iodine Monitoring:</u>

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. <u>Dose Estimates:</u>

Specific Implementing 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 licensee 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 Owner Controlled Area (OCA) badged personnel are notified of an emergency by 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 persons within the site Protected Area from the Control Rooms. Personnel 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/ ED 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/ED. 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 Energy Center.

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 area is the Indian Point Energy Center Generation Support Building (GSB) and the Energy Education Center (EEC). The Indian Point Energy Center Training Center serves as the back-up assembly area and may be used during periods of high volume, such as an outage. Personnel assigned emergency response functions respond to their assigned emergency facilities.

   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 and IPEC Training Building) are within the range of the plant paging system.

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

5. Accountability:

   At the declaration of an Alert, all non-essential 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 identified within 30 minutes of a declared emergency. 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 Security. The results are forwarded to the Emergency Plant Manager and/or ED.

   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.

6. Provisions for Onsite Personnel:

   The station maintains an inventory of respiratory protection equipment, anti-contamination clothing, and a supply of KI that is made available to emergency workers remaining onsite should conditions warrant.

   a. 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.

   b. 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.

   c. 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 KI may be authorized only by the ED or by the Emergency Plant Manager.

   d. Precautions shall be taken to prevent the contamination of drinking water and food supplies by using bottled water and packaged foods.

   e. A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to maintain SFP cooling and inventory, and perform the functions of the emergency plan.

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" and NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 3, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Guidance for Protective Action Strategies”.

   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 ED makes protective action recommendations.

   Recommendations issued by Indian Point Energy Center 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 monitor EAS messages for further direction. The Indian Point Entergy Center’s rationale and methodology for plant-based and dose-based protective action recommendations has been coordinated with local and state response organizations as required by NUREG-0654, Supplement 3.

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 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 by state and local organizations 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.

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 decisions by offsite authorities would include several of the above factors as well as the following considerations:

- 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.

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 TEDE may be authorized for members of the ERO. |
| 5 - 10 | Protecting critical infrastructure necessary for public welfare | Lower dose not practicable.<br>Must be authorized on individual bases. |
| 10 - 25 | Lifesaving or protection of large populations | Lower dose not practicable.<br>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.<br>Must be authorized on individual bases. |
| * Limit dose to the lens of the eye and dose to any other organ (including skin and body extremities) to 10CFR20.1201 limits unless higher doses are evaluated and authorized on individual bases. | | |

   Any emergency response action requiring greater exposure than 25 Rem should be limited to only volunteers. Individuals over forty-five years of age are considered first. Females who declare pregnancy are restricted to 10CFR20.1208 limits.

2. Emergency Radiological Control Program:

The Radiological Assessment Coordinator (EOF) and the Radiological Coordinator (TSC)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 critical infrastructure, lifesaving or 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 Radiological Assessment Coordinator (EOF) or Radiological Coordinator (TSC), 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.

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

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 Plan Implementing Procedures and Radiation Protection Procedures.

4. Non-Entergy Personnel Exposure Authorization:

   The responsibility for authorizing non-Entergy emergency workers (i.e. State and local agency emergency workers such as Fire Department, Police or Medical teams sent to the site) to receive exposures in excess of the EPA Emergency Worker Protective Action Guides rests with the respective State and local organizations.

5. Decontamination and First Aid

   a. Normal contamination control limits apply in emergency conditions. However, these limits may be modified by the Radiological 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.

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 New York-Presbyterian/Hudson Valley Hospital (primary), to Phelps Memorial Hospital Center (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 Radiological 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 personnel released from the Protected Area 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 emergency worker personnel monitoring 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 New York-Presbyterian/Hudson Valley Hospital in Cortlandt Manor has agreed to accept patients from the Indian Point Energy Center 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 referenced in Appendix 2.

   The Phelps Memorial Hospital Center, Sleepy Hollow, New York has agreed to serve as the backup hospital. A written agreement is referenced 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, then Radiation Emergency Assistance Center/Training Site (REAC/TS), available 24 hrs/day, would be contacted for guidance. A written agreement is referenced in Appendix 2.

2. Onsite First Aid Capability:

   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.

   First Aid and Decontamination facilities for Units 2 and 3 are located just beyond the Radiation Protection Control Points. These facilities consist of a stainless steel interior with decontamination table, showers and sinks draining into holdup tanks. These facilities contain general first aid equipment and medical supplies for treatment of injuries.

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

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

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 Energy Center 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 District (Fire/Ambulance) that provides 24-hour services. Backup ambulance service is available through a mutual aid system. A written agreement is listed in Appendix 2. The Verplanck Fire District (Fire/Ambulance), or other backup ambulance agency, 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 directs 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.

**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 ED, after consulting with the EOF Technical Advisor, Company Spokesperson, the Emergency Plant Manager and the Shift 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 Unit 2 and 3 SFPs are in a stable condition and long-term cooling is available and adequate. There is no foreseeable danger of losing heat removal capability
- 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.
- At an Alert or higher classification (non-transitory classification), the ERO 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 ERO, 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 SFP cooling and inventory and offsite radioactive releases have occurred, (i.e. for SITE AREA EMERGENCY or GENERAL EMERGENCY classifications) the Indian Point and Corporate Emergency Center 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 Emergency Center Manager reports to the Site Recovery Director and is responsible for:
    - Ensuring adequate corporate support to maintain Indian Point Energy Center (IPEC) units in a safe condition;
    - Overseeing development of corporate recovery issues dealing with support of the site;
    - 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.

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 ERO 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 ERO 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 Energy Center 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 Energy Center;
- Designating other Indian Point Energy Center recovery positions required in support of onsite recovery activities; and
- Developing of a Root Cause Report.

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 Energy Center assistance for offsite recovery activities;
- Coordinating Indian Point Energy Center 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 Energy Center 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 Energy Center on all matters relating to the accident or recovery;
- Coordinating non-Indian Point Energy Center public information groups (Federal, State, local, etc.);
- Coordinating media monitoring and rumor control; and
- Determining what public information portions of the Indian Point ERO will remain activated.

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

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 Energy Center 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 ERO are informed of the change. Additional Indian Point Energy Center 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 ERO records to estimate the source term. Data are obtained from offsite agencies to estimate the total exposed population. Environmental Dosimeter of Legal Record (DLRs), 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 Emergency Preparedness Program.
- Develop, maintain and evaluate the capabilities of the Indian Point ERO to respond to emergency conditions and safeguard the health and safety of Station personnel and the general public.
- Identify deficiencies in the 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 may result in the release or potential 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 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 Energy Center (IPEC) Eight-Year Exercise Cycle 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. Exercises are scheduled to be conducted at different times of the year. An unannounced drill/exercise is included in the Eight-Year Exercise Cycle Plan.

2. Drills:

In addition to the exercises described above, IPEC 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 IPEC 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 (ENS) with the NRC will be tested.
- Quarterly: The telephone links with Federal response organizations (i.e., Department of Energy Radiological Assistance Program) and local 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 Rooms 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 Station procedures.

c. Medical Emergency Drills: a medical emergency involving a simulated contaminated individual whereby 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 IPEC Protected Area. These drills include provisions for communications and record keeping.

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, in the Eight Year Exercise Cycle Plan, 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. <u>Conduct of Drills and Exercises:</u>

For each emergency preparedness exercise or drill conducted, a scenario package is developed. The information included in the scenario package is in accordance with Entergy Fleet Procedures which include 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.

Prior approval of Drill and Exercise Dates, by appropriate IPEC 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 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 IPEC Emergency Preparedness Program that require improvement. The Manager of Emergency Preparedness 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 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.) that 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 Plan. This requirement will normally be met by performing training observations.

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

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 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, ED, Emergency Plant 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

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. Individuals qualified as Certified Fuel Handlers receive routine classroom training, to ensure proficiency in this area.

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

c. Radiological Monitoring Teams and Radiological Analysis Personnel

1. 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

2. 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

3. 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
   - Radiological Monitoring Team Interface

- Protective Action Guidelines associated with offsite plume exposure doses
- Basic Meteorology

d. Police, Security and Fire Fighting Personnel

1. 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.
2. 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
3. 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 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 instructs personnel as to the appropriate protective clothing requirements, respiratory protection requirements, time limits, and other protective actions specific to the conditions present.

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 Energy Center. 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 Energy Center provides initial emergency response overview and specific training to assigned ERO members as outlined in the ERO Training Program. Additionally, Indian Point Energy Center 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 is placed on the ERO roster. The completed training documents certify that the individual is qualified to perform their emergency functions.

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 ERO, 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 distribution of the Plan and actions that must be performed to maintain the Indian Point Emergency Preparedness Program. It also outlines the criteria for ensuring 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 Planning 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 Energy Center (IPEC) 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 Program. This includes the authority to provide the necessary resources to ensure the continuous state of readiness for the ERO.

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

3. Manager of Emergency Preparedness:

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

   - Development, maintenance and revision of the Plan and Implementing Procedures is accomplished in accordance with applicable regulations and industry standards.

- 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 and the local communities involved in response to an incident at Indian Point Energy Center.
- 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 EP 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 Program Public Information program.
- IPEC 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 Planning 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 Planning staff provides technical assistance to other IPEC 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.
- Corrective actions identified during the conduct of Exercises, Drills, Training, Audits and Inspections are tracked using the station’s corrective action program.

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 Manager of Emergency Preparedness 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 reduce the effectiveness of the Plan, when determined through the technical review process or other changes deemed appropriate by the Manager of Emergency Preparedness 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 reduce 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 reduce or have a potential to reduce the effectiveness of the approved Plan are not implemented without prior approval by the NRC.

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

Technical reviews of the Plan and procedures shall be conducted in accordance with station procedures. The reviewer shall determine the need for cross-disciplinary reviews. Revisions to the Plan and Implementing Procedures shall be reviewed and approved by the Manager of Emergency Preparedness 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 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 Plan only. Verified copies may be used for position specific procedure sets used by the ERO. 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.

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. The 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 Oversight (NOS) organization. The assessment will be performed either at intervals not to exceed 12 months or as necessary, based on an assessment by NOS 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.

Results of this audit are submitted for review to the Site Vice President. The Manager of Emergency Preparedness 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 Manager of Emergency Preparedness.

10. Maintenance of Emergency Telephone List

A phone list contains telephone numbers used by the ERO during an emergency. These numbers are verified and updated at least quarterly.

## 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, Title10, 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, 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-0737, Clarification of TMI Action Plan Requirements, dated October 1980.
14. NUREG-0737, Supplement 1, Requirements for Emergency Response Capability, December 1982.
15. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
16. “FEMA REP Program Manual"
17. Indian Point Energy Center Unit 1, 2 and 3 FSARs
18. Indian Point Energy Center Unit 1, 2 and 3 Tech Specs
19. USNRC Reg. Guide 1.101, "Emergency Planning & Preparedness for Nuclear Power Plants"
20. 10CFR50, Appendix R
21. SAND 77-1725, Public Protection Strategies for Potential Nuclear Reactor Accidents: Sheltering Concepts With Existing Public and Private Structures, February 1978

**Appendix 1: References (cont.)**

22. "Maintaining Emergency Preparedness Manual," dated November, 1987 INPO 87-019.
23. "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.
24. "Voluntary Assistance Agreement By and Among Electric Utilities involved in Transportation of Nuclear Materials," dated November 1, 1980.
25. Comprehensive Environmental Response, Compensation and Liability Act of 1980.
26. Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendation for State and Local Agencies, Volume 47, No. 205, October 22, 1982.
27. American Nuclear Insurers Bulletin #5B (1981), "Accident Notification Procedures for Liability Insured's".
28. "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency: Final Recommendations on Use," Federal Register Vol. 47, No. 125, June 29, 1982.
29. Babcock and Wilcox Company, Post Accident Sample Offsite Analysis Program (1982).
30. ANI/MAELU Engineering Inspection Criteria For Nuclear Liability Insurance, Section 6.0, Rev. 1, "Emergency Planning."
31. NEI 99-01 Rev 5, "Methodology for Development of Emergency Action Levels"
32. USNRC Reg. Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants", March 2007
33. INPO 09-006 Guidelines for Training and Qualification of Emergency Response Organization Personnel
34. New York State Comprehensive Emergency Management Plan Radiological Hazards Annex for Fixed Nuclear Facilities
35. NUREG-0654 – FEMA – REP – 1, Revision.1, Supplement 3, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.
36. Westchester County Fire Mutual Aid Plan
37. IPEC Security Safeguards Contingency Plan and Incident Response Plan
38. NSIR/DPR – ISG-01 "Interim Staff Guidance – Emergency Planning For Nuclear Power Plants", ADAMS Accession No. ML113010523 pages 18 to 21.
39. 2014 IPEC ETE Addendum (KLD TR-557, dated October 17, 2014)

## Appendix 2: Letters of Agreement

Copies of agreement letters for the offsite emergency response supporting organizations listed below are maintained in the Emergency Planning Department files.

