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February 9, 2001

Re: Indian Point Units No. 1 and No. 2
Docket No. 50-003 and No. 50-247
NL 01-015

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

SUBJECT: Revision to Emergency Plan Procedures

In accordance with 10 CFR 50.54(q) and 10 CFR 50.4(b)(5), Consolidated Edison Company of New York, Inc., submits herewith a controlled copy of changes to the Emergency Plan procedures for Indian Point Units Nos. 1 and 2. These changes do not reduce the effectiveness of the Emergency Plan and the Emergency Plan as a whole continues to meet the standard of 50.47(b) and the requirements of Appendix E to 10 CFR 50.

Should you or your staff have any questions, please contact Mr. Frank Inzirillo, Manager, Emergency Planning, 914-271-7418.

There are no commitments contained in this letter.

Sincerely,

A045

cc: Next page
Enclosure

cc:

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TO: **Emergency Planning Document Controlled Copy #** 14 **Holder**

NRC Document Control Desk
Document Holder Organization

FROM: **Emergency Planning Document Custodian**

SUBJECT: **Emergency Planning Document Update**

Please update your controlled copy of the documents listed below as specified with the copy(s) attached. It is requested that the update be completed within 3 days of receipt.

Please sign this memo indicating that you have completed the update as specified and return to:

Consolidated Edison
Indian Point Nuclear Generating Station
Emergency Planning Department
Buchanan Service Center
Broadway & Bleakley Aves.
Buchanan, NY 10511
Attn: Document Custodian

Document #	Document Name	New Rev. #/ Date	Old Rev. #/ Date	Instructions
N/A	Emergency Plan for Indian Point Unit Nos. 1 & 2	01-01 1/12/01	00-01 3/28/00	Replace entire document

Update completed as specified: _____ _____
Signature of Controlled Copy Holder Date

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DOCKET NOS. 50-3, 50-247

EMERGENCY PLAN FOR

INDIAN POINT UNIT NOS. 1 AND 2

Revision 01-01

CONTROLLED COPY

#2808

SNSC Review: Marsha O'Neill Date: 1/11/01

Approved By: [signature] Date: 1/12/01

Effective Date: 1/12/01

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1.0 DEFINITIONS

- **Accountability** - the process used by the Onsite Emergency Organization to identify potentially missing and/or injured personnel during an emergency.

- **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 which provides the Control Room with remote monitoring capabilities.

- **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.

- **Central Information Group** - (CIG) - part of Con Edison System Operations located at the West End Avenue, is manned 24 hours a day and located in New York City.

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

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

- **Emergency Coordinator** - a position title in NUREG 0654-Rev 1 corresponding to the Con Edison position of Emergency Director.

- **Emergency Director** - a previously designated and trained individual 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 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.

- **Emergency Operations Facility** - the facility for evaluating and coordinating all of Con Edison activities related to an emergency.

- **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 Site where planning is required for the plume exposure pathway out to approximately 10-miles (10-mile EPZ) and for the ingestion exposure pathway 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 Plant Manager** - The individual who has total responsibility and provides overall direction for the emergency actions of the Onsite Emergency Organization and acts as interim Emergency Director until the assigned Emergency Director assumes command.

- **Emergency Procedures Document (EPD)** - the document which contains Immediate Action Procedures (Book 1), Implementation Procedures and the current emergency notification roster (Book 2).

- **Exclusion Area** - the area surrounding the reactor in which licensee has authority to determine all activities including exclusion or removal of personnel and property from the area. (10 CFR 100)

- **Immediate Action Procedures** - preplanned immediate response actions required for emergency conditions (Emergency Procedures Document, Book 1).

- **Implementation Procedures** - detail procedures developed for implementing specific tasks or methods (Emergency Procedures Document, Book 2).

- **Indian Point Site** - the combined areas immediately surrounding Units 1 and 2, which are owned and operated by Consolidated Edison, and Unit 3, which is owned and operated by the New York Power Authority.

- **Memorandum of Understanding** - agreement between the New York Power Authority (NYPA) and Consolidated Edison defining rules and requirements applicable to such things as shared facilities, access roads and equipment.

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

- **Nuclear Facility Operator** - The licensees (Con Edison or NYPA) who operates the nuclear power plants at the Indian Point Site.

- **Offsite** - locations outside of the Indian Point Site boundary.

- **Onsite** - the area within the Indian Point Site boundary.

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

- **Operations Support Center** - located on the 53' elevation next to the TSC, it houses all Operations, Instrument and Control, Quality Assurance, Maintenance, Chemistry and Health Physics personnel awaiting assignment by the Shift Manager/Emergency Plant Manager. (NUREG0654)

- **Plant Emergency Procedures** - procedures located under separate cover from the Emergency Procedures Document which 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 Guides** - projected radiological dose or dose commitment values to individuals in the general population that warrant protective actions following a release of radioactive material.

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

- **Radiation Area** - any area, accessible to personnel, in which there exists radiation, originating in whole or in part within licensed material, at such levels that a major portion of the body could receive in any one hour a dose in excess of five millirem, or in any five consecutive days a dose in excess of one hundred millirem. Radiologically Controlled Area - those areas within the plant building or on plant property where access is restricted and monitored for the purpose of radiation protection.

- **Radiological Emergency Communication System (RECS)** - dedicated private line telephone system connecting the licensee with State and County Warning Points and Emergency Operations Centers.

- **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.

- **Recovery Manager** - the individual who reports to the President of the company and who directs the Corporate Response Organization during the recovery stage. He is responsible for the technical direction and control of the integrated recovery effort.

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

- **Site Boundary** - that line beyond which the land is neither owned, leased, nor otherwise controlled by either site licensee (Unit 2, 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)

- **Station** - the two Con Edison Nuclear Generating Units 1 and 2 located on the Indian Point Site.

- **Technical Support Center** - a previously designated and equipped location, onsite, which will be 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.

- **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.

2.0 SCOPE AND APPLICABILITY

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

This Emergency Plan is solely dedicated to Units 1 and 2 and includes details of how the Company utilizes its resources to assist the plant operating staff during an emergency situation.

Indian Point Site 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 Station 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. Figures 2-1 and 2-2 are maps which show the general location of the Site and its environs within a 10-mile and 50-mile radius, respectively. Approximately 1,000 people live within one mile and approximately 70,000 people live within a five-mile radius of the site based on the 1990 population estimates in the New York State Emergency Plan.

The Site is approximately 239 acres and contains three pressurized water reactors. Unit 1 (615 MWt, defueled) and Unit 2 (3071 Mwt), is owned and operated by Consolidated Edison. Unit 3 is owned and operated by the Entergy. Figure 2-3 is a plot plan for the Site. A separate plan for an emergency at Unit 3 has been prepared by the Power Authority. Con Edison and the Power Authority have entered into a joint agreement regarding the planning for and implementation of emergency response activities at Indian Point. A copy of this Memorandum of Understanding is included in the Letters of Agreement Section (Section 10 Appendix A).

This Plan describes in a general nature the response of Con Edison personnel at the Indian Point Site during emergencies. It identifies an Emergency Organization, describes facilities and equipment, assigns responsibilities and authorities and

identifies procedures for responding to all emergencies from minor injury to personnel to conditions having offsite radiological consequences. The procedures for implementing this Plan are presented in the Emergency Procedures Document. These procedures (immediate action and implementation procedures) identify the elements of the Emergency Organization and the interface with supporting offsite organizations. A listing of procedure subject matter is contained in Section 10 Appendix C. Copies of the Emergency Procedures Document are maintained in the Unit 2 Control Room, Technical Support Center, Emergency Operations Facility and alternate Emergency Operations Facility.

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 Room for use by the operating staff. Radiological control procedures are available for use by the Watch Health Physics personnel. Procedures that address Security requirements during emergencies for the security forces are contained in the Security Force Manual.

This Plan includes agreements made with offsite organizations that furnish support during emergencies. Copies of these agreements are contained in Section 10 Appendix A. Specific notification and direction instructions are incorporated into the Emergency Procedures Document where necessary.

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

FIGURE 2-1

0-10 MILE PLUME EXPOSURE PATHWAY EPZ

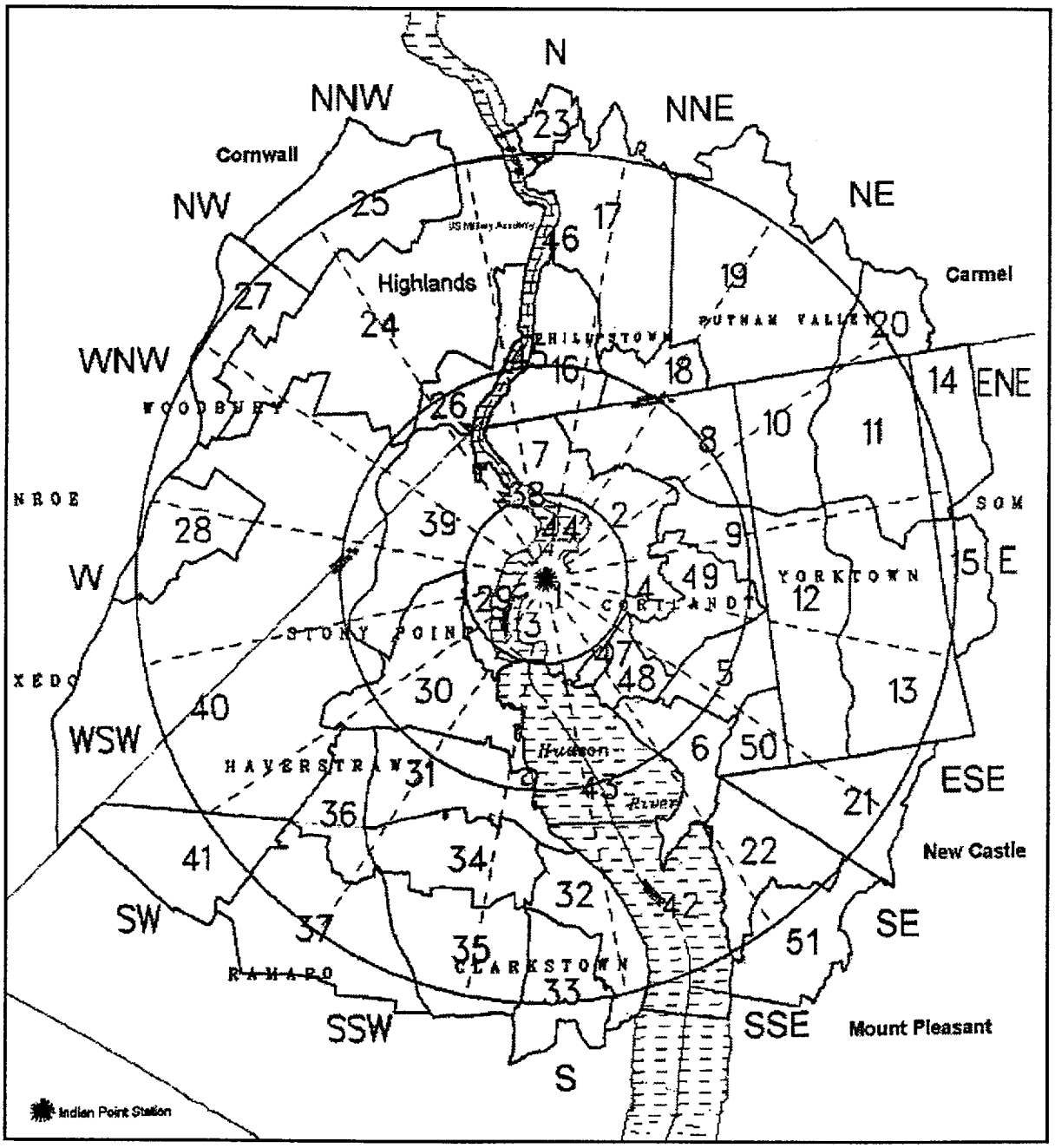


FIGURE 2-2

0-50 MILE INGESTION EXPOSURE PATHWAY EPZ

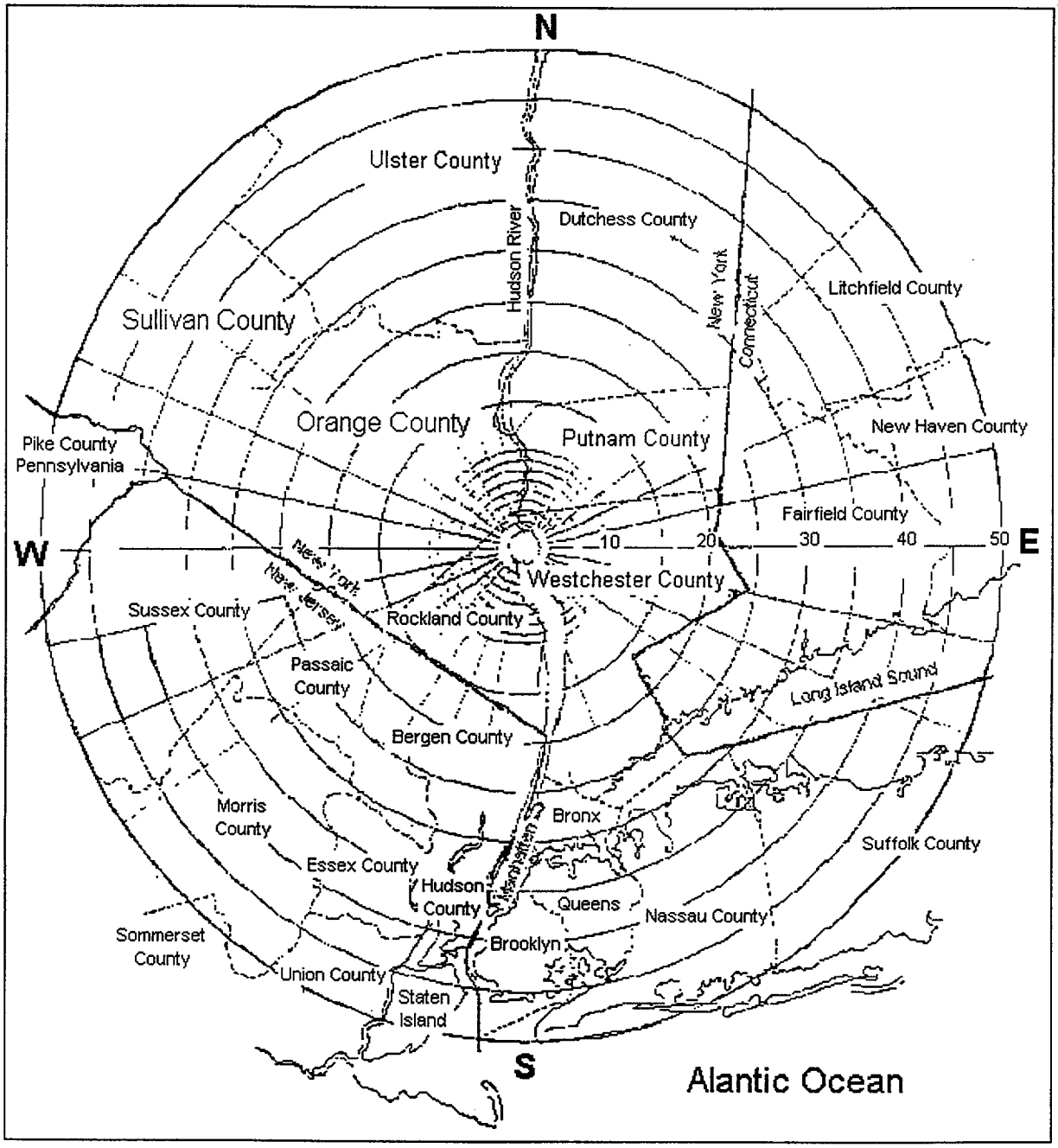
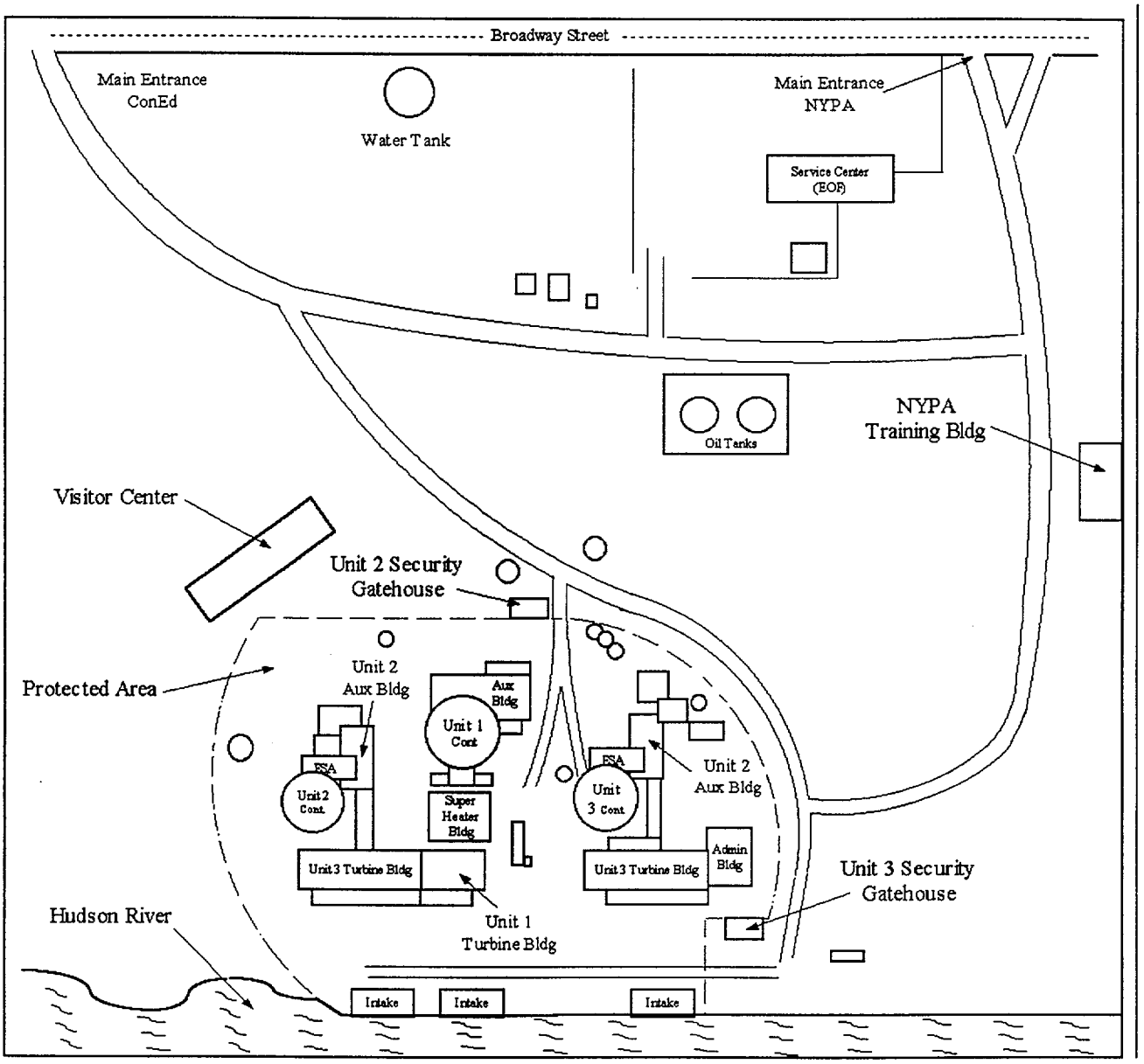


FIGURE 2-3

INDIAN POINT SITE



3.0 SUMMARY OF EMERGENCY PLAN

This Plan was developed to respond and minimize the onsite and offsite impact of an accident at Indian Point Unit 1 and 2. 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 Consolidated Edison. Protective measures outside the exclusion area (offsite) are the responsibility of state and local government authorities. The Indian Point Onsite and Offsite Emergency Organization can respond to any incident or accident 24-hours every day. This emergency organization consists of many subgroups. The responsibilities, authorities and interactions between the subgroups are discussed in Section 5.

This Plan incorporates a classification system for emergencies and prescribes the actions which are to be taken to protect the safety of the public, plant personnel and property both onsite and offsite. These actions are contained in the Indian Point Immediate Action Procedures and Implementation 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 Emergency Management Office and the County Offices of Emergency Management as described in their respective Emergency Plans.

The response to an emergency occurs in three phases.

The first phase includes immediate operator actions to maintain or bring the plant to a safe shutdown condition, initiate action to protect onsite personnel, classify the emergency and notify plant personnel and the appropriate offsite authorities. This phase is conducted by watch personnel (staffing level I, refer to section 5.1) with the assistance of other in-house personnel (staffing level II, refer to Section 5.2).

The second phase includes planed 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 (staffing level III). This phase includes augmenting the Onsite Emergency Organization with support from offsite.

The third phase (recovery) begins after the emergency is terminated and includes planned actions for reentry by the workforce to restore the station to normal operation, assist offsite authorities return the public evacuated from around the Site, and to implement post accident environmental sampling as needed. This phase is the responsibility of the Recovery Manager.

4.0 EMERGENCY CONDITIONS

4.1 CLASSIFICATION SYSTEM

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 classification's increase in overall severity from Notification of Unusual Event to General Emergency. The specific instruments, parameters or equipment statuses which identify the overall severity of the emergency condition and the actions to be taken by the facility staff are identified in the plant emergency procedures. The Emergency Action Levels (EALs) are grouped into nine categories to simplify their presentation and promote a rapid understanding by their users. (See Table 4-1). These categories are:

- CSFST Status
- Reactor Fuel
- Reactor Coolant System
- Containment
- Radioactivity Release/Area Radiation
- Electrical Failures
- Equipment Failures
- Hazards
- Other

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

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

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

4.1.1 Notification of Unusual Event

A Notification of Unusual Event classification is used to denote events are in process or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. The purpose of offsite notification is to (1) assure that the first step in any response later found to be necessary has been carried out, (2) bring the operating staff to a state of readiness, and (3) provide systematic handling of unusual events information and decision making. Any radioactive releases to the environment would not cause exposure to the offsite population at levels requiring Environmental Protection Agency (EPA) protective actions to be instituted.

The Shift Manager/Emergency Director would:

1. Promptly inform NRC, State and local offsite authorities and Corporate Management of the nature of the unusual condition as soon as it is discovered

2. Augment on-shift resources as needed

3. Assess and respond

4. Escalate to a more severe class, if appropriate

   or

5. Close out with verbal summary of offsite authorities followed by written summary within 24 hours

State and local offsite authorities would:

1. Provide fire or security assistance if requested

2. Escalate to a more severe class, if appropriate

   or

3. Standby until a verbal closeout

4.1.2 Alert

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

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

The Shift Manager/Emergency Director would:

1. Promptly inform NRC, State and local authorities and Corporate Management of Alert status and reason for Alert as soon as discovered

2. Augment resources by activating the Technical Support Center (TSC), Operations Support Center (OSC) and Emergency Operations Facility (EOF)

3. Assess and respond

4. Dispatch onsite monitoring teams and establish associated communications

5. Provide periodic plant status updates to offsite authorities (approximately every 30 minutes)

6. Provide periodic meteorological assessment to offsite authorities and, if any releases are occurring, dose estimates for actual release

7. Escalate to a more severe class, if appropriate

   or

8. Close out or recommend reduction in emergency class by verbal summary to offiste authorities followed by written summary within eight hours of closeout or class reduction.