1. Verplanck Fire District (Fire/Ambulance)
2. Buchanan Engine Co. No. 1, Inc.
3. New York-Presbyterian/Hudson Valley Hospital
4. Phelps Memorial Hospital Center
5. Department of Energy – Radiation Emergency Assistance
6. Westinghouse Electric Corporation
7. New York State Police
8. New York State Division of Homeland Security and Emergency Services
9. Department of Energy – Radiological Assistance Program Region 1 (Brookhaven)

As Letters of Agreement are received and updated they will be listed in this section. Regular updates that do not change the level of service do not require an EPLAN change unless they impact the planning standards. Letters listed 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.

For hostile action based events, response is provided by Verplanck Fire District, Buchanan Engine Co. No. 1 Inc., and the New York State Police.

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

Emergency Plan Implementing Procedures to Plan Sections

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-115<br>EN-EP-900 | Emergency Plan Forms | All |
| IP-EP-120 | Emergency Classification | D, Table D-1 |
| IP-EP-210<br>IP-EP-251<br>IP-EP-260<br>EN-EP-609<br>EN-EP-610<br>EN-EP-611<br>EN-EP-900 | Emergency Management | A, B, Table B-1, B-7, C, Appendix 2 |
| IP-EP-210 | Control Room Augmentation | B, Table B-1 |
| EN-EP-610 | TSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-611 | OSC Activation and Response | B, Table B-1, E, H, M |
| EN-EP-609 | EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-350<br>EN-EP-611 | Radiation Protection, Emergency Exposure Controls and Response | J, K, L |
| IP-EP-240 | Emergency Security Organization Activation and Response | B, Table B-1, E, O |
| IP-EP-241 | Incident Command Post | B, Table B-1, E |
| IP-EP-310<br>IP-EP-340 | Offsite Dose Assessment | I, Table B-1 |
| IP-EP-330<br>IP-EP-340 | Airborne Sample Analysis | C, Appendix 2, I |
| IP-EP-350 | Emergency Contamination Control | K, L |
| IP-EP-360 | Core Damage Assessment | I |
| IP-EP-410 | Protective Action Recommendations | J |
| IP-EP-420 | Use of Potassium Iodide by Indian Point Personnel During and Emergency | K.2 |

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-251<br>EN-EP-609 | Alternate EOF Activation and Response | B, Table B-1, E, H, M |
| IP-EP-510 | Data Equipment Operation | Table B-1, B.5, H |
| IP-EP-320<br>EN-EP-609 | Offsite Monitoring Team Activation and Response | I |
| IP-EP-430<br>EN-EP-611 | Evacuation/Accountability | J |
| IP-EP-430 | Search and Rescue | J |
| EN-EP-613 | Recovery | M |
| IP-EP-340<br>IP-EP-620 | Estimating Total Population Exposure | I, M |
| IP-EP-260 | Joint Information Center Procedure Set | B, G |
| EN-EP-613 | Emergency Preparedness Corporate Support | A, B |
| EN-EP-311 | Emergency Response Data System (ERDS) | Table B-1, H, I |
| 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 |

Emergency Planning Administrative Procedures to Plan Sections

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.

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD1 | Emergency Preparedness Department Organization and Responsibilities | P |
| IP-EP-AD2 | Emergency Plan Controlled Documents | P |
| EN-TQ-110 | Emergency Response Training Program | O |
| EN-TQ-110-01 | Fleet E-Plan Training Course Summary | O |
| EN-EP-306 | Drills and Exercises | N |
| EN-EP-307 | Hostile Action Based Drills and Exercises | N |
| EN-EP-308 | Emergency Planning Critiques | N |
| EN-FAP-EP-005 | Emergency Preparedness Performance Indicator Program | N |
| IP-EP-AD6 | Emergency Preparedness Department Facilities and Equipment Surveillances | E, F, H, I, J, N |
| EN-EP-310 | Notifications Systems Testing and Maintenance | F, N |
| IP-EP-AD10 | Offsite Emergency Preparedness Support | A, G, L, O |
| IP-EP-AD13 | Emergency Action Levels Technical Basis Document | D, I, J |
| IPEP-AD-16 | Emergency Planning Records | All |
| IP-EP-AD 17 | Emergency Planning Equipment Administration | E, F, H, I, J |
| EN-EP-801 | Emergency Response Organization | A, B, C |
| IP-EP-AD40 | Equipment Important to Emergency Response | D, E, F, G, H, I, J |

| Procedure ID Number | Subject Addressed | IPEC Emergency Plan Section(s) |
|---|---|---|
| IP-EP-AD12<br>IP-EP-AD20<br>IP-EP-AD30<br>IP-EP-AD31<br>IP-EP-AD32<br>IP-EP-AD33<br>IP-EP-AD34<br>IP-EP-AD35<br>IP-EP-AD36<br>IP-EP-AD38<br>IP-EP-AD39<br>IP-EP-AD41 | IPEC Alert Notification System | E, E.6 |

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

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

AC ..... Alternating Current
AD ..... Administrative Directive
AEOF ..... Alternate Emergency Operations Facility
ALARA ..... As Low As Reasonably Achievable
ANI ..... American Nuclear Insurers
ANS ..... Alert and Notification System
ANSI ..... American National Standards Institute
ARM ..... Area Radiation Monitor
Ci ..... Curie
CDE ..... Committed Dose Equivalent
cc ..... cubic centimeter
CR ..... Control Room
CFR ..... Code of Federal Regulations
CEC ..... Corporate Emergency Center
$cm^2$ ..... square centimeter
Cs ..... Cesium
DC ..... direct current
DE ..... Dose Equivalent
DHS ..... Department of Homeland Security
DLR ..... Dosimeter of Legal Record
DOE ..... U. S. Department of Energy
DOT ..... U. S. Department of Transportation
dpm ..... disintegration per minute
EAL ..... Emergency Action Level
EAS ..... Emergency Alert System
ED ..... Emergency Director
ENS ..... (NRC) Emergency Notification System
EOC ..... Emergency Operations Center
EOF ..... Emergency Operations Facility
EOP ..... Emergency Operating Procedure
EPA ..... U. S. Environmental Protection Agency
EPZ ..... Emergency Planning Zone
ERDS ..... Emergency Response Data System
ERO ..... Emergency Response Organization
ETD ..... Emergency Telephone Directory
FEMA ..... Federal Emergency Management Agency

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

FRERP ..... Federal Radiological Emergency Response Plan
FSAR ..... Final Safety Analysis Report
Ge ..... Germanium
GE ..... General Emergency
GET ..... General Employee Training
I ..... Iodine
ICP ..... Incident Command Post
I&C ..... Instrument and Control
IP ..... Implementing Procedure
IP1, IP2, or IP3 ..... Indian Point Energy Center Unit 1, 2 or 3
IPEC ..... Indian Point Energy Center
IPZ ..... Ingestion Pathway Zone
IRAP ..... Interagency Radiological Assistance Program
ISFSI ..... Independent Spent Fuel Storage Installation
JIC ..... Joint Information Center
KI ..... Potassium Iodide
Kr ..... Krypton
Li ..... Lithium
LGR ..... Local Government Radio
LOCA ..... Loss of Coolant Accident
mR ..... milliroentgen
MWt ..... Megawatt Thermal
NRC ..... U. S. Nuclear Regulatory Commission
NUE ..... Notification of Unusual Event
NYSOEM ..... NYS Office of Emergency Management
OSC ..... Operations Support Center
OSRC ..... On-Site Safety Review Committee
PAG ..... Protective Action Guide
PAR ..... Protective Action Recommendation
PASS ..... Post Accident Sampling System
POM ..... Plant Operations Manager
R ..... roentgen
RACES ..... Radio Amateur Civil Emergency Services
RCA ..... Radiologically Controlled Area
RECS ..... Radiological Emergency Communications System
RERP ..... Radiological Emergency Response Plan
OMT ..... Offsite Monitoring Team
RP ..... Radiation Protection

**Appendix 4**

**Abbreviations, Acronyms and Definitions**

SAE ..... Site Area Emergency
SCBA ..... Self-Contained Breathing Apparatus
SM ..... Shift Manager
SPDS ..... Safety Parameter Display System
Sr ..... Strontium
STA ..... Shift Technical Advisor
TCP/IP ..... Transfer Communication Protocol/Internet Protocol
TDD ..... Telecommunications Device for the Deaf
TLD ..... Thermoluminescent Dosimeter
TSC ..... Technical Support Center
μCi ..... microcuries
UFSAR ..... Updated Final Safety Analysis Report
Xe ..... Xenon

## 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.

**Activated –** An order has been made to activate an emergency response facility, and the facility is in the process of being staffed.

**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 Energy Center 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** - 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.

**Dose Equivalent** - 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.

**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 Entergy 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 Entergy 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.

**Emergency Planning Zone (EPZ)** - The area around the Indian Point Energy Center 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 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 the licensee has the 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 Energy Center Site** - The combined areas immediately surrounding Units 1, 2 and 3 that are owned and operated by Entergy.

**Joint Information Center** – 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 principal Emergency Operations Centers in the Public Security Building, in Harriman State Office Campus in Albany, New York and at the Hudson Valley Transportation Center in Hawthorne, New York.

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

**Offsite** - Locations outside of the Indian Point Energy Center Site boundary.

**Onsite** - The area within the Indian Point Energy Center Site boundary.

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

**Operational** – Status of an emergency facility declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is setup and available to perform the emergency functions assigned to that facility.

**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 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** - An area, accessible to individuals, in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 5mRem (0.05 mSv) in one hour at 30 cm (~ 12 inches) from the radiation source or from any surface that the radiation penetrates.

**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** - 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.

**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 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.

**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.

**Staffed** – The emergency response facility has been activated and sufficient personnel are available to perform the required functions as determined by the facility manager.

**Station** - The three Entergy Nuclear Generating Units (1, 2 and 3) located on the Indian Point Energy Center 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.

**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 fifteen temporal 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 facility (e.g., schools, nursing homes, and hospitals) population, as well as variations in roadway conditions. The fifteen 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 | Winter | Weekend | Midday | Good | West Point Football |
| 14 | Summer | Weekend | Midday | Good | Event at Croton Point Park |
| 15 | Summer | Midweek | Midday | Good | Roadway impact Rt. 6; Rt. 9W; Palisades Pkwy; Taconic Pkwy |

The traffic demand and trip-generation rate of evacuating vehicles were estimated from the gathered data. Sources of data include the 2010 Census, New York agencies, county agencies, a telephone survey and special concern facilities. (See Section 3/Appendix E and

**Appendix 5**

**EVACUATION PLANS**

Section 5/Appendix F of the ETE of the 2012 ETE Report (Indian Point Energy Center, Development of Evacuation Time Estimates, KLD Engineering PC, KLD TR-537, December 2012) for a complete discussion of traffic demand and trip generation time, respectively.)