State and local offsite authorities would:

1. Provide fire or security assistance if requested

2. Augment resources and bring primary response centers and Emergency Alert System(EAS) to standby status

3. Alert key emergency personnel to standby status including monitoring teams and associated communications

4. Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed technical specification limits

5. Escalate to a more severe class, if appropriate

   or

6. Maintain Alert status until verbal closeout, escalation, or reduction of emergency class.

4.1.3 Site Area Emergency

A Site Area Emergency indicates events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels except near the site boundary. The purpose of the Site Area Emergency declaration is to (1) assure that response centers are staffed, (2) assure that monitoring teams are dispatched, (3) assure 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 expected that the site boundary doses will be equal to or exceed 100 mRem Total Effective Dose Equivalent (TEDE), 500 mRem/CDE Thyroid, 100 mRem/hr External Exposure Rate, and 500 mRem/hr Thyroid Exposure Rate for one hour of inhalation.

The Shift Manager/Emergency Director would:

1. Promptly inform NRC, State and local offsite authorities and Corporate Management of Site Area Emergency status and reason for emergency as soon as discovered

2. Augment resources by activating the Technical Support Center (TSC), Operations Support Center (OSC) and Emergency Operations Facility (EOF)

3. Assess and respond

4. Dispatch onsite and offsite monitoring teams and establish associated communications

5. Provide an individual for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities)

6. Make senior technical and management staff on-site available for consultation with NRC and State on a periodic basis

7. Provide meteorological and dose estimates to offsite authorities for actual releases via a dedicated individual or automated data transmission

8. Provide release and dose projections based on available plant condition information and foreseeable contingencies

9. Escalate to General Emergency class, if appropriate

   or

10. Close out or recommend reduction in emergency class by briefing of offsite authorities at Emergency Operations Facility and by phone followed by written summary within eight hours of close out or class reduction.

State and local offsite authorities would:

1. Provide any assistance requested

2. If sheltering near the site is desirable, activate public notification system

3. Provide public within at least ten miles with periodic updates on emergency status

4. Augment resources by activating near-site EOC and any other primary response centers

5. Dispatch key emergency personnel including monitoring teams and establish associated communications

6. Alert other emergency personnel to standby status (e.g., those in need for evacuation) and dispatch personnel to near site duty stations

7. Provide offsite monitoring results to licensee, DOE and others and jointly assess them

8. Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective action already initiated for public and mobilizing evacuation resources

9. Recommend placing milk animals within 2 miles on stored feed and assess to extend distance

10. Provide media briefings, perhaps with a licensee

11. Escalate to General Emergency class, if appropriate

12. Maintain Site Area Emergency status until closeout, escalation, or reduction of emergency class.

4.1.4 General Emergency

A General Emergency indicates events are in progress or have occurred which involved actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline. The purpose of the General Emergency is to (1) initiate and, 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 expected that the site boundary doses will be equal too or exceed 1000 mRem Total Effective Dose Equivalent (TEDE) and 5000 mRem/CDE Thyroid, 1000 mRem/hr External Exposure Rate, and 5000 mRem/hr Thyroid Exposure Rate for one hour of inhalation.

The Shift Manager/Emergency Director would:

1. Promptly inform NRC, State and local offsite authorities and Corporate Management of the General Emergency status and reason for emergency as soon as discovered

2. Augment resources by activating the Technical Support Center (TSC), Operations Support Center (OSC) and Emergency Operations Facility (EOF)

3. Assess and respond

4. Dispatch onsite and offsite monitoring teams and associated communications

5. Provide an individual for plant status updates to offsite authorities and periodic news media briefings (perhaps joint with offsite authorities)

6. Make senior technical and management staff on-site available for consultation with NRC and State on a periodic basis

7. Provide meteorological and dose estimates to offsite authorities for actual releases via a dedicated individual or automated data transmission

8. Provide release and dose projections based on available plant condition information and foreseeable contingencies

9. Close out or recommend reduction of emergency class by briefing of offsite authorities at Emergency Operations Facility and by phone followed by written summary within eight hours of closeout or class reduction.

State and local offsite authorities would:

1. Provide any assistance requested

2. Activate immediate public notification of emergency status and provide public periodic updates

3. Recommend, as a minimum, evacuation for 2 mile radius and 2-5 miles downwind and assess need to extend distances; consider advisability of evacuation (projected time available vs. estimated evacuation times).

4. Augment resources by activating near-site EOC and any other primary response centers

5. Dispatch key emergency personnel including monitoring teams and establish associated communications

6. Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status

7. Provide offsite monitoring results to licensee, DOE and others and jointly assess them

8. Continuously assess information from licensee and offsite monitoring teams with regard to changes to protective actions

9. Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance

10. Provide news media briefings, perhaps with a licensee

11. Maintain General Emergency status until closeout or reduction of emergency class.

4.2 SPECTRUM OF POSTULATED ACCIDENTS

The postulated accidents analyzed in Section 14 of the Unit 2 Final Facility Description and Safety Analysis Report and the example initiating conditions found in Appendix 1 to NUREG 0654-REV 1 have been reviewed to determine an emergency classification and emergency action level scheme. The NUMARC/NESP-007, "Methodology for development of Emergency Action Levels" has been accepted by the NRC as an alternative to NUREG-0654-REV 1. The results of this are presented in nine categories of EALs which show the parameters for establishing each emergency classification.

The time-distance-dose curves for the most serious design accident, a loss of reactor coolant, are presented in Section 10 Appendix B along with a discussion of their development.

4.3 Review of Emergency Action Levels with Offsite Agencies

In accordance with 10CFR50 Appendix E.IV.B, Consolidated Edison conducts annual reviews of the emergency action level scheme with State and local planning agencies.

Table 4-1 Emergency Action Levels

CATEGORY 1.0 CSFST STATUS				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
1.1 Subcriticality	**1.1.3 (1, 2)** RED path in F-0.1, Subcriticality **AND** Actual or imminent entry into either: RED Path in F-0.2, Core Cooling **OR** Red Path in F-0.3, Heat Sink	**1.1.2 (1, 2)** RED path in F-0.1 Subcriticality **AND** Emergency boration is required	**1.1.1 (1, 2)** Any Failure of an automatic trip signal to reduce power range **< 5%** **AND** Manual trip is successful	
1.2 Core Cooling	**1.2.2 (1, 2)** RED path in F-0.2, Core Cooling **AND** Functional restoration actions taken and procedures not effective within **15 minutes**.	**1.2.1 (1, 2)** ORANGE or RED path in F-0.2, Core Cooling		
1.3 Heat Sink		**1.3.1 (1, 2)** RED path in F-0.3, HEAT SINK **AND** Heat sink is required		
1.4 Integrity			**1.4.1 (1, 2)** RED Path on F-0.4, Integrity	

Table 4-1 Emergency Action Levels

CATEGORY 1.0 CSFST STATUS				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
1.5 Containment	**1.5.1 (1, 2)** RED Path F-0.5, Containment resulting from loss of coolant.			

CATEGORY 2.0 REACTOR FUEL				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
2.1 Coolant Activity		**2.1.3 (1,2)** Coolant activity > **300 µCi/cc** I-131 equivalent and any of the following: • RED path on F-0.4, Integrity • Primary system leakage exceeding capacity (> 75 gpm) of single charging pump • RCS subcooling < SI initiation setpoint due to RCS leakage • Rise in R-41 offscale or R-42 >0.17 µCi/cc due to RCS leakage	**2.1.2 (1,2)** Coolant Activity > **300 µCi/cc** I-131 equivalent	**2.1.1 (1,2,3,4,5)** Coolant sample activity: ≥ **60/(E bar) µCi/cc**
2.2 Containment Radiation	**2.2.3 (1,2)** Containment Radiation monitor R-25 or R-26 > **68 R/HR**	**2.2.2 (1,2)** Containment Radiation monitor R-25 or R-26 > **17 R/HR**	**2.2.1 (1,2)** Rise in R-41 offscale or R-42 > **0.17µCi/cc** due to RCS leakage	

Table 4-1 Emergency Action Levels

CATEGORY 2.0 REACTOR FUEL				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
2.3 Refueling Accidents or Other Radiation Monitors			**2.3.2 (1,2,3,4,5)** Confirmed sustained alarm on ANY of the following radiation monitors resulting from fuel damage caused by an uncontrolled fuel handling process: • R-2/R-7 Vapor Containment Area Monitors • R-5 Fuel Storage Building Area Monitor • R-25 or 26 Vapor Containment High Radiation Area Monitors **2.3.3 (1,2,3,4,5)** Report of visual observation of irradiated fuel uncovered	**2.3.1 (1,2,3,4,5)** Spent fuel pool(reactor cavity during refueling) water level cannot be restored and maintained above Technical Specification minimum water level

Table 4-1 Emergency Action Levels

CATEGORY 3.0 REACTOR COOLANT SYSTEM				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
3.1 RCS Leakage		**3.1.3 (1,2,3,4)** RVLIS cannot be maintained > **39%** with no RCP's running **OR** With the reactor vessel head removed, it is reported that water level in the reactor vessel is dropping in an uncontrolled manner and core uncovery is likely	**3.1.2 (1,2)** Primary system leakage exceeding capacity **(> 75 gpm)** of single charging pump	**3.1.1 (1,2)** Unidentified or pressure boundary leakage > **10 gpm** **OR** Identified leakage > **25 gpm**
3.2 Primary to Secondary Leakage		**3.2.2 (1,2)** Unisolable release of secondary side to atmosphere from the affected steam generator(s) with primary to secondary leakage exceeding capacity (> **75 gpm**) of a single charging pump **3.2.3 (1,2)** Unisolable release of secondary side to atmosphere from the affected steam generator(s) with primary to secondary leakage > **0.3 gpm** in any steam generator **AND** Coolant activity > **300 µCi/cc** of I-131 equivalent		**3.2.1 (1,2)** Unisolable release of secondary side to atmosphere from the affected steam generator(s) with primary to secondary leakage > **0.3 gpm** in any Steam Generator
3.3 RCS Subcooling			**3.3.1 (1,2)** RCS subcooling <SI initiation setpoint due to RCS leakage	

Table 4-1 Emergency Action Levels

CATEGORY 4.0 CONTAINMENT				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
4.1 Containment Integrity Status	**4.1.4 (1,2)** Confirmed **Phase "B"** isolation signal following confirmed LOCA with less than minimum containment cooling safeguards equipment operating, Table 4.3 **AND** Any indicators of fuel clad loss, Table 4.1 **4.1.5 (1,2)** **EITHER:** • Rapid uncontrolled decrease in containment pressure following initial increase due to RCS failure **OR** • Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions **AND** Any indications of fuel clad damage, Table 4.2	**4.1.2 (1,2)** Rapid uncontrolled decrease in containment pressure following initial increase due to RCS failure **OR** Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions		**4.1.1 (1,2)** Both doors open on a VC airlock for **> 4 hrs**. **OR** Inability to close containment pressure relief or purge valves which results in a radiological release pathway to the environment for **> 4 hrs**. **OR** Any **Phase "A"** or **Phase "B"** or containment ventilation isolation valve(s) not closed when required which results in a radiological release pathway to the environment

Table 4-1 Emergency Action Levels

CATEGORY 4.0 CONTAINMENT				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
4.1 Containment Integrity Status (continued)	**4.1.6 (1,2)** **EITHER:** • Any **Phase "A"** or **Phase "B"** or CVI valve(s) not closed when required following confirmed LOCA **OR** • Inability to isolate any primary system discharging outside containment **AND** Radiological release to the environment exists as a result **AND** Any indicators of fuel clad damage, Table 4.2	**4.1.3 (1,2)** **EITHER:** • Any **Phase "A"** or **Phase "B"** or CVI valve(s) not closed when required following confirmed LOCA **OR** • Inability to isolate any primary system discharging outside containment **AND** Radiological release to the environment exists as a result		
4.2 SG Tube Rupture w/Secondary Release	**4.2.2 (1,2)** Unisolable faulted (outside VC) ruptured steam generator **AND** Any indicators of fuel clad damage, Table 4.2	**4.2.1 (1,2)** Unisolable faulted (outside VC) ruptured steam generator		
4.3 Combustible Gas Concentrations	**4.3.1 (1,2)** ≥ 4% Hydrogen concentration in containment			