Following federal guidelines, the Indian Point Energy Center (IPEC) Emergency Planning Zone (EPZ) is subdivided into 38 Protective Action Areas. The Protective Action Area definitions are provided in Section II. The 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 H of the 2012 ETE Report. Additional Regions were defined in the 2014 ETE Addendum (Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering PC, KLD TR-557, October 17, 2014). For each Protective Action Area within the EPZ, primary evacuation routes have been identified. Descriptions of the Protective Action Areas and their associated evacuation routes are given in the county plan procedures and in Section 10 and Appendix L of the 2012 ETE Report. Listings and maps of reception centers for each Protective Action Area are also included in the county procedures and in Section 10 of the 2012 ETE Report.

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.

## II. PROTECTIVE ACTION AREAS

The plume exposure EPZ for the IPEC has been subdivided into 38 discrete Protective Action Areas as shown in Figure 1. The 2010 US Census permanent resident population estimates for each of the Protective Action Areas are presented in the 2014 ETE Addendum and are provided in Table 1. The boundaries of the various Protective Action Areas are described by county in Tables 2 through 5.

## III. EVACUATION TIME ESTIMATES

Evacuation time estimates by Region for each of the scenarios are presented in Section 7 of the 2012 ETE Report. Updated evacuation time estimates for 90% and 100% of the population within the Protective Action Areas included in the regions defined by the two-mile and five-mile rings and for the full EPZ are presented in the 2014 ETE Addendum and provided in Tables 6-A, 6-B and 6-C.

## IV. 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.

## EVACUATION PLANS

## TABLE 1

### EPZ Permanent Population 2010 Census

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Briarcliff Manor | | | | 8,370 |
| Central Town of Clarkstown | | | 23,052 | |
| Northeastern Town of Ramapo | | | 25,941 | |
| Northeastern & Eastern Town of Clarkstown | | | 15,127 | |
| Northwestern Town of Clarkstown | | | 7,453 | |
| Ossining | | | | 30,478 |
| Village of Haverstraw | | | 11,910 | |
| Town of New Castle (west of Hardscrabble Road) | | | | 4,686 |
| Village of West Haverstraw | | | 10,376 | |
| Unincorporated Areas of the Town of West Haverstraw | | | 11,483 | |
| Town of Tuxedo east of NYS Thruway | 204 | | | |
| Village of Pomona | | | 4,520 | |
| Grassy Point | | | 142 | |
| Croton-on-Hudson | | | | 8,078 |
| Stony Point | | | 13,111 | |
| Verplanck | | | | 2,183 |
| Tompkins Cove | | | 1,797 | |
| Buchanan | | | | 2,232 |
| Montrose | | | | 2,593 |
| Jones Point | | | 125 | |
| Village of Harriman east of NYS Thruway | 0 | | | |
| Peekskill | | | | 23,565 |
| Cortlandt | | | | 26,565 |
| Bear Mountain State Park | 16 | | 5 | |
| Harriman State Park | 6 | | 9 | |

## TABLE 1 (cont.)

**EPZ Permanent Population**
**2010 Census[1]**

| Protective Action Area | Orange | Putnam | Rockland | Westchester |
|---|---|---|---|---|
| Yorktown | | | | 36,275 |
| Somers (west of Route 118) | | | | 4,436 |
| Fort Montgomery | 1,837 | | | |
| Southwest Carmel | | 2,597 | | |
| Village of Highland Falls | 4,175 | | | |
| Lower Phillipstown | | 2,581 | | |
| Village of Woodbury (east of NYS Thruway) | 2,386 | | | |
| West Point | 6,464 | | | |
| Southern Putnam Valley | | 10,171 | | |
| Town of Highlands | 0 | | | |
| Hudson River | Hudson River | | | |
| Town of Cornwall (south of Angola Road) | 1,035 | | | |
| Southern Phillipstown | | 4,569 | | |
| **Total Population by County:** | **16,123** | **19,918** | **125,051** | **149,461** |
| **Total EPZ Population** | **310,553** | | | |

1. Indian Point Energy Center, Development of Evacuation Time Estimates, Addendum for Additional Regions (2-Mile Radius + Downwind to EPZ Boundary), KLD Engineering P.C, KLD TR-557, Section 2, October 17, 2014

**Table 2. Orange County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Town of Tuxedo east of NYS Thruway | 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). |
| Village of Harriman east of NYS Thruway | Village of Harriman east of NYS Thruway. |
| Fort Montgomery | The Hamlet of Fort Montgomery. |
| Village of Highland Falls | Village of Highland Falls. |
| Village of Woodbury east of NYS Thruway | The Village of Woodbury east of the NYS Thruway from the Town of Tuxedo to the Town of Cornwall. |
| West Point | The United States Military Academy (West Point) |
| Town of Highlands | The Town of Highlands excluding the Village of Highland Falls and the Hamlet of Fort Montgomery. |
| Town of Cornwall (south of Angola Road) | 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. |
| Bear Mountain State Park | The portion of Bear Mountain State Park in Orange County. |
| Harriman State Park | The portion of Harriman State Park in Orange County. |

**Table 3. Putnam County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Southwest Carmel | 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. |
| Lower Phillipstown | The most southern part of the Town of Phillipstown; that is, south of Canopus Hollow Road; Old West Point Road east, east of US Route 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. |
| Southern Putnam Valley | 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. |
| Southern Phillipstown | The southern half of Phillipstown, not including the area defined as Lower Phillipstown; that is, the Village of Garrison and the Village of Nelsonville except for the portion of Hudson Highlands State Park, and the portion of Phillipstown 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. |

**Table 4. Rockland County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Central Town of Clarkstown | 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. |
| Northeastern Town of Ramapo | 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. |
| Northeastern & Eastern Town of Clarkstown | 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. |
| Northwestern Town of Clarkstown | 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. |
| Village of Haverstraw | In the Town of Haverstraw, the Village of Haverstraw. |
| Village of West Haverstraw | In the Town of Haverstraw, the Village of West Haverstraw. |
| Unincorporated Areas of the Town of Haverstraw | The unincorporated areas of the Town of Haverstraw including the Hamlets of Thiells and Mount Ivy. |

**Table 4 Rockland County Protective Action Area Descriptions (continued)**

| Protective Action Area | Description |
|---|---|
| Village of Pomona | In the Towns of Haverstraw and Ramapo, the Village of Pomona and the unincorporated portions of the Hamlet of Pomona. |
| Grassy Point | Grassy Point east of the Penny Bridge, Minisceongo Yacht Club, Haverstraw Marina, Haverstraw Bay County Park, Bowline Park. |
| Stony Point | The Town of Stony Point east of Bear Mountain and Harriman State Parks, south of Tompkins Cove and west of Grassy Point. |
| Tompkins Cove | Tompkins Cove zip code area. |
| Jones Point | 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. |
| Bear Mountain State Park | 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. |
| Harriman State Park | The central and western parts of Harriman State Park bounded on the east by the Palisades Interstate Parkway (PIP) northbound and a line connecting PIP/US. Route 6 to the West Point Military Reservation boundary where they are very close, about 1 1/2 miles W of the Bear Mountain Bridge; on the south by the Ramapo/Haverstraw Town Line and the Rockland/Orange County Line southwestward; and on the west by the New York State Thruway (Interstate Route 87/287, not included in the EPZ) and the NW/SE running utility right-of-way crossing Smith Rock and Pound Mountain. |

**Table 5. Westchester County Protective Action Area Descriptions**

| Protective Action Area | Description |
|---|---|
| Briarcliff Manor | The Village of Briarcliff Manor. |
| Ossining | The Town and Village of Ossining. |
| Town of New Castle (west of Hardscrabble Rd) | The Town of New Castle west of Hardscrabble Road. |
| Croton-on-Hudson | The Village of Croton-on-Hudson. |
| Verplanck | The Hamlet of Verplanck. |
| Buchanan | The Village of Buchanan. |
| Montrose | The Hamlet of Montrose. |
| Peekskill | The City of Peekskill. |
| Cortlandt | 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. |
| Yorktown | The Town of Yorktown. |
| Somers (west of Route 118) | The Town of Somers west of State Route 118/Tomahawk Street. |

**Table 6-A. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Summer Scenarios**

| | Summer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Midweek | | | | Weekend | | | | Midweek, Weekend | |
| **Scenario:** | 1 | | 2 | | 3 | | 4 | | 5 | |
| **Region** | Midday | | | | Midday | | | | Evening | |
| | Good Weather | | Rain | | Good Weather | | Rain | | Good Weather | |
| | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% | 90% | 100% |
| **R1 (2 Mile)** | 2:25 | 5:20 | 2:25 | 5:20 | 2:10 | 5:15 | 2:15 | 5:15 | 2:10 | 5:15 |
| **R2 (5 Mile)** | 3:05 | 5:20 | 3:20 | 5:20 | 3:10 | 5:20 | 3:20 | 5:20 | 2:40 | 5:20 |
| **R3 (Full EPZ)** | 3:55 | 6:55 | 4:10 | 7:10 | 3:35 | 6:10 | 3:45 | 6:10 | 3:15 | 5:55 |

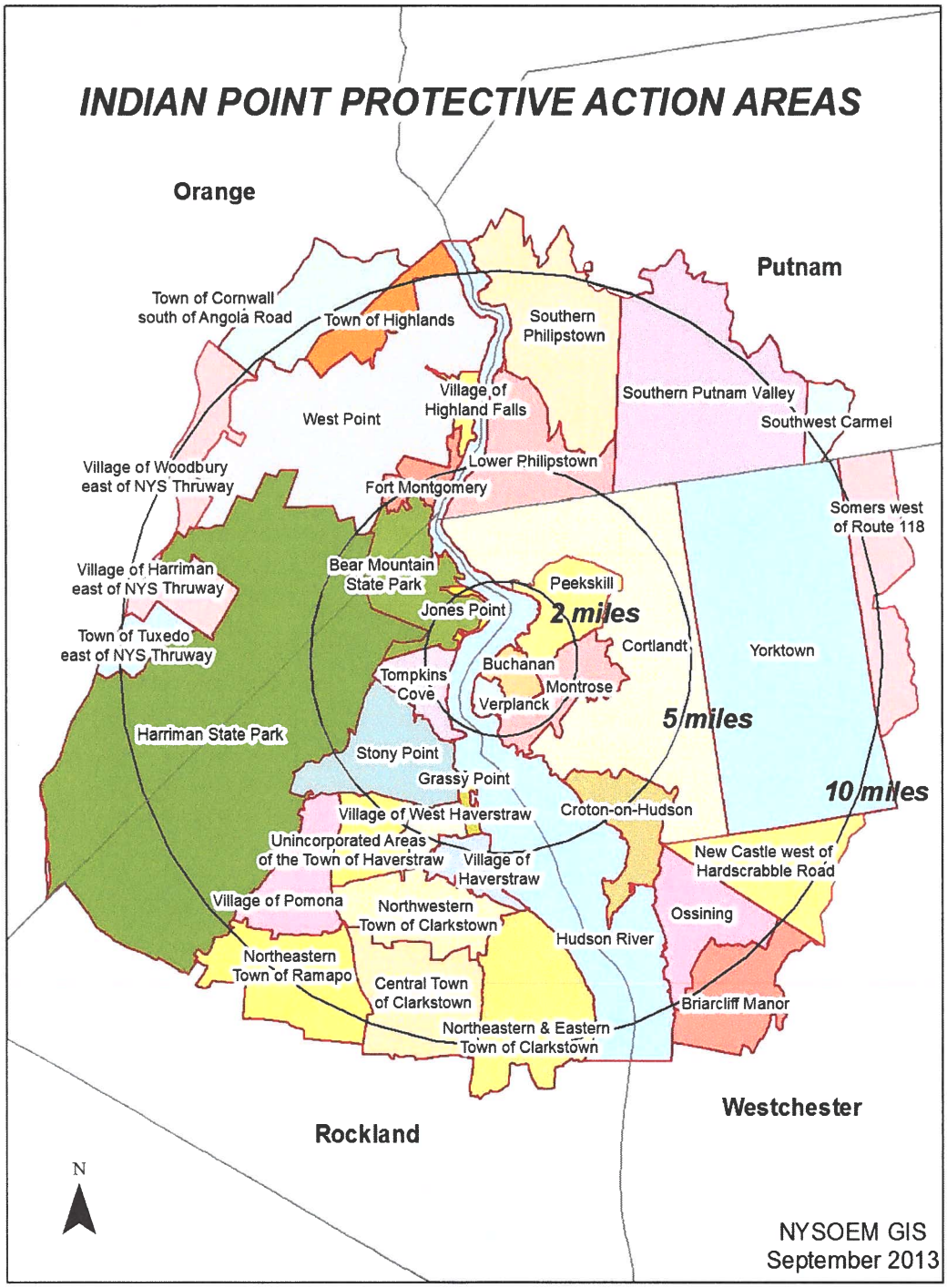
**Table 6-B. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Winter Scenarios**