Table 4-1 Emergency Action Levels

CATEGORY 5.0 RADIOACTIVITY RELEASE				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
5.1 Effluent Monitors	**5.1.4 (1,2,3,4,5)** A valid reading on any monitors Table 5.1 column "GE" for **> 15 minutes** unless dose assessment can confirm releases are below Table 5.2 column "GE" within this time period.	**5.1.3 (1,2,3,4,5)** A valid reading on any monitors Table 5.1 column "SAE" for **> 15 minutes** unless dose assessment can confirm releases are below Table 5.2 column "SAE" within this time period.	**5.1.2(1,2,3,4,5)** A valid reading on any monitors Table 5.1 column "Alert for **> 15 minutes** unless dose assessment can confirm releases are below Table 5.2 column "Alert" within this time period.	**5.1.1(1,2,3,4,5)** A valid reading on any monitors Table 5.1 column "NUE" for **> 60 minutes** unless sample analysis can confirm release rates **< 2 x technical specifications** within this time period.
5.2 Dose Projections -Environ. Measure.- Release Rates	**5.2.5 (1,2,3,4,5)** Dose projections or field surveys resulting from an actual imminent release which indicate doses/dose rates > Table 5.2 column"GE" at the site boundary or beyond.	**5.2.4 (1,2,3,4,5)** Dose projections or field surveys resulting from an actual imminent release which indicate doses/dose rates > Table 5.2 column "SAE" at the site boundary or beyond.	**5.2.2 (1,2,3,4,5)** Confirmed sample analysis for gaseous or liquid release rates **> 200 x technical specifications** limits for **> 15 minutes** **5.2.3 (1,2,3,4,5)** Dose projections or field surveys resulting from an actual imminent which indicate doses/dose rates > Table 5.2 column "Alert" at the site boundary or beyond.	**5.2.1 (1,2,3,4,5)** Confirmed sample analysis for gaseous or liquid release rates **> 2 x technical specifications** limits for **> 60 minutes.**

Table 4-1 Emergency Action Levels

CATEGORY 5.0 RADIOACTIVITY RELEASE				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
5.3 Area Radiation Levels			**5.3.2 (1,2,3,4,5)** Sustained area radiation levels > **15 mRem/hr** in **EITHER:** • Control Room **OR** • Central Alarm Station and Secondary Alarm Station **5.3.3 (1,2,3,4,5)** Sustained abnormal area radiation levels > **8 R/hr** within any areas, Table 5.3 **AND** Access is required for safe operation or shutdown	**5.3.1(1,2,3,4,5)** Any sustained direct ARM readings **> 100 x alarm or** offscale high resulting from an uncontrolled process

Table 4-1 Emergency Action Levels

CATEGORY 6.0 ELECTRICAL FAILURES				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
6.1 Loss of AC Power Sources	**6.1.5 (1,2)** Loss of all emergency AC power **AND EITHER:** Power restoration to required core cooling systems is not likely in **≤ 1 hr.** **OR** Actual or imminent entry into ORANGE or RED path on F-0.2, "Core Cooling"	**6.1.4 (1,2)** Loss of AC power to all 480 volt busses (5A,2A/3A,6A) for **> 15 minutes.** **AND** Inability to power required core cooling systems with alternate power sources for **> 15 minutes**.	**6.1.2 (3,4,5)** Loss of AC power to all 480 volt busses(5A,2A/3A,6A) for **> 15 minutes.** **AND** Inability to power required core cooling/ spent fuel cooling systems with alternate power sources for > 15 minutes. **6.1.3 (1,2)** AC power capability to 480 volt busses (5A,2A/3A,6A) reduced to only one of the following sources for **> 15 minutes**: • 480V EDG 21 • 480V EDG 22 • 480V EDG 23 • Unit Auxiliary Transformer* • Station Auxiliary Transformer* • 13.8KV Gas Turbine Auto Transformer *With 86P or 86BU tripped, all offsite power supplies must be considered one power supply	**6.1.1** (1,2,3,4,5) Unplanned loss of offsite power to all 480V busses (5A,2A/3A,6A) for > 15 minutes.

Table 4-1 Emergency Action Levels

CATEGORY 6.0 ELECTRICAL FAILURES				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
6.2 Loss of DC Power Sources		**6.2.2 (1,2)** **Loss of bus voltage (<105 vdc) for > 15 minutes on all of the DC busses.**		**6.2.1 (3,4)** **Unplanned loss of bus voltage (<105 vdc) for > 15 minutes on any DC bus resulting in the loss of decay heat removal capability.**

CATEGORY 7.0 EQUIPMENT FAILURES				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
7.1 Technical Specifications /Requirements				**7.1.1 (1,2)** Plant is not brought to required operating mode within Technical Specifications LCO Action Statement Time.

Table 4-1 Emergency Action Levels

CATEGORY 7.0 EQUIPMENT FAILURES				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
7.2 System Failures or Control Room Evacuation		**7.2.5 (1,2,3,4,5)** Control Room Evacuation **AND** Plant control cannot be established per AOI27.1.9, "Control Room Inaccessibility/ Safe Shutdown" in **15 minutes**	**7.2.2 (1,2)** Turbine failure generated missiles which causes or potentially causes any required safety related system or structure to become inoperable. **7.2.3 (1,2,3,4,5)** Entry into AOI-27.1.9, Control Room Inaccessibility/ Safe Shutdown Control" **7.2.4 (3,4)** Reactor coolant temperature cannot be maintained **< 200 °F**	**7.2.1 (1,2)** Report of main turbine failure requiring turbine trip resulting in: Damage to turbine generator seals causing release of lubricating oil or hydrogen **OR** Casing penetration

Table 4-1 Emergency Action Levels

CATEGORY 7.0 EQUIPMENT FAILURES				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
7.3 Loss of Indications/ Alarms/ Communication Capability		**7.3.4 (1,2)** Loss of most (approx. 75%) safety system annunciators or indications on Control Room Panels **AND** Loss of ability to monitor critical safety function status **AND** A significant plant transient in progress	**7.3.3 (1,2)** Unplanned loss of most (approx. 75%) safety system annunciators or indications on Control Room Panels for > **15 minutes** **AND** Increased surveillance is required for safe plant operation **AND EITHER:** A significant plant transient in progress **OR** Proteus and SAS are unavailable	**7.3.1 (1,2)** Unplanned loss of most (approx. 75%) safety system annunciators or indications on Control Room Panels for > **15 minutes** **AND** Increased surveillance is required for safe plant operation **7.3.2 (1,2,3,4,5)** Loss of all communications capability affecting the ability to EITHER: Perform routine operations **OR** Notify offsite agencies or personnel

Table 4-1 Emergency Action Levels

CATEGORY 8.0 HAZARDS				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
8.1 Security Threats	**8.1.4 (1,2,3,4,5)** Security Event which results in: Loss of plant control from the Control Room **AND** Loss of remote shutdown capability	**8.1.3 (1,2,3,4,5)** Intrusion into a plant security vital area by an adversary **OR** Any security event which represents actual or likely failures of plant systems needed to protect the public.	**8.1.2 (1,2,3,4,5)** Intrusion into plant Protected Area by an adversary **OR** Any security event which represents an actual substantial degradation of the level of safety of the plant.	**8.1.1 (1,2,3,4,5)** Bomb Device or other indication of attempted sabotage discovered within plant Protected Area but outside Plant Vital Areas, Table 8.2 **OR** Any security event which represents a potential degradation in the level of safety of the plant
8.2 Fire or Explosion			**8.2.3 (1,2,3,4,5)** Fire or explosion in any plant area, Table 8.2, which causes or potentially causes any required safety related system or structure to become inoperable	**8.2.1 (1,2,3,4,5)** Confirmed fire in or contiguous to any plant area, Table 8.2 not extinguished in ≤ **15 minutes** of Control Room notification. **8.2.2 (1,2,3,4,5)** Report by plant personnel of an explosion within Protected Area boundary which impacts plant safety related systems or structures.

Table 4-1 Emergency Action Levels

CATEGORY 8.0 HAZARDS				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
8.3 Man-Made Events			**8.3.3 (1,2,3,4,5)** Vehicle crash or projectile impact which causes or potentially causes any required safety related system or structure to become inoperable, Table 8.2 **8.3.4 (1,2,3,4,5)** Report or detection of toxic or flammable gases within a plant area, Table 8.2, in concentrations that will be life threatening to plant personnel or preclude access to equipment (even when using personal protective equipment) needed for safe plant operation	**8.3.1 (1,2,3,4,5)** Vehicle crash into or projectile which impacts plant safety related structures or systems within Protected Area boundary **8.3.2 (1,2,3,4,5)** Report or detection of toxic or flammable gases that could enter or have entered within the Protected Area boundary in amounts that could affect the health of plant personnel or safe plant operation **OR** Report by local, county or state officials, or Unit 3, for potential evacuation of site personnel based on offsite event

Table 4-1 Emergency Action Levels

CATEGORY 8.0 HAZARDS				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
8.4 Natural Events			**8.4.4 (1,2,3,4,5)** Earthquake felt in- plant based upon consensus of Control Room Operators on duty **AND** Notification from Unit 3 that an earthquake of a magnitude **≥ 0.15g** horizontal or **≥ 0.10g** vertical has occurred. **8.4.5 (1.2.3.4.5)** Sustained winds **> 100 mph** **OR** Tornado strikes a plant vital area, Table 8.2 **8.4.6 (1,2,3,4,5)** Assessment by the Control Room personnel that a natural event has occurred which causes or potentially causes any required safety system or structure to become inoperable, Table 8.2 **8.4.7 (1,2,3,4,5)** River level **≥ 15′ (OSML)** **OR** Low service water bay level resulting in a loss of service water flow	**8.4.1 (1,2,3,4,5)** Earthquake felt in plant based upon a consensus of Control Room Operators on duty **AND** Notification received from Unit 3 that an earthquake has been detected on their instrumentation. **8.4.2 (1,2,3,4,5)** Report by plant personnel of tornado within plant Protected Area boundary **8.4.3 (1,2,3,4,5)** River level **≥ 14.5′ (OMSL)** **OR** Service water bay level **< -4.5′ (OMSL)**

Table 4-1 Emergency Action Levels

CATEGORY 9.0 OTHER				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
9.1 Other	**9.1.7 (1,2,3,4,5)** As determined by the Shift Manager or Emergency Director, events are in progress which indicate actual, or imminent core damage and the potential for a large release of radioactive material in excess of EPA PAGs outside the site boundary. **9.1.8 (1,2)** Any event, as determined by the Shift Manager or Emergency Director, that could lead or has led to a loss of any two fission product barriers and loss or potential loss of the third, Attachment A.	**9.1.5 (1,2,3,4,5)** As determined by the Shift Manager or Emergency Director, events are in progress which indicate actual or likely failures of plant systems needed to protect the public. Any releases are not expected to result in exposures which exceed EPA PAGs. **9.1.6 (1,2)** Any event, as determined by the Shift Manager or Emergency Director, that could lead or has led to EITHER: Loss or potential loss of both fuel clad and RCS barrier, Attachment A. **OR** Loss or potential loss of either fuel clad or RCS barrier in conjunction with a loss of containment, Attachment A.	**9.1.3 (1,2,3,4,5)** Any event, as determined by the Shift Manager or Emergency Director, that could cause or has caused actual substantial degradation of the level of safety of the plant. **9.1.4 (1,2)** Any event, as determined by the Shift Manager or Emergency Director, that could lead or has led to a loss or potential loss of either fuel clad or RCS barrier, Attachment A.	**9.1.1 (1,2,3,4,5)** Any event, as determined by the Shift Manager or Emergency Director, that could lead to or has led to a potential degradation of the level of safety of the plant. **9.1.2 (1,2)** Any event, as determined by the Shift Manager Emergency Director, that could lead to or has led to a loss or potential loss of containment, Attachment A.

Refer to IP-1024 for referenced tables and Attachment A "Fission Product Barrier Loss & Potential Loss Indicators."

5.0 ORGANIZATIONAL CONTROL OF EMERGENCIES

Using the normal shift operating organization as a base, this section of the Plan describes the Emergency Response Organization that may be activated onsite and augmented with Entergy personnel and offsite forces when necessary. Authorities and responsibilities of key individuals and groups are delineated. The communication links for notifying, alerting and mobilizing emergency personnel are identified.

5.1 NORMAL PLANT ORGANIZATION

The normal watch organization for the Station (Figure 5-1) functions twenty four (24) hours per day, seven (7) days per week and consists of the following qualified individuals:

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

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

Two (2) Control Room Operators, who both 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) Watch Engineer who performs two main functions in an advisory capacity to the Shift Manager;

- Accident Assessment
- Operational review from a safety perspective;

Two (2) Nuclear Plant Operators who perform plant operations and monitoring under the direction of the Control Room

Supervisor. One Nuclear Plant Operator is assigned to the conventional, the other to the nuclear portion of the plant. Two (2) additional Nuclear Plant Operators function as rovers;

Two (2) Health Physics Technicians (one from Unit 3) and one (1) Chemistry Technician perform radiation monitoring; surveillance, decontamination, water chemistry or counting as necessary;

One (1) Field Support Supervisor who reports to the Shift Manager and supervises (1) Nuclear Plant Operator normally assigned to Unit 1.

The watch organization is augmented during normal working hours Monday through Friday by the Indian Point Management and Operations Staff which is organized to lend expertise to the watch force. Figure 5-2, shows the normal station organization functional areas and reporting chains.

The Shift Manager and the Control Room Supervisor have 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 Onsite Emergency Organization and notify offsite support and government agencies.

5.2 ONSITE EMERGENCY RESPONSE ORGANIZATION

The Onsite Emergency Response Organization is established to assure that a sufficient number of appropriately qualified personnel are available each day, 24 hours a day to deal with any situation. This organization consists of three (3) staffing levels.

During an event or emergency at Indian Point Unit 2, the first phase of the response is conducted by normal watch personnel onsite (Staffing level I).

Staffing level II requires activation of the minimum Onsite Emergency Response Organization which includes an augmented normal watch. The Onsite Emergency Response Organization is capable of performing those near-term activities necessary to (1) maintain and/or regain 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, and (3) establish and maintain communications with authorities responsible for implementing offsite emergency measures.

Staffing level III occurs at the declaration of a Site Area Emergency and gives the Emergency Director full access to the resources of the Company. The Emergency Operations Facility, Technical Support Center and Operational Support Center are fully staffed. The Corporate Response Center is activated at Corporate Headquarters.

Table 5-1 presents, in tabular form, the minimum staffing requirements of NUREG-0654 on-shift personnel and the additional personnel required within 60 minutes of declaring a Site Area Emergency. The Watch Force, identified as Staffing Level I and depicted in Figure 5-1 satisfies the NUREG-0654 requirements for on-shift personnel.

Personnel required to augment the Watch Force within 60 minutes of the declaration of an emergency, plus the Watch Force, are identified as Staffing Level II. These personnel are immediately available during normal working hours or are contacted by a page "beeper" system during non-working hours. The pager system is backed up with an automated telephone notification system. The additional personnel that may be contacted to supplement the minimum staffing requirements depicted in Figure 5-1 are listed in the Emergency Telephone Directory.

Figure 5-3 presents an organizational chart of the Emergency Response Organization, showing the major onsite functional areas and the relationships to offsite groups. Until the arrival of the Emergency Director and the start of the staffing level III organization, overall control of the onsite emergency organization will be exercised by the Emergency Plant Manager.

Figure 5-4 shows the full Emergency Response Organization (staffing Level III). Table 5-2 provides descriptions of the roles and responsibilities for each of the positions identified in Figure 5-4.

5.2.1 Direction and Coordination

The Shift Manager (or the Control Room Supervisor in the event that the Shift Manager is unavailable) has the authority to declare an emergency and immediately takes charge of the emergency response effort. In the event of an Alert, Site Area or General Emergency, he/she activates the Onsite Emergency Response Organization and functions as the Emergency Director directing the emergency response until the arrival of management personnel who relieve him/her of the duties of Emergency Plant Manager and Emergency Director.

The Emergency Plant Manager 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. Until the arrival of the Emergency Director, overall control of the Onsite Emergency Organization will be exercised by the Emergency Plant Manager.

The following positions have responsibilities for command and control of the Emergency Response Organization:

5.2.1.1 Emergency Director

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

The Shift Manager (or Control Room Supervisor if the Shift Manager is not present) becomes the Emergency Director upon declaration of an emergency. The Emergency Plant Manager will assume the role of

Emergency Director upon his/her arrival at the Central Control Room until a Emergency Director is ready to assume the position at the Emergency Operations Facility. Specific responsibilities of the Emergency Director include:

- Declare the emergency and upgrade/downgrade conditions as warranted and initiates recovery phase when appropriate, this responsibility can not be delegated;
- Review and approve initial notifications to the State and local authorities, this responsibility can not be delegated;
- Recommend protective actions to offsite authorities, this responsibility can not be delegated;
- Authorizing ConEd personnel outside the Protected Area Fence to exceed normal radiation exposure limits, this responsibility can not be delegated;
- Establish communications with the Technical Support Center and obtain information on the diagnosis and prognosis of the accident condition;
- Review all radiological, meteorological and operational data and update the offsite authorities and the Joint News Center;
- 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 evaluation with the State, Counties and U.S. Department of Energy.
- Relate all of these actions to the remainder of the emergency response organizations.

The Emergency Director is assisted in these activities by personnel in the Emergency Operations Facility and

in the field. Although the Emergency Director may delegate most of these responsibilities, he/she may not delegate the responsibility for the decision to notify and recommend protective actions.

5.2.1.2 Emergency Plant Manager

The Emergency Plant Manager directs and coordinates the operational aspects of the In-Plant Emergency Organization. He/she assures proper coordination and direction of the efforts of each element of the In-Plant Emergency Organization in returning the plant to and maintaining it in a safe and stable condition.

The Emergency Plant Manager is normally located in the Technical Support Center, he/she may go to the Central Control Room to receive briefings from the Shift Manager and review plant data. Specific responsibilities of the Emergency Plant Manager include:

- Initially relieving the Shift Manager of the Emergency Director responsibilities and continue to act as Emergency Director until an Emergency Director is ready to assume the position in the Emergency Operations Facility.
- Directing actions to mitigate the accident. Directing the in-plant radiological monitoring.
- Authorizing ConEd personnel within the Protected Area to exceed normal radiation exposure limits, this responsibility can not be delegated;
- Authorizing the mobilization of search and rescue teams.
- Directing re-assembly within the protected area fence.
- Assuring that all emergency personnel within the protected area fence take adequate protective measures.

5.2.1.3 Emergency Operations Facility Manager

The Emergency Operations Facility Manager is located in the Emergency Operations Facility and reports to the Emergency Director. He/she directs and coordinates the activities of the Emergency Operations Facility. He/she assures proper staffing and operations of the Emergency Operations Facility to assist the Emergency Director in completion of his/her responsibilities. Specific responsibilities of the Emergency Operations Facility Manager include:

- Direct and coordinate the activities of the Emergency Operations Facility;
- Assist the Emergency Director with interactions with offsite authorities.

5.2.1.4 Offsite Radiological Assessment Director

The Offsite Radiological Assessment Director reports directly to the Emergency Operations Facility Manager. Specific Responsibilities of the Offsite Radiological Assessment Director include:

- Directing and coordinating the activities of the offsite and onsite (outside the protected area fence) radiological monitoring teams;
- Interpreting radiological and meteorological data and updating the Emergency Director with the result in the terms of both real-time measurements and projected radiological exposures;
- Providing radiological evaluation and protection at the Emergency Operations Facility;
- Having estimates of offsite population dose performed;
- Initiating post-accident environmental surveys.

5.2.1.5 Technical Support Center Manager

The Technical Support Center Manager is responsible for directing coordination of the Technical Support Center as the central facility for the accumulation and re-transmittal of plant parameters. The Technical Support Center Manager is stationed in the Technical Support Center and reports to the Emergency Plant Manager.

Specific responsibilities of the Technical Support Center Manager and Staff include:

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

5.2.1.6 Operations Support Center Manager

The Operations Support Center Manager is responsible for directing coordination of the Operations Support Center as the central facility for the planning and dispatch of operations and repair teams into the plant. The Operations Support Center Manager is stationed in the Technical Support Center, next to the Operations Support Center and reports to the Emergency Plant Manager.

Specific responsibilities of the Operations Support Center Manager and Staff include:

- Maintaining continuous accountability of all personnel within the Protected Area when it is called for.
- Planning and/or coordination of field activities, such as search and rescue, investigations, equipment operation, surveys or repairs
- Developing relief staffing rosters to ensure 24 hour manning of Emergency Response Facilities.

5.2.2 Plant Staff Emergency Assignments

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. The interfaces between these functional areas is shown in Figure 5-4.

5.2.2.1 Plant Operations and Assessment of Operational Aspects

While overall direction of in-plant activities is the responsibility of the Emergency Plant 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.

5.2.2.2 Notification/Communication

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

5.2.2.3 In-Plant Radiological Accident Assessment

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

5.2.2.4 Offsite Radiological Accident Assessment

The expertise for evaluating the radiological consequence of the accident is provided by the Dose Assessment Health Physicist and the Survey Team Health Physicist who function directly under authority of the Offsite Radiological Assessment Director. These individuals assure that sufficient monitoring activities are instituted, evaluate and assess the results, and apprise the Offsite Radiological Assessment Director of all activities, results and recommendations. Until the EOF is activated, the Shift Manager shall be responsible for the performance of offsite radiological accident assessments. Onsite, out-of-plant radiological monitoring will be provided for by responding Radiation Protection Personnel. Offsite monitoring is performed by Radiation Protection and other qualified personnel from Indian Point.

5.2.2.5 Plant System Engineering

The Watch Engineer supplies plant technical assistance to the Shift Manager during the initial stages of an emergency. Personnel who assemble in the Technical Support Center include selected members of the plant staff who are knowledgeable in one or more specific disciplines or functional areas at Indian Point. These individuals perform operational accident assessment activities in support of the watch personnel handling the in-plant accident conditions.

5.2.2.6 Repair and Corrective Actions

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

minutes. Other Station maintenance personnel are not immediately available.

Maintenance mechanics and operations personnel (NPO) who respond to the Operations Support Center perform repair and corrective actions directed by the Operations Support Center Manager.

5.2.2.7 Protective Actions (In-Plant)

The Watch Health Physics Technician is normally responsible for radiation protection in-plant. The Field Support Supervisor and the Unit No. 2 Watch Health Physics Technician are immediately available for radiation protection under the direction of the Shift Manager during the first 60 minutes. Later, Health Physics personnel under the direction of the Operations Support Center Manager are responsible for radiation protection.

5.2.2.8 Firefighting

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

5.2.2.9 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 Emergency Plant Manager, and the rest of the onsite area which is handled by the Emergency Director. Search and rescue operations would initially be directed during the first 60 minutes by the Shift Manager using available personnel onsite.

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

5.2.2.10 Site Access Control and Accountability

Plant security and site access control are the responsibility of the Security Supervisor and the Security Force, with backup assistance available from the Buchanan Police Department and other police departments in Westchester County as the situation demands, in accordance with a County Mutual Assistance Plan and the New York State police.