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

**Table 6-C. Evacuation Time Estimates for the 2-Mile Region, 5-Mile Region and Full EPZ – Special Events**

| | Winter | | Summer | | | |
|---|---|---|---|---|---|---|
| | Weekend | | Weekend | | Midweek | |
| Scenario: | 13 | | 14 | | 15 | |
| Region | Midday | | Midday | | Midday | |
| | Good Weather | | Good Weather | | Good Weather | |
| | West Point Football | | Croton Point Park Event | | Roadway Impact | |
| | 90% | 100% | 90% | 100% | 90% | 100% |
| R1 (2 Mile) | 2:10 | 5:15 | 2:10 | 5:15 | 2:25 | 5:20 |
| R2 (5 Mile) | 2:45 | 5:20 | 3:05 | 5:20 | 3:05 | 5:20 |
| R3 (Full EPZ) | 3:30 | 5:55 | 3:35 | 6:10 | 4:40 | 7:00 |

**FIGURE 1**




EMERGENCY PLANNING PROTECTIVE ACTION AREAS

**ATTACHMENT 8**

**NL-19-001**

**Emergency Response Organization Task Analysis**

**(Provided for Information)**

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **EMERGENCY OPERATIONS FACILITY** | | EN-EP-609 | | | | | | | |
| **Emergency Director** | F1. Receive turnover from the ED and assume command/control of EOF and activities outside the area controlled by the TSC<br>F2. Direct the activation, operation and deactivation of the EOF.<br>F3. Prepare and facilitate facility briefings<br>F4. Upgrade the emergency classification level. (cannot delegate)<br>F5. Make protective action recommendations (PAR) to offsite agencies (cannot delegate)<br>F6. Direct and approve offsite notification to State and local agencies (cannot delegate)<br>F7. Communicate within and between the emergency response facilities<br>F8. Ensure event information is communicated to other organizations (NRC, Entergy Corp, etc.) to keep them informed of the emergency situation.<br>F9. Direct the activities of the EOF organization in support of the TSC and offsite response agencies. (County, Parish and State)<br>F10. Direct protective actions for offsite monitoring teams, EOF ERO and offsite resources.<br>F11. Request assistance from offsite agencies, excluding requests for offsite medical/fire, security assistance. (Coordinate request for Federal assistance through the State)<br>F12. Integrate off-site responders with site response efforts when required.<br>F13. Authorize issuance of KI and radiation exposure in excess of 10CFR 20 limits for ERO members outside of the protected area.<br>F14. Authorize press releases (cannot delegate)<br>F15. Direct facility relocation to the alternate EOF (where applicable)<br>F16. Determine reportability actions for non-emergency reportable events during an emergency (hazardous material spills, contaminated injured personnel, and so forth).<br>F17. Conduct turnover of command and control to relief ED.<br>F18. Terminate the event in accordance with procedures (cannot delegate)<br>F19. Establish and direct recovery actions | P1. Fill vacant positions if needed<br>P2. Maintain a log | F3 - task from EOF Manager<br>P6 - task from EOF Manager | No | N/A | Yes | Yes | EN-EP-609, Att. 9.1<br>E-Plan B.2<br>E-Plan B.3<br>E-Plan B.4<br>E-Plan B.7<br>E-Plan B.8.b<br>E-Plan Figure B-1.2a<br>E-Plan Figure B-1.2c<br>E-Plan Table B-1<br>E-Plan Table B-5<br>Eplan 6.1.3<br>Eplan Figure 5-2 | F1. NUREG 0654 II.A.1.d/II.B.3/II.B.5<br>F11. NUREG 0654 II.A.4<br>F4. NUREG 0654 II.B.4<br>F5. NUREG 0654 II.B.4/II.J.7<br>F6. NUREG 0654 II.B.4<br>F5./F8. NUREG 0654 II.B.7.c<br>F11. NUREG 0654 II.B.7.a/II.C.1.a<br>F13. NUREG 0654 II.K.2<br>F14. NUREG 0654 II.B.4/II.B.7.d<br>F18. NUREG 0654 II.B.4<br>F19. NUREG 0654 II.B.7.b/II.K.6.c/II.M.2 |
| **Radiological Assessment Coord** | F1. Direct the activities of the dose assessor and radiological offsite monitoring teams.<br>F2. Evaluate dose assessment results and recommendations.<br>F3. Determine dose consequences<br>F4. Communicate dose projection results to the ED to determine classification or PAR.<br>F5. Keep the ED appraised of offsite radiological conditions.<br>F6. Maintain awareness of dose projections generated by NRC, state and utility models and recognize differences.<br>F7. Provide overall liaison and coordination of efforts in the area of field team data with State Radiological Personnel.<br>F8. Brief offsite authorities responding to the EOF on radiological information.<br>F9. Contact the NRC on Health Physics Network (HPN) Line.(Can be designated to another staff member)<br>F10. Direct possible predictive and worst-case dose projections.<br>F11. Monitor or direct monitoring of ERF habitability.<br>F12. Ensure facility emergency ventilation in service (where applicable)<br>F13. Recommend EOF relocation based on environmental conditions and provide radiological guidance for the EOF evacuation, where applicable.<br>F14. Monitor information from displays or reports to detect changes that affect dose assessment.<br>F15. Establish radiological controls for supplemental and relief personnel responding to the station.<br>F16. Recommend emergency exposure limits and KI for EOF ERO or offsite monitoring teams<br>F17. Coordinate the administration of KI. | P1. Maintain a log<br>P2. Assist ED in conduct of briefings<br>P3. Assist the ED with termination to recovery phase<br>P4. Develp and provide recommendations for classification level changes and PARs based on radiological considerations to the ED. | F1 - task from Lead Offsite Liaison<br>P1 - task from EOF Log Keeper | No | N/A | Yes | Yes | EN-EP-609, Att. 9.5<br>E-Plan B.5.d<br>E-Plan Figure B-1.2c<br>E-Plan Table B-1<br>E-Plan Table B-5 | F9. NUREG 0654 II.A.1.e |
| **Offsite Communicator** | F1. Ensure the Emergency Director approves all notifications forms to State/Local agencies.<br>F2. Make notification to the State and local agencies as required by regulations using primary and backup notification system.<br>F3. Verify State and local agencies received and understand the notification<br>F4. Make follow-up notifications<br>F5. Maintain records of all notifications and communications | N/A | N/A | No | N/A | Yes | Yes | EN-EP-609, Att. 9.6<br>E-Plan Figure B-1.2c<br>E-Plan Table B-1<br>E-Plan Table B-5 | F2. NUREG 0654 II.A.1.e |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **Technical Advisor** | F1. Maintain contact with the TSC and Control Room to obtain current plant and emergency status<br>F2. Monitor plant computer system parameters.<br>F3. Recommend actions on classification of emergencies<br>F4. Support PAR decision making/determination. | P1. Assist Emergency Director in conduct of briefings.<br>P2. Request TSC to fax plant parameter sheets to the EOF if Plant Data electronic display is unavailable. | F1 - task from A & L Coord<br>F2 - task from A & L Coord<br>F3 - task from A & L Coord<br>F4 - task from A & L Coord<br>F1 - task from EOF Communicator<br>F7 - task from EOF Manager<br>F8 - task from EOF Manager<br>P4 - Task from EOF Manager<br>F1 - task from PI Liaison<br>F2 - task from PI Liaison<br>F3 - task from PI Liaison<br>P1 - task from PI Liaison | No | N/A | No | No | EN-EP-609, Att. 9.3<br>E-Plan Figure B-1.2c<br>E-Plan Table B-5 | N/A |
| **EOF Manager** | F1. Direct activities of the EOF personnel<br>F2. Assure staffing and timely activation of the EOF<br>F3. Obtain additional resources through the Admin/Logistics Coordinator when necessary<br>F4. Brief and assist offsite authorities responding to the EOF<br>F5. Assist Rad Assessment Coordinator with facility habitability<br>F6. Ensure correct and timely State and local notifications are made within regulatory requirements<br>F7. Ensure WebEOC or status boards are maintained<br>F8. Notify Entergy Corporate Office and Corporate Emergency Center | P1. Assist the ED in the review of news releases<br>P2. Assist the ED in periodic facility briefings<br>P3. Assist the RAC with KI issuance<br>P4. Activate ERDS if requested by CR<br>P5. Assist in termination to Recovery Phase<br>P6. Collect all documentation and provide to the EP Manager upon termination of the emergency. | **Eliminate Position**<br>F1 - eliminate task (ED task F2)<br>F2 - eliminate task (ED task F2)<br>F4 - eliminate task (done by EOF RAC)<br>F5 - eliminate task<br>F6 - eliminate task (Off-Site Comm doing)<br>F7 - eliminate task<br>P1 - eliminate task<br>P2 - eliminate task<br>P3 - eliminate task<br>P4 - eliminate task<br>P5 - eliminate task (ED doing)<br>P6 - eliminate task | Yes | F3 - Emergency Director<br>F7 - EOF Tech Advisor<br>F8 - EOF Tech Advisor<br>P4 - EOF Tech Advisor<br>P6 - Emergency Director | No | No | EN-EP-609, Att. 9.2<br>E-Plan B.5.b<br>E-Plan Figure B-1.2a<br>E-Plan Figure B-1.2c<br>E-Plan Table B-1<br>E-Plan Table B-5 | N/A |
| **EOF Communicator** | F1. Transmit and receive information from onsite ERF's.<br>F2. Ensure EOF is notified of information received of significant changes in plant conditions (e.g., start of a release, LOCA, EAL conditions)<br>F3. Document information on the required forms or WebEOC<br>F4. Assist the EOF Manager with other non-regulatory notifications or communications | N/A | **Eliminate Position**<br>F2 - eliminate task (EOF TA doing)<br>F3 - eliminate task<br>F4 - eliminate task | Yes | F1 - EOF Tech Adv | No | No | EN-EP-609, Att. 9.14<br>E-Plan Figure B-1.2c<br>E-Plan Table B-5 | N/A |
| **Lead Offsite Liaison** | F1. Obtain plant information and ensure the offsite agencies located in the EOF and the offsite liaisons are briefed on the plant conditions. | N/A | | No | N/A | No | No | EN-EP-609, Att. 9.8<br>E-Plan Figure B-1.2c<br>E-Plan Table B-5 | N/A |
| **Admin & Logistics Coord** | F1. Manage 24 hour staffing of the emergency response facilities.<br>F2. Manage logistics for supporting the onsite and offsite emergency response such as additional support personnel or equipment, meals, lodging, etc.<br>F3. Coordinate access security measures in the EOF if applicable<br>F4. Align emergency ventilation/isolation when directed (where applicable). | N/A | **Eliminate Position** | Yes | F1 - EOF Technical Advisor<br>F2 - EOF Technical Advisor<br>F3 - EOF Technical Advisor<br>F4 - EOF Technical Advisor | No | No | EN-EP-609, Att. 9.10<br>E-Plan B.7<br>E-Plan Figure B-1.2c<br>E-Plan Table B-5 | F1. NUREG 0654 II.A.1.e<br>F1./F2. NUREG 0654 II.A.4<br>F2. NUREG 0654 II.B.7.a |
| **IT Specialist** | F1. Monitor facility equipment (computer related and communications) to ensure adequate operation<br>F2. Resolve any IT related malfunctions<br>F3. Verify or perform ERDS activation.<br>F4. Assist with issues related to WebEOC, if available | N/A | **Eliminate position**<br>F3 - eliminate task | Yes | F1 - IT Helpdesk<br>F2 - IT Helpdesk<br>F4 - IT Helpdesk | No | No | EN-EP-609, Att. 9.11<br>E-Plan Figure B-1.2c | N/A |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **Dose Assessor** | F1. Support the radiological activities of the EOF<br>F2. Obtain data from offsite monitoring team reports, meteorological and radiological data, and plant data<br>F3. Perform dose projection calculations using plant data and offsite monitoring team data.<br>F4. Perform possible predictive (what-if) and worst case dose projections when directed<br>F5. Provide offsite dose projection information to the RAC<br>F6. Monitor available parameter indications to detect changes that affect dose assessment.<br>F7. Perform dose projections using primary and backup methods | N/A | N/A | No | N/A | No | No | EN-EP-609, Att. 9.12<br>E-Plan B.5.d<br>E-Plan Figure B-1.2c<br>E-Plan Table B-5 | N/A |
| **Offsite Team Coordinator** | F1. Maintain communications with offsite monitoring teams (OMT).<br>F2. Employ and direct OMT based on radiological /met information.<br>F3. Supervise/develop a plume tracking strategy.<br>F4. Log communications with OMT to include dose /air sample survey results, dosimeter reading, etc.<br>F5. Ensure radiological information is communicated to the RAC for possible modifications to the dose calculations<br>F6. Support coordination of efforts in the area of offsite monitoring team data with State radiological personnel<br>F7. Ensure team is aware of changing plant / meteorological conditions<br>F8. Ensure team is notified on KI requirements | N/A | N/A | No | N/A | No | No | EN-EP-609, Att. 9.9<br>E-Plan B.5.d<br>E-Plan Figure B-1.2c<br>E-Plan Table B-1<br>E-Plan Table B-5 | F1. NUREG 0654 II.A.1.e |
| **Offsite Liaisons (5)** | F1. Obtain plant information and ensure the offsite agencies located in the EOC are briefed on the plant conditions.<br>F2. Clarify plant conditions, respond to questions, etc. for the offsite agencies. | N/A | N/A | No | N/A | No | No | EN-EP-609, Att. 9.13<br>E-Plan Figure B-1.2c<br>E-Plan Table B-5 | F1./F2. NUREG 0654 II.C.2.b |
| **Monitoring Team - No. 1 & No. 2** | F1. Perform activities directed by the OTC to support plume tracking and measurements<br>F2. Monitor self reading dosimeters and report results back to the OTC<br>F3. Implement KI protective measures when notified by the OTC | N/A | N/A | No | N/A | No | No | EN-EP-609, Att. 9.18<br>E-Plan B.5.d<br>E-Plan Figure B-1.2c<br>E-Plan Table B-1<br>E-Plan Table B-5 | F1. NUREG 0654 II.B.5, Table B-1 |
| **Public Information Liaison (Optional)** | F1. Ensure JIC is provided with current plant status.<br>F2. Ensure classification upgrades are communicated to the Company Spokesperson to ensure media briefings are accurate.<br>F3. Review press releases and provide to the ED for approval. | P1. Make EOF announcements as directed by the ED. | **Eliminate position** | Yes | F1 - EOF Tech Advisor<br>F2 - EOF Tech Advisor<br>F3 - EOF Tech Advisor<br>P1 - EOF Tech Advisor | No | No | EN-EP-609, Att. 9.7<br>IP-EP-260, Att. 9.18<br>E-Plan B.5.d<br>E-Plan Figure B-1.2c<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| | | | | | | | | | |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| TECHNICAL SUPPORT CENTER | | EN-EP-610 | | | | | | | |