Initial personnel accountability during an Alert, Site Area Emergency or a General Emergency is the responsibility of the Shift Manager and Shift Security Supervisor. Procedures in the Emergency Procedures Document are used to account for all personnel within the Protected Area. If necessary, Security Personnel will be dispatched to warn employees, visitors, contractors and construction personnel who may be within the exclusion area but outside the Protected Area.

Continuous accountability will be maintained during events classified as a Site Area or General Emergency. The Emergency Plant Manager may suspend accountability requirements at the Alert level.

5.2.3 Information Dissemination

To assure that only factual and consistent information is released statements concerning the emergency are the responsibility of the Media Relations Department. A Media Relations Duty Officer is on call 24 hours a day and is responsible for interfacing with the news media for release of any public statements concerning Notification of Unusual Events. For events classified at an Alert or higher, a Joint News Center Director responds to the pre-designated Joint News Center.

The Joint News Center Director will be 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 Media Relations Duty Officer and the Joint News Center Director have access to all necessary information, either directly available to them or available through

the Emergency Plant Manager/Emergency Director. An Information Liaison at the Emergency Operation Facility reports to the plant with the initial augmentation of the watch force to facilitate information flow between the plant personnel and the Media Relations Duty Officer and/or the Joint News Center Director.

5.3 AUGMENTATION OF EMERGENCY ORGANIZATION

This section describes the offsite support available from four (4) sources: Corporate Headquarters, local services, Entergy and private sector organizations. The need for this augmentation will be evaluated by the Emergency Plant Manager, Technical Support Center Manager and the Emergency Director. The names and phone numbers of the offsite support contacts are listed in the Emergency Procedure Document which is maintained in the Unit 2 Control Room, Technical Support Center and in the Emergency Operations Facility. Figure 5-3 illustrates the interface between the Onsite Emergency Organization and the offsite support groups.

5.3.1 Corporate Support

Company personnel augment the onsite staff in the performance of certain functions required to cope with an emergency. The corporate support is fully integrated into the Emergency Response Organization at Staffing Level III (refer to figure 5-4). With the activation of Staffing Level III, Con Edison is capable of continuous (24 hour) operations for a protracted period. The Emergency Director will assure the continuity of resources(technical, administrative and logistics) to support the emergency response.

5.3.2 Local Services Support

The availability of local services support to assist the emergency forces has been ascertained and agreement letters from each organization in this section have been solicited. These letters are contained in Section 10, Appendix A.

5.3.2.1 Ambulance Service

Twenty-four (24) hour ambulance service is provided by the Verplanck Fire Department Ambulance with mutual aid backup from other ambulance services such as the Cortlandt Volunteer Ambulance Corps. and the Peekskill Volunteer Ambulance Corps. The Emergency Procedures Document contains immediate action and implementation procedures which cover the call for assistance and the handling of the ambulance service personnel. Radio communications exists between the ambulance and local hospitals and the site can communicate with the ambulance through this link.

5.3.2.2 Medical

Local physicians, under contract to the Con Edison Medical Department, are available. The Emergency Procedures Document contains immediate action and implementation procedures which cover the request for medical assistance and the handling of patients. In the event that a patient should receive a massive radiation exposure, an expert medical consultant on the management of radiation injuries would be available. A written agreement is contained in Section 10, Appendix A.

5.3.2.3 Hospital

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

The Phelps Memorial Hospital Center, Tarrytown, New York has agreed to serve as the backup hospital. A written agreement is contained in Section 10, Appendix A.

5.3.2.4 Police

When notified that assistance is required, the Village of Buchanan Police Department will respond immediately. Timely reinforcement can be provided by adjacent police departments to include, eventually, all police departments in Westchester County as the situation demands in accordance with a County Mutual Assistance Plan, and the New York State Police. The handling of security matters for the Indian Point site is covered in the Security Plan.

5.3.3 Entergy

Through a Memorandum of Understanding with Entergy, which owns and operates Indian Point Unit 3, assistance in the form of personnel and services can be provided by the Power Authority in the areas of first aid and radiological protection, if needed. A copy of this memorandum is contained in Section 10, Appendix A.

5.3.4 Private Sector Organizations

5.3.4.1 Laboratory Services

The availability of laboratory/analytical services has been ascertained and an agreement letter is contained in Section 10, Appendix A.

5.3.4.2 Additional Technical Assistance

If the need for additional technical assistance is identified, this may be obtained by the Technical Support Center Manager and the Emergency Director. Assistance of this type would include that from the NSSS Supplier (Westinghouse), architect engineer and consultants. A copy of the letter of agreement with Westinghouse is contained in Section 10, Appendix A. The Institute for Nuclear Power Operations (INPO) may be called upon, by the Emergency Director, to act as the agent to arrange for and coordinate emergency support using the information in the INPO Emergency Resources Manual. The manual contains information on;

- Equipment that is available from other utilities

- Equipment that can be supplied by vendors
- Service Companies and available personnel
- A/E & NSSS Contacts
- Technical experts and their specialties
- Telephone directory for other utilities

5.4 COORDINATION WITH PARTICIPATING GOVERNMENT AGENCIES

In the event of an emergency, as defined in Section 4.1, various Federal, State, and County organizations must 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.

5.4.1 New York State

The agency responsible for emergency planning is the State Emergency Management Office. The Chairman of the Disaster Preparedness Commission will assume the direction and coordination of the State response activities. The specific tasks and responsibilities assigned to various departments and agencies of the State are delineated in New York State's Radiological Emergency Preparedness Plan. Notification to the State of emergency conditions would be as indicated in Section 6.1.

5.4.2 U.S. Department of Energy

The U.S. Department of Energy operates a Radiological Assistance Plan from its regional office at Brookhaven, Long Island. The Radiological Assistance Plan, which specializes in radiation safety and medicine, will provide assistance to the Nuclear Facility Operator, the State or the county 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 listed in the Emergency Procedures Document. The expected time of arrival is approximately 3 hours. The Emergency Director is authorized to request this assistance in the event it is necessary. Westchester

County Airport, located approximately 30 minutes by automobile from the site, can supply facilities for air transportation. An agreement letter which addresses this assistance can be found in Section 10, Appendix A.

5.4.3 U.S. Coast Guard

During a radiation incident which 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.

5.4.4 County Offices of Disaster and Emergency Services/Civil Defense

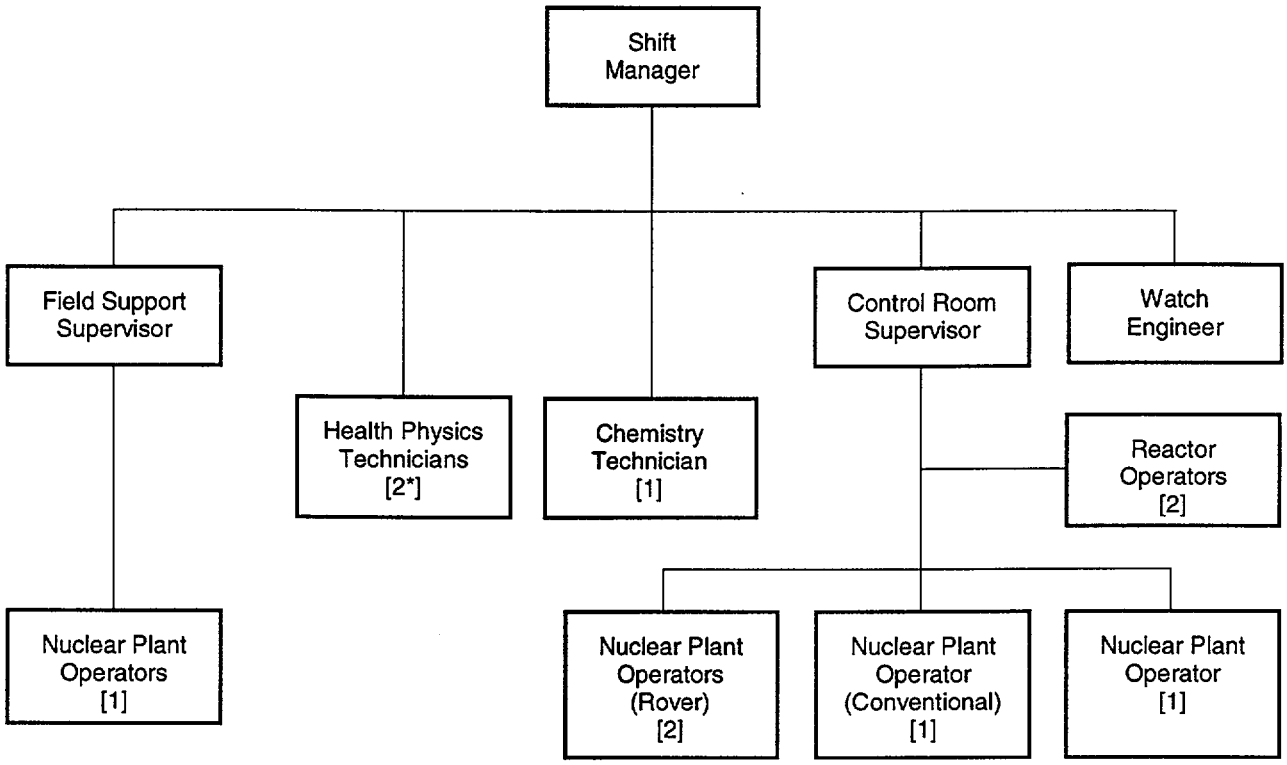
The four(4) counties which are involved in emergency response activities at the Indian Point Site include Westchester, Rockland, Orange and Putnam. Westchester, the County in which the Indian Point is located; Rockland County on west side of the Hudson River across from Indian Point; and Orange and Putnam Counties the closest boundaries of which are approximately four (4) miles from Indian Point. Each county has an Office of Disaster and Emergency Services or Civil Defense. The Director of each of these offices, or their designee, will act as the County Emergency Operations Director in the County Emergency Operations Center and direct and coordinate the County's response, under the authority of the Chief Executive of the County, for natural and man-made disasters. Notifications to the Counties of an Unusual Event, Alert, Site Area or General Emergency at Indian Point would be as described in Section 6.1.

5.4.5 New York State Emergency Management Office, Southern District

During an emergency, New York State can utilize the facilities at the Emergency Management Office, Southern District which has an 8,700 square foot underground EOC equipped with statewide communications capability.

Figure 5-1

Normal Watch Organization



- One Health Physics Technician is onshift at Indian Point 3 and is available to respond to an emergency at Indian Point 2.