| **Emergency Plant Manager** | F1. Direct the activation, operation and deactivation of the TSC<br>F2. Assume command and control of the TSC and OSC and the onsite mitigation efforts<br>F3. Provide information and recommendations to the ED regarding the classification of an emergency<br>F4. Prepare and facilitate facility briefings<br>F5. Verify event classifications<br>F6. Ensure timely ENS notifications<br>F7. Perform accident assessment to prioritize mitigation actions.<br>F8. Coordinate the activities of the CR, TSC and OSC<br>F9. Direct personnel evacuation, assembly and accountability of non-essential personnel<br>F10. Provide information and recommendations to the ED regarding plant activities<br>F11. Advise the ED on core damage and plant conditions for classification and PAR determination.<br>F12. Direct the organization, coordination, and prioritization of repair corrective action teams<br>F13. Direct onsite protective actions<br>F14. Authorize emergency radiation exposure and issuance of KI to recommended personnel in the CR, TSC or OSC or to Security personnel.<br>F15. Make operational decisions involving the safety of the plant and its personnel and make recommendations to the Control Room Personnel<br>F16. Initiate immediate corrective actions to limit or contain the emergency invoking the provisions of 10 CFR 50.54(x) if appropriate<br>F17. Implement severe accident management procedure strategies<br>F18. Direct relocation to an alternate location.<br>F19. Integrate offsite responders with on-site response efforts when required<br>F20. Perform emergency termination duties | P1. Maintain a log<br>P2. Maintain adequate staffing, access control, and 24-hour functional continuity of the CR, TSC, and OSC.<br>P3. Implement the applicable site-specific procedure or guideline for loss of a large area of the plant, when necessary. | F1 - task from Ops Coord<br>F4 - task from Ops Coord<br>F5 - task from Ops Coord<br>F7 - task from Ops Coord (delete reference to Maint Coord)<br>F8 - task from Ops Coord<br>F13 - task from Ops Coord<br>F14 - task from Ops Coord<br>F15 - task from Ops Coord<br>F17 - eliminate task<br>P3 - task from Ops Coord<br>F5 - task from TSC Manager | No | N/A | Yes | Yes | EN-EP-610, Att. 9.1<br>E-Plan B.2<br>E-Plan B.5.a<br>E-Plan B.5.d<br>E-Plan Figure B-1.2a<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | F2. NUREG 0654 II.A.1.d/II.B.3<br>F14. NUREG 0654 II.K.2 |
| **TSC Manager** | F1. Assure staffing/timely activation of the TSC.<br>F2. Notify EPM when operational conditions exist.<br>F3. Recognize and implement all technical aspects of accident mitigation for the emergency.<br>F4. Perform technical assessments and communicate the conclusions to the EPM.<br>F5. Set priorities for the TSC personnel/OSC Teams.<br>F6. Assist the EPM to make operational decisions concerning the safety of the plant.<br>F7. Oversee the activities for relocation to an alternate location.<br>F8. Direct the tracking of plant configuration changes.<br>F9. Deactivate the TSC when the emergency is terminated. | P1. Maintain log.<br>P2. Verify ERDS is activated.<br>P3. Particpate in periodic briefings with EPM.<br>P4. Direct EOP questions to the Operations Coordinator.<br>P5. Establish communications as needed with the Entergy Engineering Groups for engineering support functions.<br>P6. Direct TSC staff members to complate core damage assessment.<br>P7. Notify NSSS vendor and other vendors of emergency conditions, as required. | **Eliminate position**<br>F1 - eliminate task (EPM does)<br>F2 - eliminate task<br>F3 - eliminate task (Eng Coord does)<br>F4 - eliminate task (Eng Coord does)<br>F6 - eliminate task<br>F7 - eliminate task (EPM does)<br>F8 - eliminate task (Eng Coord does)<br>F9 - eliminate task (EPM does)<br>P1 - eliminate task<br>P2 - eliminate task<br>P3 - eliminate task<br>P4 - eliminate task<br>P5 - eliminate task (Eng Coord does)<br>P6 - eliminate task<br>P7 - eliminate task (Eng Coord does) | Yes | F5 - EPM | Yes | No | EN-EP-610, Att. 9.2<br>E-Plan B.5.d<br>E-Plan B.8.b<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| **Operations Coordinator** | F1. Coordinate TSC efforts in determining the nature and extent of emergencies pertaining to equipment and plant facilities in support of Control Room actions.<br>F2. Perform accident assessment activities.<br>F3. Provide assistance to initiate immediate corrective actions to limit or contain the emergency invoking the provisions of 10 CFR 50.54(x)1 if appropriate, and specifically when addressing Severe Accident Management Guidelines (SAMG/SAG).<br>F4. Recommend equipment operations checks and miscellaneous actions to the Control Room in support of restoration and accident mitigation.<br>F5. Approve emergency special procedures, and implement as required under the provisions of 10 CFR 50.54(x)1 if qualified.<br>F6. Recommend changes in plant priorities.<br>F7. Assist the Maintenance Coordinator in determining the priority assigned to OSC activities.<br>F8. Coordinate additional staffing for the Control Room if requested by the SM.<br>F9. Provide input on event classification.<br>F10. Assist the EPM in evaluating changes in event classification.<br>F11. At the direction of the EPM, assume the duties and responsibilities of the Evaluator, or Decision-Maker if qualified, when transition to Severe Accident Management Guidelines (SAMG/SAG) is initiated.<br>F12. Inform the TSC of the overall plant condition and significant changes to system and equipment status.<br>F13. Ensure the Control Room, TSC, and EOF is informed of significant changes in event status (e.g. changes in classification, command and control, initiation of station assembly, accountability, evacuation, etc.).<br>F14. Coordinate CR request for operations activities outside of the Control Room<br>F15. Provide technical assistance to the Shift Manager.<br>F16. Recommend strategies and actions to prevent severe core damage and containment failure and reduce radiological release. | P1. Monitor fission product barrier and plant status<br>P2.Complete the Essential Information Form to support periodic briefs as requested by the EPM<br>P3. Provide technical support to OSC teams | **Eliminate position**<br>F2 - eliminate task (EPM does)<br>F3 - eliminate task (EPM does)<br>F6 - eliminate task (EPM does)<br>F9 - eliminate task (EPM does)<br>F10 - eliminate task (EPM does)<br>F11 - eliminate task<br>F12 - eliminate task (EPM does)<br>F16 - eliminate task<br>P1 - eliminate task<br>P2 - eliminate task (EPM does) | Yes | F1 - EPM<br>F4 - EPM<br>F5 - EPM<br>F7 - EPM<br>F8 - EPM<br>F13 - EPM<br>F14 - EPM<br>F15 - EPM<br>P3 - EPM | No | Yes | EN-EP-610, Att. 9.3<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **Radiological Coordinator** | F1. Assess radiological conditions to develop radiological plans.<br>F2. Keep the TSC Manager informed of the radiological conditions.<br>F3. Obtain and evaluate data on plant conditions such as meteorological and radiological monitoring readings, and other pertinent data.<br>F4. Ensure that appropriate bioassay procedures have been implemented for onsite personnel when a radioactivity incident has occurred.<br>F5. Recommend authorization of personnel emergency exposure limits.<br>F6. Advise the TSC Manager when use of KI should be considered and coordinate the issuance if approved.<br>F7. Recommend evacuation based on environmental conditions<br>F8. Advise the TSC Manager and EOF Radiological Assessment Coordinator of changes in radiological release status.<br>F9. Assist in planning rescue operations and provide monitoring services as required, including the transfer of injured and/or contaminated personnel.<br>F10. Coordinate with the Security Coordinator to determine the routes to be used for evacuation of non-essential personnel and BRE's.<br>F11. Evaluate and request additional radiation protection personnel and/or equipment.<br>F12. Advise the Rad Chem Coordinator in the OSC of changes in plant conditions or equipment that may change radiological conditions onsite. | P1. Establish and maintain radiological habitability.<br>P2. Maintain a log<br>P3. Direct decontamination efforts of personnel, equipment, and onsite areas as appropriate.<br>P4. Suspend normal RWP requirements for performing work in radiological controlled areas if necessary.<br>P5. Suspend radiological posting requirements for areas outside the RCA that are affected by the accident until the Recovery Phase is entered.<br>P6. Document radiological readings taken by RP Technicians or other meter qualified individuals in the field on survey maps.<br>P7. Establish and maintain dosimetry, protective clothing, and other protective equipment requirements for onsite ERO personnel.<br>P8. Evaluate iodine uptakes for persons issued KI, informing contracted medical representatives of KI issuance.<br>P9. Assign RP Technicians to assist in emergency response support activities. | F6 - change TSC Manager to EPM<br>F8 - remove TSC Manager<br>F12 - eliminate task<br>F1 - task from Rad Chem Coord<br>F2 - task from Rad Chem Coord<br>F3 - task from Rad Chem Coord<br>F6 - task from Rad Chem Coord<br>F7 - task from Rad Chem Coord<br>F11 - task from Rad Chem Coord<br>F12 - task from Rad Chem Coord<br>F13 - task from Rad Chem Coord<br>P2 - task from Rad Chem Coord | No | N/A | Yes | Yes | EN-EP-610, Att. 9.9<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | F9. NUREG II.K.1.a |
| **Engineering Coordinator** | F1. Provide technical guidance to support repair activities.<br>F2. Recommend strategies and actions to prevent severe core damage and containment failure and reduce radiological releases.<br>F3. Coordinate Engineering work requests with the Engineering support team.<br>F4. Provide results back to the TSC Manager.<br>F5. Support SAMG activities and strategies.<br>F6. Direct tracking and trending of parameters.<br>F7. Direct the development of emergency repair procedures to support emergency teams.<br>F8. Track plant configuration changes. | P1. Maintain a log.<br>P2. Coordinate with the TSC Manager to call in additional engineering assistance as needed.<br>P3. Coordinate with Non Entergy engineering support (INPO, Mutual Assistance, Westinghouse, Equipment Vendors and/or NRC Engineers)<br>P4. Track assignments to TSC engineering personnel using WebEOC or EP-12-ALL, Engineering Task Assignment Form.<br>P5. Confirm any sample requests for chemistry sampling contain details on the type of information that is necessary.<br>P4. Provide engineering support for OSC activities as requested. | F4 - change TSC Manager to EPM<br>F5 - eliminate task - SAMG no longer required<br>P1 - task from TSC Comm | No | N/A | No | No | EN-EP-610, Att. 9.5<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| **TSC Communicator** | F1. Maintain facility log on WebEOC or other acceptable method.<br>F2. Ensure timeliness of facility briefs by prompting EPM to develop and adhere to briefing schedule<br>F3. Communicate between the ERF's if necessary regarding plant status or WebEOC entries.<br>F4. Support the EPM/TSC Manager as requested. | P1. Maintain communications as necessary with satellite Entergy response groups outside the ERFs<br>P2. Keep aware of Control Room personnel actions and procedures being implemented. Notify TSC Engneers if appropriate.<br>P3. Work with other members of the TSC staff to provide support to the Control Room to mitigate the effects of the event and return the plant to a safe condition. | **Eliminate position**<br>F1 - eliminate task (EPM does)<br>F2 - eliminate task<br>F3 - eliminate task<br>F4 - eliminate task<br>P2 - eliminate task (EPM does)<br>P3 - eliminate task (EPM does) | Yes | P1 - Eng Coord | Yes | No | EN-EP-610, Att. 9.8<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | N/A |
| **ENS Communicator (filled by TSC Engineering Coordinator in the TSC)** | F1. Prepare the NRC notification worksheet.<br>F2. Establish and maintain communications with the NRC via the ENS phone.<br>F3. Prepare follow-up notifications<br>F4. Monitor plant computer parameters and provide plant status to the NRC.<br>F5. Use backup NRC notification method if ENS line fails. | P1. Maintain a log<br>P2. Assist the Engineering Coordinator as necessary in obtaining plant data | N/A | No | N/A | No | No | EN-EP-610, Att. 9.12<br>EN-EP-610, Att. 9.13 | F2. NUREG 0654 II.A.1.e |
| **Reactor Engineer** | 1. Determine and provide estimation of core damage.<br>2. Assist in Severe Accident Management Guideline implementation.<br>3. Provide core parameter information results back to the TSC Manager. | N/A | **Eliminate position** - no Reactor Eng. responsibilities to transfer | Yes | N/A | Yes | No | EN-EP-610, Att. 9.4<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | F1. NUREG 0654 II.B.5 (Table B-1) |
| **TSC Engineer - Mechanical** | F1. Respond to engineering requests from the Engineering Coordinator.<br>F2. Evaluate SAM/SAG strategy implementation when designated | P1. Assist the OSC Mechanical and I&C/Electrical Coordinators in preparing to send repair teams into the plant | **Eliminate position** - eliminate tasks | Yes | N/A | Yes | No | EN-EP-610, Att. 9.6<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | F1. NUREG 0654 II.B.5 (Table B-1) |
| **TSC Engineer - Electrical/I&C** | F1. Respond to engineering requests from the Engineering Coordinator.<br>F2. Evaluate SAM/SAG strategy implementation when designated | P1. Assist the OSC Mechanical and I&C/Electrical Coordinators in preparing to send repair teams into the plant | **Eliminate position** - eliminate tasks | Yes | N/A | Yes | No | EN-EP-610, Att. 9.6<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | F1. NUREG 0654 II.B.5 (Table B-1) |
| **IT Specialist** | F1. Monitor facility equipment (computer related and communications) to ensure adequate operation<br>F2. Resolve any IT related malfunctions<br>F3. Verify or perform ERDS activation.<br>F4. Assist with issues related to WebEOC, if available | P1. Assist the Engineering Team in obtaining plant data from the various TSC computer systems. | **Eliminate position**<br>F3 - eliminate task | Yes | F1 - IT Helpdesk<br>F2 - IT Helpdesk<br>F4 - IT Helpdesk | No | No | EN-EP-610, Att. 9.7<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **Security Coordinator** | F1. Overall coordination of the offsite assistance for the security related response.<br>F2. Designated National Incident Management System (NIMS) Liaison between the Incident Command Post (ICP) and Site Organization.<br>F3. Coordinate accountability<br>F4. Keep security force advised of emergency status<br>F5. Coordinate with Radiological Coordinator regarding protective actions for the security force.<br>F6. Keep the ED/EPM informed of any security contingency event which may be occurring and response in progress<br>F7. Coordinate the dispatch of security officers to evacuation assembly areas and keep the ED/EPM informed of evacuation accountability. | P1. Provide assistance in evaluating plant equipment/system(s) to determine if malfunctionsare related to sabotage.<br>P2. Coordinate assistance to monitoring teams by permitting access to owner controlled areas normally gated off. | N/A | No | N/A | No | No | EN-EP-610, Att. 9.10<br>E-Plan B.5.d<br>E-Plan Figure B-1.2a<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| | | | | | | | | | |
| **OPERATIONS SUPPORT CENTER** | | EN-EP-611 | | | | | | | |
| **OSC Manager** | F1. Direct the activation, operation and deactivation activities of the OSC.<br>F2. Coordinate and/or prioritize assessment and corrective actions with the TSC.<br>F3. Provide periodic briefings to the OSC personnel.<br>F4. Support the formation, briefing and debriefing of teams.<br>F5. Maintain communications with the CR and/or the TSC to inform of OSC teams activities.<br>F6. Ensure timely dispatch of the teams and mobilize other required support personnel.<br>F7. Ensure work task priorities are being maintained.<br>F8. Maintain OSC accountability.<br>F9. Coordinate movement of OSC personnel to a habitable location or alternate OSC if conditions degrade.<br>F10. Identify and request resources, equipment and supplies to support the OSC. | P1. Maintain adequate OSC Staffing.<br>P2. Maintain a log. | F1 - task from OSC Log Keeper<br>F4 - task from Work Control Coord<br>P1 - task from Work Control Coord<br>P2 - task from Work Control Coord<br>F3 - tasks from Mech/I&C/Elect Coord<br>F4 - tasks from Mech/I&C/Elect Coord | No | N/A | Yes | Yes | EN-EP-611, Att.9.1<br>E-Plan B.5.d<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| **Work Control Coordinator** | F1. Coordinate the formation, briefing and debriefing of repair and corrective action teams and onsite monitoring teams.<br>F2. Maintain communications with the Maintenance Coordinator in the TSC.<br>F3. Ensure timely dispatch of repair/corrective action teams, search/rescue teams, onsite monitoring teams and mobilize other required support personnel.<br>F4. Use WebEOC or other acceptable methods to dispatch and track teams. | P1. Issue radio and headsets as needed.<br>P2. Ensure on-going accountability for OSC personnel.<br>P3. Monitor the activities of team personnel in the field.<br>P4. Direct the OSC Log Keeper to assist in maintaining records as necessary.<br>P5. Inform the OSC Manager and other OSC Coordinators of changing situations in the plant based on information received from dispatched teams. | **Eliminate position**<br>F1 - eliminate task (done by OSCM)<br>F2 - eliminate task<br>F3 - eliminate task (done by OSCM)<br>P3 - eliminate task (done by OSCM)<br>P4 - eliminate task<br>P5 - eliminate task | Yes | F4 - OSC Manager<br>P1 - OSC Manager<br>P2 - OSC Manager | Yes | No | EN-EP-611, Att. 9.3<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| **OSC Log Keeper** | F1. Maintain facility log on WebEOC or other acceptable method.<br>F2. Ensure timeliness of facility briefs by prompting the OSC Manager of the briefing schedule if necessary.<br>F3. Support the OSC Manager as requested | P1. Support the Security Coordiantor with Accountability, if applicable. | **Eliminate position**<br>F2 - eliminate task<br>F3 - eliminate task<br>P1 - eliminate task | Yes | F1 - OSC Manager | No | No | EN-EP-611, Att. 9.6<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| **Rad/Chem Coordinator** | F1. Coordinate RP activities, including on-site radiological assessment, personnel exposure control, and radiation protection programs.<br>F2. Ensure use of protective clothing, respiratory protection, and access control within the plant is deemed appropriate to control personnel exposures.<br>F3. Deploy onsite radiation monitoring teams to survey radiation levels and sample for contamination.<br>F4. Ensure habitability of the TSC and/or OSC and habitability of Control Room (where applicable)<br>F5. Ensure that personnel are decontaminated, if necessary.<br>F6. Conduct/provide assistance for the rad briefings to support the dispatch of the repair/corrective action teams and chemistry/ RP sampling.<br>F7. Communicate rad/chemistry sample results to the TSC and/or CR.<br>F8. Coordinate the transport of potentially contaminated or highly exposed personnel to off-site medical facilities.<br>F9. Determine the necessity for emergency exposure limits and KI issuance and communicate conditions to the TSC.<br>F10. Provide radiological support for evacuations, medical response, fire response and search and rescue.<br>F11. Ensure emergency ventilation filtration system is started per procedures (site specific).<br>F12. Establish chemistry sampling priorities.<br>F13. Debrief returning emergency teams. | P1. Maintain a log.<br>P2. Ensure requests for chemistry sampling contain specific details on the type of results information that is necessary. | **Eliminate position**<br>F4 - eliminate task (Radiological Coordinator does)<br>F5 - eliminate task (Radiological Coordinator does)<br>F8 - eliminate task (Radiological Coordinator does)<br>F9 - eliminate task (Radiological Coordinator does)<br>F10 - eliminate task (Radiological Coordinator does)<br>P1 - eliminate task | Yes | F1 - Radiological Coordinator<br>F2 - Radiological Coordinator<br>F3 - Radiological Coordinator<br>F6 - Radiological Coordinator<br>F7 - Radiological Coordinator<br>F11 - Radiological Coordinator<br>F12 - Radiological Coordinator<br>F13 - Radiological Coordinator<br>P2 - Radiological Coordinator | No | No | EN-EP-611, Att. 9.5<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | F5. NUREG 0654 II.K.1.e |
| **Mechanical Coordinator** | F1. Assign team members to the repair and corrective action teams<br>F2. Conduct/participate in pre-job briefing for the assigned tasks.<br>F3. Ensure repair and corrective action teams are tracked.<br>F4. Ensure communication with the teams is maintained.<br>F5. Participate in debriefing of returning emergency teams. | N/A | **Eliminate Position**<br>F1 - eliminate task (OSCM does)<br>F2 - eliminate task (OSCM does)<br>F5 - eliminate task (OSCM does) | Yes | F3 - OSC Manager<br>F4 - OSC Manager | No | No | EN-EP-611, Att. 9.4<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| **I&C / Electrical Coordinator** | F1. Assign team members to the repair and corrective action teams.<br>F2. Conduct/participate in pre-job briefings<br>F3. Ensure repair and corrective action teams are tracked.<br>F4. Ensure communication with the teams is maintained.<br>F5. Participate in debriefing of returning emergency teams. | N/A | **Eliminate Position**<br>F1 - eliminate task (OSCM does)<br>F2 - eliminate task (OSCM does)<br>F5 - eliminate task (OSCM does) | Yes | F3 - OSC Manager<br>F4 - OSC Manager | No | No | EN-EP-611, Att. 9.4<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **Operations Support** | F1. Support the OSC as needed.<br>F2. Ensure the SM is informed of OSC teams and activities, as applicable.<br>F3. Identify potential operational support needs. | P1. Maintain a log using WebEOC or EP-3-ALL, Log Sheet Form.<br>P2. Particiapte in team dispatch and field operations. | **Eliminate Position**<br>F1 - eliminate task<br>F2 - eliminate task (OSCM does)<br>F3 - eliminate task<br>P1 - eliminate task (OSCM does)<br>P2 - eliminate task (OSCM does) | Yes | N/A | No | No | EN-EP-611, Att. 9.2<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |
| **OSC Teams/Technicians (Electrical, I&C, Mechanical, Maintenance, RP/HP, Chemistry)** | F1. Perform initial actions per procedure upon arrival in the OSC.<br>F2. Attend pre-job briefing prior to performing emergency maintenance.<br>F3. Ensure status boards and/or WebEOC reflect the correct status.<br>F4. Perform in-plant activities as directed by the OSC Coordinator(s).<br>F5. Debrief team activity upon return to the OSC.<br>F6. RP performs habitability of ERFs where applicable. | N/A | N/A | No - reduced numbers | N/A | Yes | No | E-Plan B.5.d<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 II.B.5 (Table B-1) |
| | | | | | | | | | |
| JOINT INFORMATION CENTER | | IP-EP-260 | | | | | | | |
| **Company Spokesperson** | F1. Obtain briefing from the ED to ensure timely development of news releases.<br>F2. Ensure that news media briefings are held regularly during the course of the emergency.<br>F3. Serve as spokesperson at media briefings.<br>F4. Keep the Entergy Vice President of Communications, or designee, informed throughout the emergency.<br>F5. Resolve any known rumors or misinformation to the Media. | E1. Review and provide input to the Press Release Writer on all written statements gnerated at the JIC.<br>E2. Coordinate briefings with VYSOEM and the counties.<br>E3. Assist in developing a Recovery Action Plan. | F1 - task from Press Release Writer<br>F2 - task from Press Release Writer<br>F3 - task from Press Release Writer<br>E1 - task from Inquiry Response Coord<br>E2 - task from Inquiry Response Coord | No | N/A | Yes | No | IP-EP-260, Att. 9.3<br>E-Plan B.5.c<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | F3. NUREG 0654 II.B.7.d/ II.G.3.a/II.G.4.a<br>F5. NUREG 0654 II.G.4.c |
| **JIC Manager** | F1. Direct the activation, operation and deactivation of the JIC.<br>F2. Obtain ED approval for the developed news releases and revise accordingly.<br>F3. Ensure press release information is communicated to the offsite agencies.<br>F4. Ensure press releases are coordinated with the offsite agencies.<br>F5. Ensure appropriate timing, content and distribution of news releases.<br>F6. Ensure activation of rumor control/public inquiry activities for response to questions from the general public.<br>F7. Establish or ensure media briefing schedule.<br>F8. Notify the Corporate Emergency Center (CEC) of JIC operational status. | E1. Formulate crisis communication strategy and priorities.<br>E2. Assist Company Spokesperson preparing for media briefings.<br>E3. Monitor media briefings.<br>E4. Assist in developing a Recovery Action Plan. | E1 - task from PR Writer<br>E2 - task from PR Writer<br>E3 - task from PR Writer<br>F1 - task from JIC A&L Coord<br>F2 - task from JIC A&L Coord<br>F3 - task from JIC A&L Coord<br>E1 - task from JIC A&L Coord<br>E2 - task from JIC A&L Coord<br>F1 - task from IR Coord<br>F2 - task from IR Coord<br>F3 - task from IR Coord<br>E3 - task from IR Coord<br>E4 - task from IR Coord<br>E1 - task from Documenter<br>E2 - task from Documenter<br>E3 - task from Documenter | No | N/A | Yes | No | IP-EP-260, Att. 9.2<br>E-Plan B.5.c<br>E-Plan B.5.d<br>E-Plan Figure B-1.2a<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Technical Advisor** | F1. Answer technical questions from the news media regarding the emergency situation.<br>F2. Advise the Inquiry Response Coordinator on questions about radiation or nuclear technology to respond to phone questions from the public or media.<br>F3. Assists the press release writer for technical accuracy, if JIC Technical Assistant position is not staffed. | E1. Establish and maintain contact with the Public Information Liaison to obtain updated information.<br>E2. Ensure plant status information is properly and promptly documented.<br>E3. Monitor media briefings. | E1 - task from AV Coord<br>E3 - task from AV Coord<br>F2 - change IRC to JIC Manager<br>F3 - remove reference to Tech Assistant<br>E1 -task from Rad Advisor<br>E2 - task from Rad Advisor<br>E3 - task from Rad Advisor<br>E4 - task from Rad Advisor | No | N/A | Yes | No | IP-EP-260, Att. 9.4<br>E-Plan B.5.d<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Media Liaison** | F1. Verify the readiness of the JIC briefing area.<br>F2. Ensures media is informed of protocol and schedules established for media briefings.<br>F3. Receive and distribute press release information to the media in the JIC briefing area. | E1. Support audio-video personnel during media briefings, as needed.<br>E2. Support Company Spokesperson with one-on-one or small group interviews.<br>E3. Prepare/maintain media materials and media kits for media present in the JIC. | E1 - task from AV Graphics<br>E2 - task from AV Graphics | No | N/A | No | No | IP-EP-260, Att. 9.7<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Press Release Writer** | F1. Generate press releases as directed by the JIC Manager.<br>F2. Coordinate with the JIC Manager and transmit generated press releases to ED for approval.<br>F3. Transmit copies of approved press releases to the CEC/Corporate Communications. | E1. Perform Courtesy Calls as directed.<br>E2. Coordinate with the Technical Advisor/Technical Assistant to obtain up to date and accurate information for press releases.<br>E3. Distribute news releases to media/wire services, ERFs and designated local officials.<br>E4. Monitor media briefings as time permits. | **Eliminate position**<br>E4 - eliminate task | Yes | F1 - Company Spokesperson<br>F2 - Company Spokesperson<br>F3 - Company Spokesperson<br>E1 - JIC Manager<br>E2 - JIC Manager<br>E3 - JIC Manager | No | No | IP-EP-260, Att. 9.1<br>E-Plan B.5.d<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **JIC Admin & Logistics Coordinator** | F1. Activate facility security and briefing center.<br>F2. Maintain access control to the JIC.<br>F3. Ensure distribution of all press releases to the offsite agencies, JIC/EOF facilities and to the Media Liaison. | E1. Oversee support activities and functions.<br>E2. Participate in JIC Unified Command to ensure coordinated JIC support services with NYS.<br>E3. Ensure approved news releases are provided to the Documenter for record keeping.<br>E4. Supervise Entergy JIC deactivation. | **Eliminate position**<br>E3 - eliminate task (JIC Mgr does) | Yes | F1 - JIC Manager<br>F2 - JIC Manager<br>F3 - JIC Manager<br>E1 - JIC Manager<br>E2 - JIC Manager<br>E4 - JIC Manager | No | No | IP-EP-260, Att. 9.6<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Inquiry Response Coordinator** | F1. Ensure activation of rumor control activities for response to questions from the general public and media.