Figure 5-2

Normal Station Organization Functional Areas

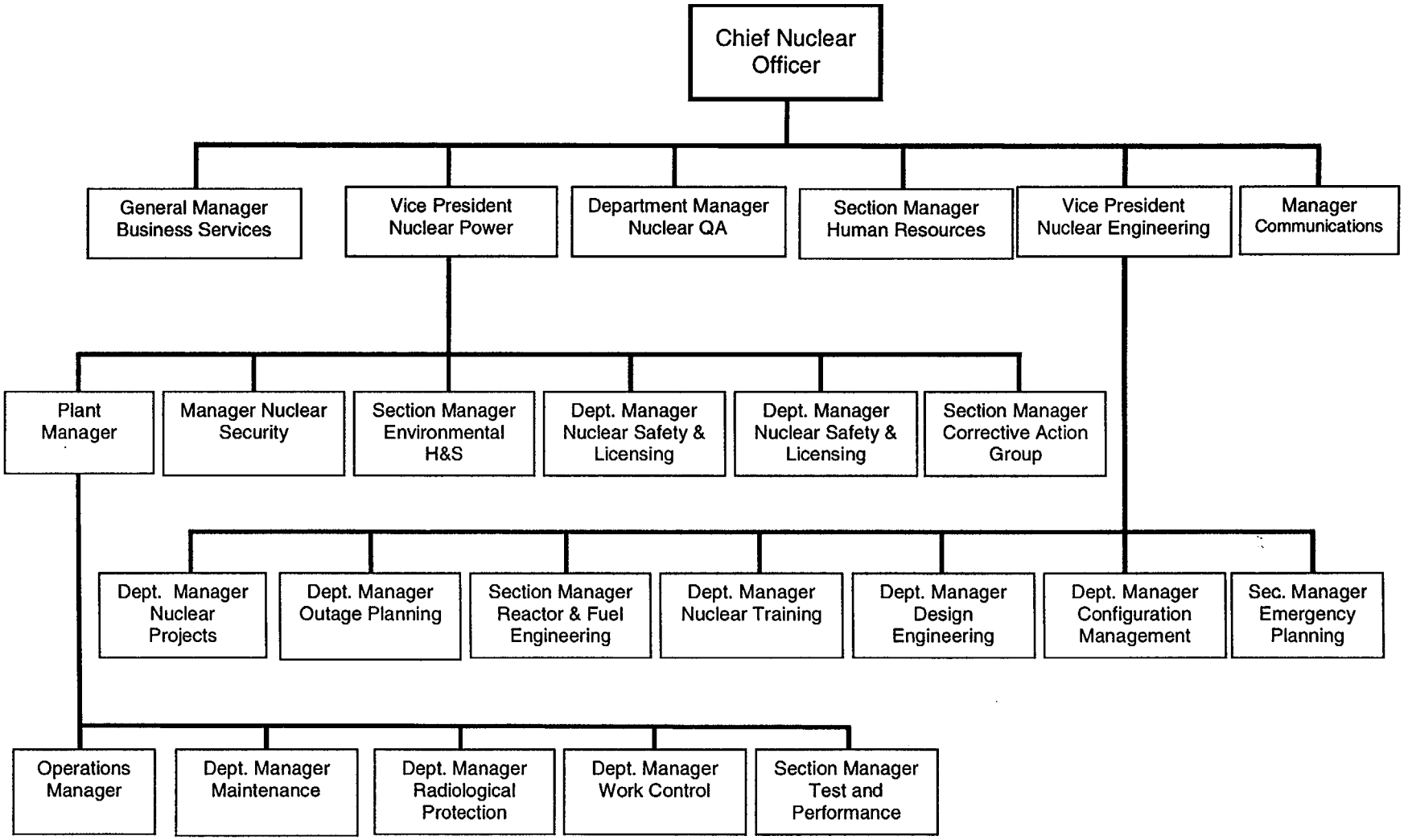


Figure 5-3

Onsite-Offsite Organization Interfaces

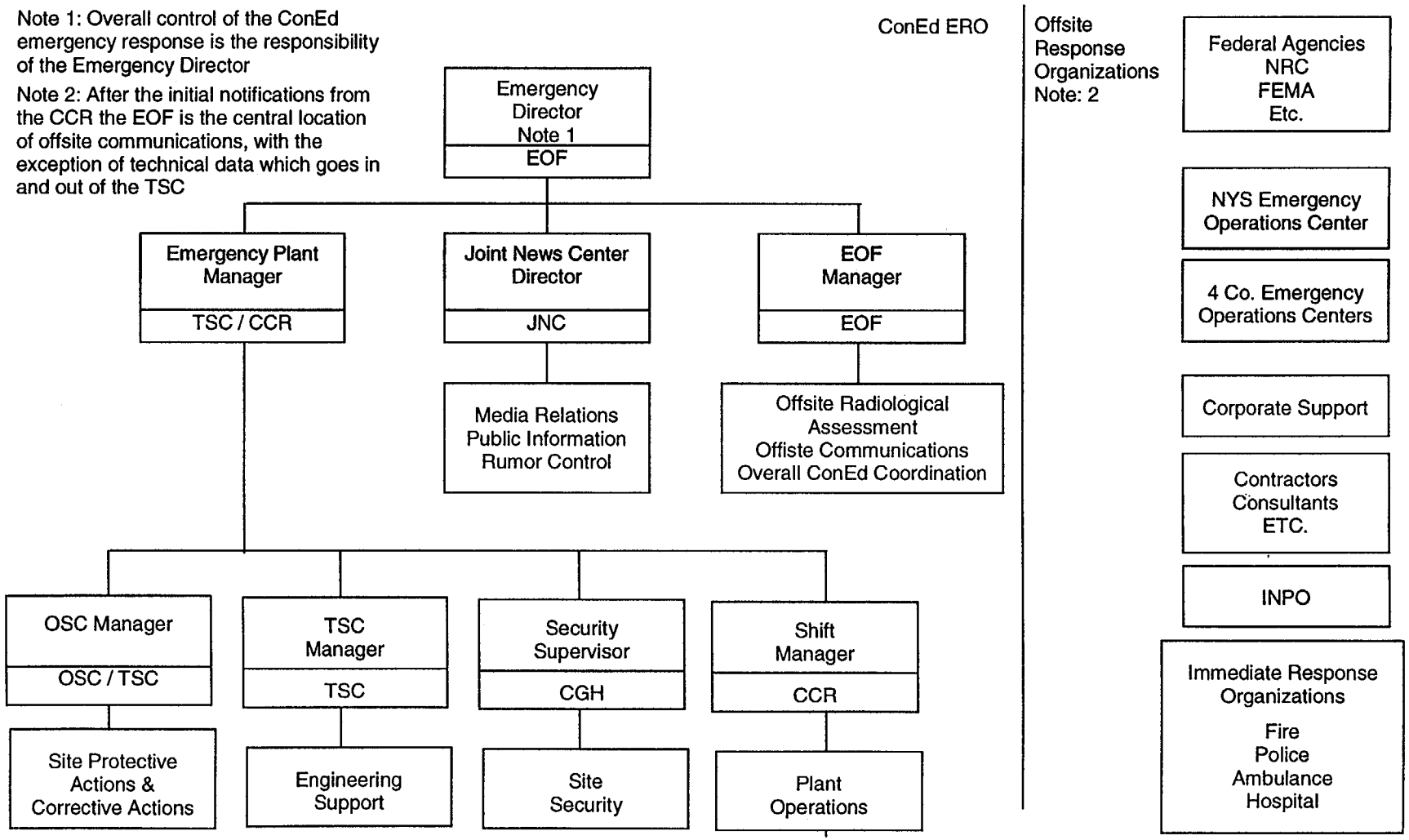
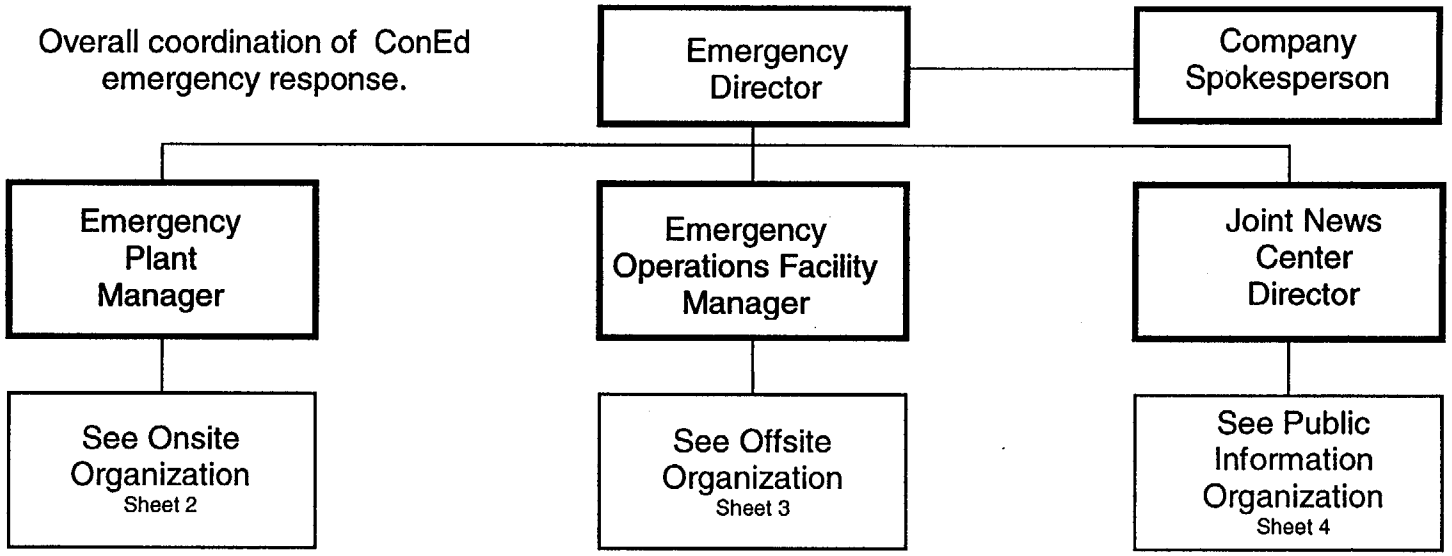


Figure 5-4 (Sheet 1 of 4)

Indian Point Unit 2 Emergency Response Organization



- Coordination of ConEd onsite response
- Plant Operations
- Engineering Assessment
- Corrective Actions
- Onsite Radiological Assessment
- Safety of onsite ConEd Emergency Responders

- Coordination of ConEd offsite response
- Notifications and communications with State and Local authorities.
- Offsite Radiological Assessment
- Safety of offsite ConEd Emergency Responders

- Overall coordination of ConEd Public Information Response
- Coordinate public information with the State and Local Response Organizations
- Interface with the Media
- Rumor Control

Figure 5-4 (Sheet 2 of 4)

Indian Point Unit 2 Emergency Response Organization

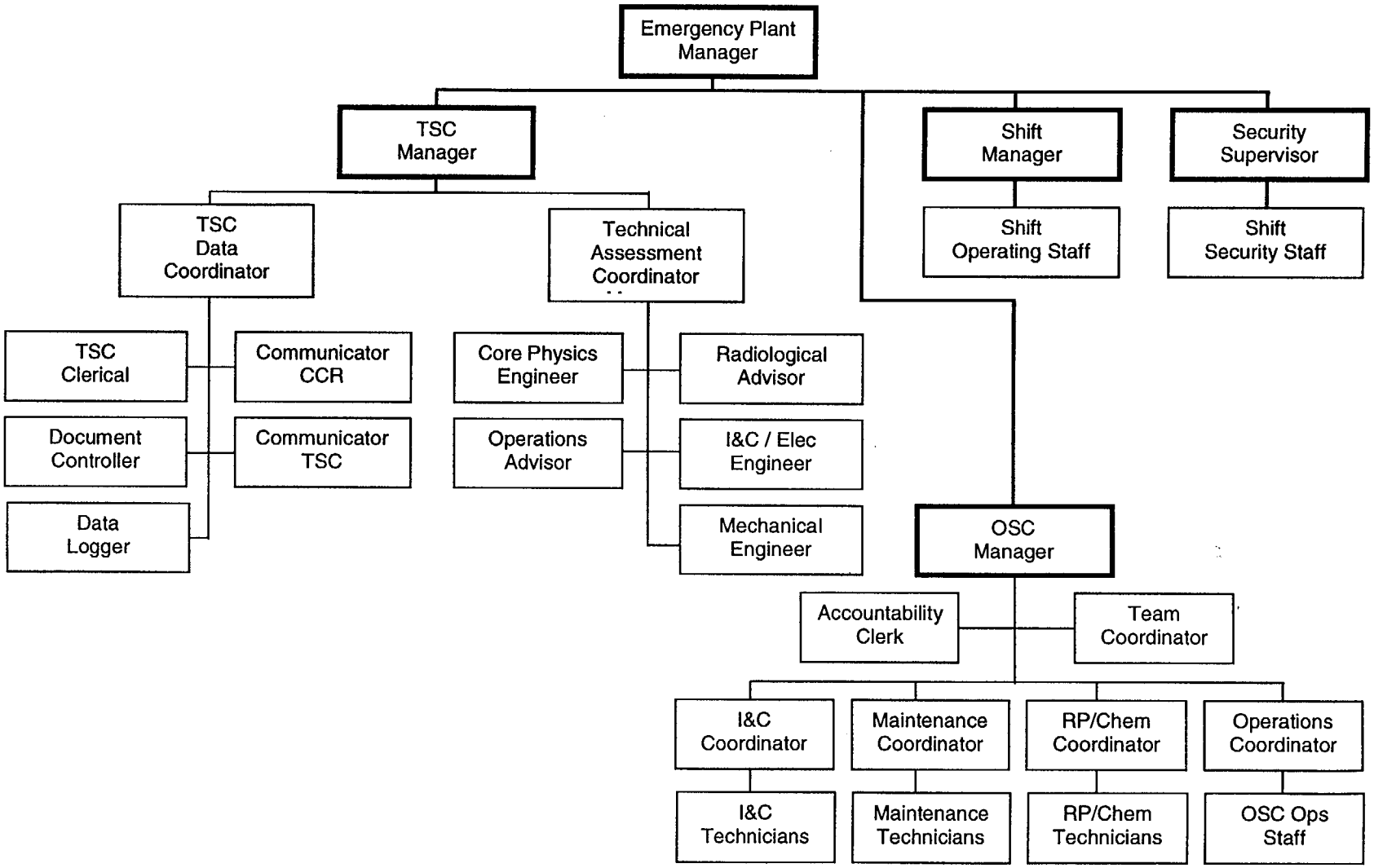


Figure 5-4 (Sheet 3 of 4)