<br>F2. Monitor and respond to the public/media inquiry calls and track trends.<br>F3. Refer questions on radiation or nuclear technology from Rumor Control Center to the Technical Advisor | E1. Serve as Public Information Liaison with County PIOs.<br>E2. Relay information on County communications plans to the JIC Manager, as appropriate.<br>E3. Ensure Entergy public information is known within the remote public inquiry function locations.<br>E4. Monitor the NYALERT/JIC website for coordination of response and public inquiry among Entergy, the NYSEOM and Counties. | **Eliminate position** | Yes | F1 - JIC Manager<br>F2 - JIC Manager<br>F3 - JIC Manager<br>E1 - Company Spokesperson<br>E2 - Company Spokesperson<br>E3 - JIC Manager<br>E4 - JIC Manager | No | No | IP-EP-260, Att. 9.14<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Media Monitoring** | F1. Monitor TV, radio broadcasts and other media sources for inaccuracies.<br>F2. Report all inaccuracies to the Information Coordinator or JIC Manager to ensure they are addressed in the media briefings. | N/A | N/A | No | N/A | No | No | IP-EP-260, Att. 9.10<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Rad Advisor** | Site-specific position | E1. Under direction of the JIC Manager, establish and maintain contact with the Public Information Liaison and/or the Radiological Assessment Coordinator on event radiological aspects.<br>E2. Provide information and advice to the Company Spokesperson on radiological status due to plant events.<br>E3. Review written statements and monitor media briefings for accuracy relative to radiological aspects.<br>E4. Assist the Technical Advisor as needed. | **Eliminate position** | Yes | E1 - JIC Technical Advisor<br>E2 - JIC Technical Advisor<br>E3 - JIC Technical Advisor<br>E4 - JIC Technical Advisor | No | No | IP-EP-260, Att. 9.5<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Audio Visual Coordinator** | Site-specific position | E1. Perform and/or assist with all audiovisial tasks for media briefings.<br>E2. Supervise Audio Visual Graphics Support staff.<br>E3. Ensure audio, visual and other graphic support needs/requests are met. | **Eliminate position**<br>E2 - Eliminate task | Yes | E1 - JIC Technical Advisor<br>E3 - JIC Technical Advisor | No | No | IP-EP-260, Att. 9.8<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **AV Graphics Support (2)** | Site-specific position | E1. Perform all audio visual graphics support tasks.<br>E2. Provide video and/or graphics support for media briefings, as needed. | **Eliminate position** | Yes | E1 - Media Liaison<br>E2 - Media Liaison | No | No | IP-EP-260, Att. 9.9<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Documenter** | Site-specific position | E1. Implement required documentation procedures.<br>E2. Prepare and maintain logbook of all documentation.<br>E3. Maintain data on JIC Work Room displays. | **Eliminate position** | Yes | E1 - JIC Manager<br>E2 - JIC Manager<br>E3 -JIC Manager | No | No | IP-EP-260, Att. 9.11<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **Support Staff** | Site-specific position | E1. Ensure efficient internal JIC distribution of materials.<br>E2. Support external distribution of final written statements, as requested.<br>E3. Coordinate with NYS Support Staff to accomplish JIC support requirements.<br>E4. Provide other support services as requested. | **Eliminate position**<br>E1 - eliminate task<br>E2 - eliminate task<br>E3 - eliminate task<br>E4 - eliminate task | Yes | N/A | No | No | IP-EP-260, Att. 9.12<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| **IT Specialist** | Site-specific position | E1. Monitor IT equipiment to ensure proper working order.<br>E2. Troubleshoot problems and assist with IT and computer related difficulties.<br>E3. Keep the Admin & Logistics Coordinator informed of all issues and the status of resolution. | **Eliminate position** | Yes | E1 - Help Desk<br>E2 - Help Desk<br>E3 - Help Desk | No | No | IP-EP-260, Att. 9.13<br>E-Plan Figure B-1.2d<br>E-Plan Table B-5 | N/A |
| | | | | | | | | | |
| **CONTROL ROOM** | | IP-EP-210 | | | | | | | |
| **Shift Manager/Emergency Director (SM/ED)** | F1. Classify and declare the emergency (cannot delegate)<br>F2. Assume role of ED and overall command and control of the emergency response until relieved.<br>F3. Approve the offsiste notification and message content (cannot delegate).<br>F4. Direct accurate and timely offsite notifications.<br>F5. Direct and ensure timely augmentation of the ERO consistent with site procedures.<br>F6. Direct and ensure timely ENS notification and ensure NRC is kept informed of the emergency situation.<br>F7. Ensure others (Site Duty Manager, Corporate, etc.) are kept informed of the emergency situation.<br>F8. Perform accident assessment and oversight of the corrective actions to mitigate the event.<br>F9. Direct and ensure dose assessment is performed if a release is occurring.<br>F10. Review and interpret offsite dose projections for accuract and impact to the health and safety of personnel and the public.<br>F11. Make offsite protective action recommendations (PARs) (cannot delegate).<br>F12. Direct Protective actions for on-site personnel.<br>F13. Approve and ensure accurate and timely PAR notification to offsite agencies (cannot delegate).<br>F14. Authorize emergency radiation exposure and issuance of KI.<br>F15. Implement severe accident management procedures (where applicable).<br>F16. Invoke 50.54(x).<br>F17. Direct evacuation of area, building, protected area or owner controlled area.<br>F18. Request security to perform accountability.<br>F19. Direct first responders / first aid to respond to reported medical events.<br>F20. Direct qualified personnel to perform search and rescue operations.<br>F21. Request assistance from offsite fire and/or medical support agencies.<br>F22. Integrate off-site responders with on-site efforts when required.<br>F23. Direct personnel to coordinate transportation of injured personnel to supporting hospital.<br>F24. Ensure/direct ERDS activation within 60 minutes of an Alert or higher classification.<br>F25. Ensure reports of other non-emergency reportable events are made during emergency plan activation (hazardous matrerial spills, contaminated injured personnel, etc.).<br>F26. Turnover commandand control of responsibilities for notification, classification, PARs, and actions outside the proected area to the relieving Emergency Director.<br>F27. Turnover command and control of onsite accident mitigation and corrective actions, onsite protective actions, and ENS notifications to the Emergency Plant Manager.<br>F28. Advise the relief ED of core safety and plant conditions for classification and PAR determinations.<br>F29. Authorize press releases (cannot delegate).<br>F30. Terminate the emergency (cannot delegate). | E1. If BDBEE ELAP occurs, enter 0-FSG-100.<br>E2. Assist in response to an emergency at the other unit. | N/A | No | N/A | Yes | Yes | IP-EP-210, Att. 9.1<br>IP-EP-210, Att. 9.2<br>E-Plan B.1.a<br>E-Plan B.2<br>E-Plan B.3<br>E-Plan B.4<br>E-Plan B.5.d<br>E-Plan B.7<br>E-Plan B.8.b<br>E-Plan Figure B-1.1<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **Control Room Supervisor (CRS)** | F1. Assume the responsiblities and authority of the ED if the SM becomes incapacitated or is absent.<br>F2. Direct plant operations and assessment of operational aspects.<br>F3. Perform accident assessment and initiate actions to mitigate the event. | N/A | **Eliminate position**<br>Tasks performed by SM | Yes | N/A | Yes | No | E-Plan B.1.a<br>E-Plan B.2<br>E-Plan B.3<br>E-Plan B.5.d<br>E-Plan Figure B-1.1<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |
| **Shift Technical Advisor (STA)** | F1. Provide advisory technical support to the SM in areas of thermal hydraulics, reactor engineering, and plant analysis with regard to safe operation of the unit.<br>F2. Perform accident asssessment.<br>F3. Other actions as directed by the ED to implement the emergency plan and procedures. | N/A | **Eliminate position**<br>Tasks performed by SM | Yes | N/A | Yes | No | E-Plan B.1.a<br>E-Plan Figure B-1.1<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | N/A |
| **On-shift CR Operators (2)** | F1. Perform other assigned functions per emergency procedures or emergency plan (e.g., fire brigade, OSC Operations Support).<br>F2. Report to the OSC when activated if required to perform other functions outside the Control Room. | N/A | **Eliminate position**<br>Tasks performed by SM/NLO | Yes | N/A | Yes | No | E-Plan B.1.a<br>E-Plan B.5.d<br>E-Plan Figure B-1.1<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |
| **On-shift Plant Operators (5)** | F1. Perform other assigned functions per emergency procedures or emergency plan (e.g., fire brigade, communicator).<br>F2. Report to the OSC when activated or CR where applicable. | N/A | N/A | No - reduced numbers | N/A | Yes | No | E-Plan B.1.a<br>E-Plan B.5.d<br>E-Plan Figure B-1.1<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |
| **On-shift Chemistry Technician** | F1. Collect and analyze samples.<br>F2. Perform other assigned functions per emergency procedures or emergency plan.<br>F3. Report to the OSC (or other assigned ERF) when activated. | N/A | **Eliminate position**<br>F2 - eliminate task<br>F3 - eliminate task | Yes | F1 - RP Technician | Yes | No | IP-EP-210, Att. 9.6<br>E-Plan B.1.a<br>E-Plan B.5.d<br>E-Plan Figure B-1.1<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |
| **On-shift Radiation Protection Technician** | F1. Monitor and/or survey area for changing radiological conditions and radiological releases.<br>F2. Perform radiological surveys for repair amd corrective action teams, search and rescue, medical and fire-fighting activities when required.<br>F3. Support evacuation and assembly (where applicable).<br>F4. Provide dosimetry, as needed, and radiation exposure control support to on-shift personnel.<br>F5. Provide dosimetry and radiation exposure control support to offsite agencies responding to provide assistance onsite such as medical fire, and law enforcement (where applicable).<br>F6. Perform other assigned functions per emergency procedures or emergency plan.<br>F7. Report to the OSC (or other assigned ERF) when activated. | E1. Monitor control room habitability.<br>E2. Establish control room contamination control. | F1 - task from Chemistry Tech | No | N/A | Yes | No | IP-EP-210, Att. 9.5<br>E-Plan B.1.a<br>E-Plan B.5.d<br>E-Plan Figure B-1.1<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |
| **On-shift Maintenance** | F1. Perform repair and corrective actions.<br>F2. Report to the OSC when activated. | N/A | **Eliminate position**<br>Tasks performed by NLO | Yes | N/A | Yes | No | E-Plan Table B-1 | NUREG 0654 Table B-1 |
| **Security (tasks that support the EPlan)** | F1. Perform accountability of personnel in the protected area.<br>F2. Support evacuations and assembly where applicable.<br>F3. Request assistance from local law enforcement to support emergncy plan response.<br>F4. Support site access for medical, fire fighting, or law enforcement offsite responders.<br>F5. Serve as liaison/coordinator for the incident command system.<br>F6. Provide input to the Shift Manager/ED for security EA:Ls. | N/A | N/A | No | N/A | Yes | No | E-Plan B.1.a<br>E-Plan B.5.d<br>E-Plan Figure B-1.1<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |
| **On-Shift CR Communicator** | F1. Make timely and correct notification to State and Local agencies using the primary and backup notification system when directed by the ED until relieved.<br>F2. Prepare the NRC notification worksheet.<br>F3. Make timely NRC notifications when directed by the ED until relieved.<br>F4. Complete notification forms and procedure/checklists where applicable.<br>F5. Activate the ERO notification system when directed.<br>F6. Make followup notifications.<br>F7. Turn over the State and local notification responsibilities to the relief Offsite Communicator when directed by the ED.<br>F8. Turnover ENS Communicator responsibilities to relief ENS Communicator when directed by the ED. | E1. Provide clear and concise communications between the control room and other ERFs.<br>E2. Assist in the performance of CCR setup, second shift staffing and faxing/recordkeeping. | E1 - from POM<br>E2 - from POM | No | N/A | Yes | Yes | IP-EP-210, Att. 9.3<br>E-Plan B.5.d<br>E-Plan Figure B-1.2b<br>E-Plan Table B-1<br>E-Plan Table B-5 | NUREG 0654 Table B-1 |
| **On-shift Dose Assessor (filled by shift personnel assigned other duties)** | F1. Monitor or obtain meteorological and radiological data.<br>F2. Monitor parameters to detect changes that affect dose assessment.<br>F3. Perform dose projection calculations using primary or backup methods.<br>F4. Evaluate dose projection output.<br>F5. Determinne dose consequences.<br>F6. Communicate results to the ED to determine appropriate classification or PAR. | N/A | N/A | No | N/A | Yes | Yes | IP-EP-210, Att. 9.8<br>E-Plan Table B-1 | NUREG 0654 Table B-1 |
| **Fire Brigade (filled by shift personnel assigned other duties)** | F1. Integrate the fire fighting efforts with the fire fighting assistance provided by offsite fire fighting departments.<br>F2. (FBL) Brief the offsite fire fighting chief/leader when they arrive on scene.<br>F3. (FBL) Turnover fire fighting command and control to the offsite agency incident commander.<br>F4. (FBL) Provide technical support to the incident commander. | N/A | N/A | No | N/A | Yes | No | E-Plan Table B-1 | NUREG 0654 Table B-1 |
| **Rescue/First Aid (filled by shift personnel assigned other duties)** | F1. Locate missing personnel following an evacuation.<br>F2. Provide initial first aid/medical treatment on reported injuries. | N/A | N/A | No | N/A | Yes | No | E-Plan Table B-1 | NUREG 0654 Table B-1 |
| **Facility Communicator** | Site-specific position | E1. Maintain communication with other facilities for the transfer of accurate and timely data and information. | **Eliminate position** | Yes | N/A | No | No | IP-EP-210, Att. 9.4<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |

# Attachment 8
# Emergency Response Organization Task Analysis

| Current ERO Position | EN-EP-801 Tasks (F#) | Other Procedural Tasks (EN-EP-6XX(P#),IP-EP-XX(E#)) | Implementing Actions | Position eliminated? | Task Assigned to? | Min Staffing? | Key NRC PI? | Procedure(s) E-Plan section | Regulatory Requirement |
|---|---|---|---|---|---|---|---|---|---|
| **Plant Operations Manager** | Site-specific position | E1. Perform CCR set-up.<br>E2. Schedule second shift.<br>E3. Assist the SM/ED as requested. | **Eliminate position**<br>E3 - eliminate task | Yes | E1 - CRC (already assisting)<br>E2 - CRC (already assisting) | No | Yes | IP-EP-210, Att. 9.1<br>E-Plan B.2<br>E-Plan B.3<br>E-Plan B.5.d<br>E-Plan Figure B-1.2b<br>E-Plan Table B-5 | N/A |

# ATTACHMENT 9

# NL-19-001

# List of Regulatory Commitments

The following table identifies those actions committed to by Entergy Nuclear Operations, Inc. (Entergy) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

| COMMITMENT | TYPE (Check one) | | SCHEDULED COMPLETION DATE |
|---|---|---|---|
| | ONE-TIME ACTION | CONTINUING COMPLIANCE | |
| The applicable fuel handling procedures will be revised to require that the radiation monitor listed in gaseous effluent EALs is in service or that a Chemistry Technician be on-site as a prerequisite prior to fuel handling activities. | x | | Prior to implementation of the Stage I changes to the IPEC SEP. |
| A drill will be conducted to confirm the ability of the Stage II augmented emergency response organization to perform the necessary functions of each emergency response facility and to utilize the post-shutdown procedures being developed, depicting the revised assignment of duties. State and local response organizations will be offered the opportunity to participate, and the NRC and FEMA will be provided advance notice and the opportunity to observe drill activities. | x | | Prior to implementation of the Stage II Post-Shutdown Emergency Plan |