Indian Point Unit 2 Emergency Response Organization

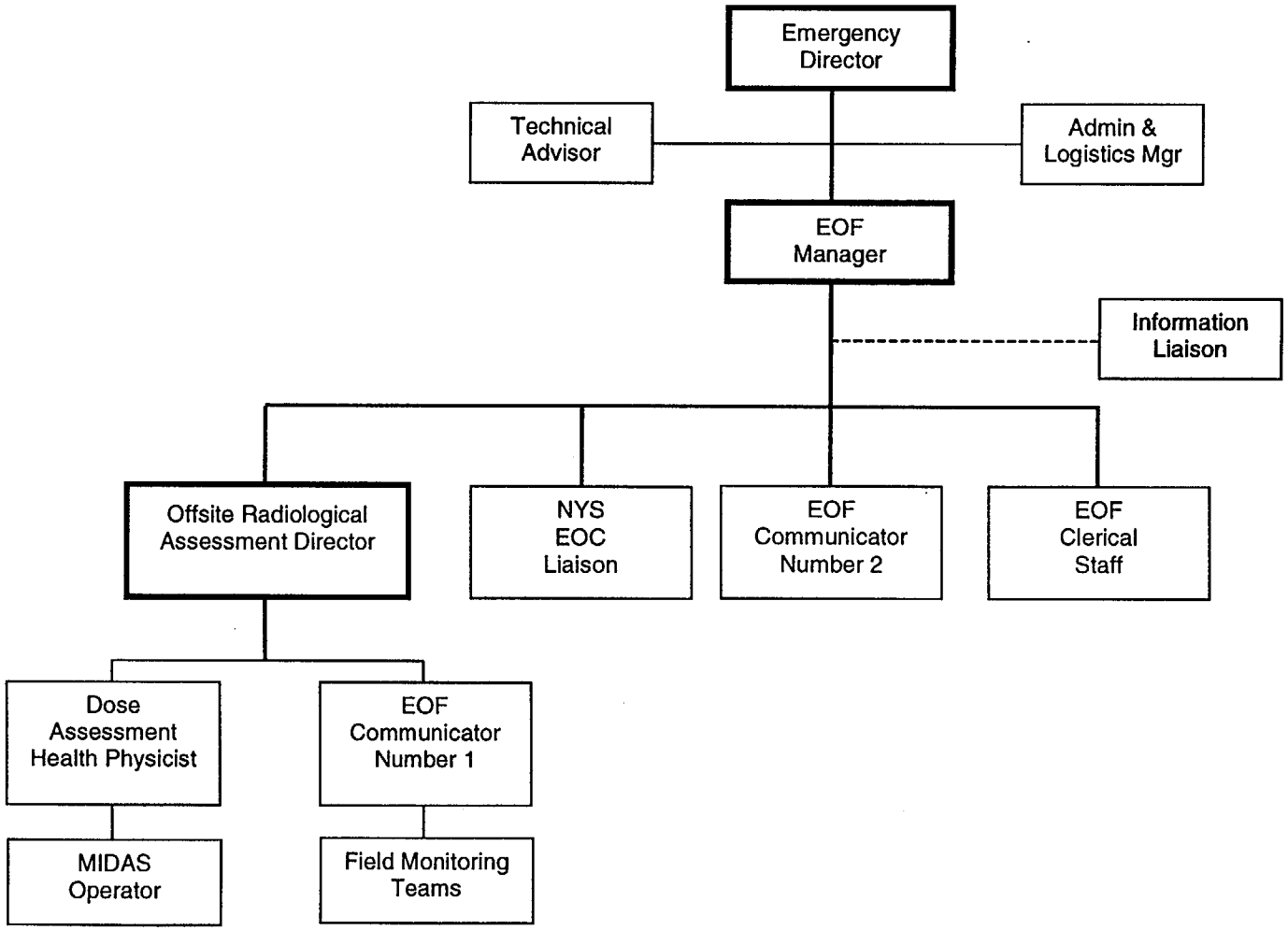


Figure 5-4 (Sheet 4 of 4)

Indian Point Unit 2 Emergency Response Organization

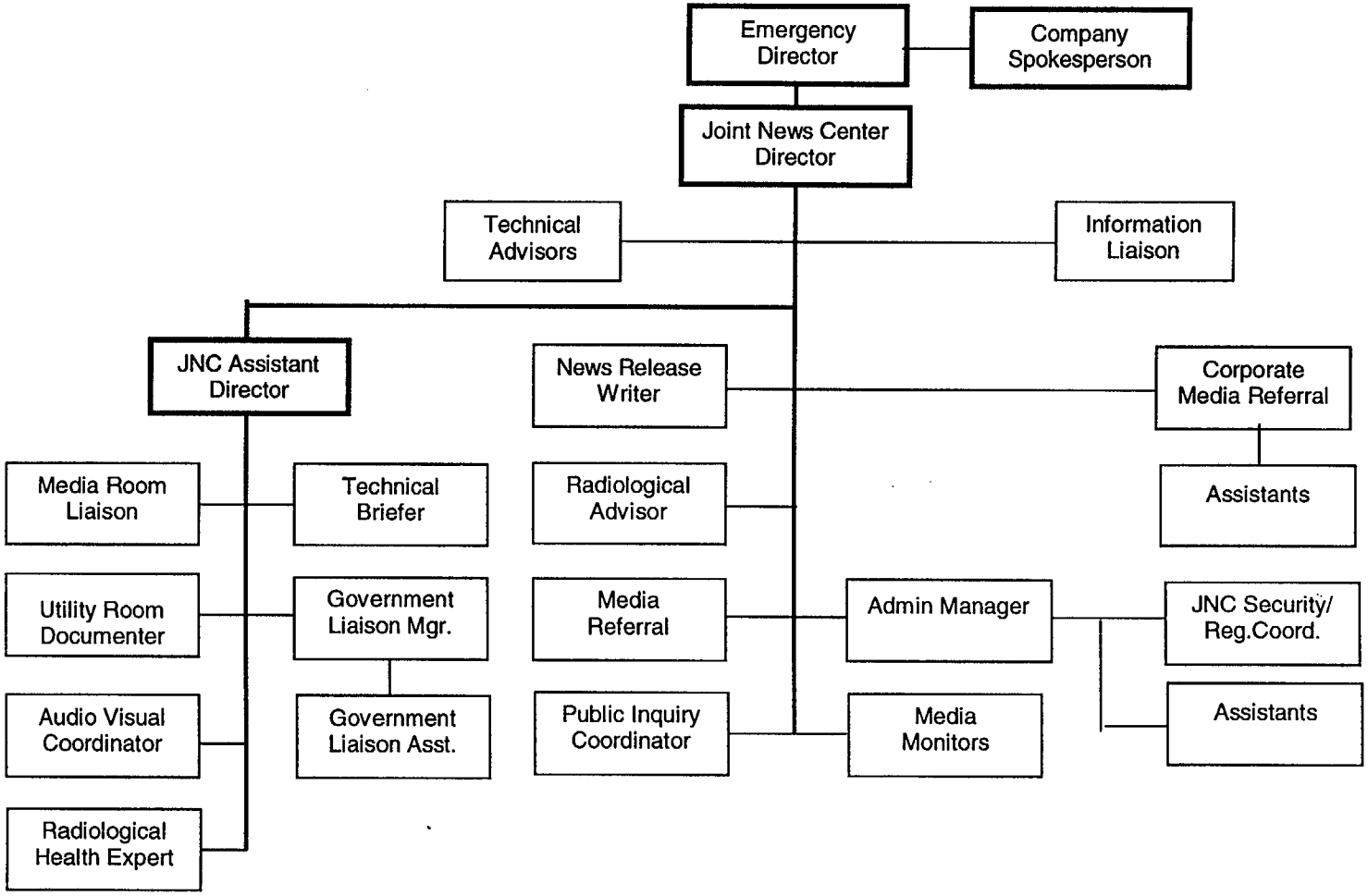


Table 5-1 (3 Sheets)

On-shift Staffing and Augmentation

Major Functional Area	Location	Major Tasks	Position Title or Expertise	On Shift	Available Within 60 Minutes
Plant Operations & Assessment of Operational Aspects	CCR		Shift Manager Control Room Supervisor Reactor Oper. Nuclear Plant Oper.	1 1 2 2	-- -- -- --
Emergency Direction & Control (Emergency Director***)	CCR	Overall direction & control	Shift Manager or Control Room Supervisor	1**	--
Notification/ Communication	CCR TSC EOF	Notify licensee, State, local & Federal Personnel & maintain communication	Communicator	1****	2
Radiological Accident Assessment	CCR/EOF	Emergency Operations Facility (EOF) Director	Emergency Plant Manager/ Emergency Director	—	1
	EOF	Offsite Dose Assessment	ORAD	—	1
		Offsite Surveys Onsite Surveys (out-of-plant) In-plant Surveys Chemistry/Radio-chemistry	Offsite Monitors Onsite Monitors Health Physics Technician Chemistry Technician	— — 1 1	4 2 2 1

Major Functional Area	Location	Major Tasks	Position Title or Expertise	On Shift	Available Within 60 Minutes
Plant System Engineering and support of Operational Assessment	CCR/TSC	Technical Support, operational accident assessment	Watch Engineer	1	
			Core/Thermal Hydraulics Engineer	—	1
			Electrical Engineer	—	1
			Mechanical Engineer	—	1
Repair and Corrective Actions	OSC	Repair and Corrective Actions	Mechanical Maintenance Technician	1**	2
			Electrical Maintenance Technician	—	2
			Instrument & Control Technician)	—	1
Protective Actions (In-Plant)		Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue, first-aid & firefighting monitoring c. Personnel monitoring d. Dosimetry	Health Physics Technician	2**	4

Major Functional Area	Location	Major Tasks	Position Title or Expertise	On Shift	Available Within 60 Minutes
Fire fighting		—	—	Fire Brigade per T.S.	Local Support
Rescue Operations and First-Aid		—	—	2**	Local Support
Site Access Control		Security, Personnel			All per Security Plan
Personnel Accountability		OSC Manager / Team Coordinator			1**
				TOTAL 10	TOTAL 26

** May be provided by shift personnel assigned other functions

*** Overall direction of emergency response to be assumed by the on-call Emergency Director. Direct operation of plant systems remains with the Shift Manager

**** Performed by Facility Support NPO or Security

Table 5-2 (6 Sheets)

Indian Point Unit 2 Emergency Response Organization Roles & Responsibilities

Emergency Title	Figure 5-4 Sheet No.	Roles/Responsibilities
Emergency Director	1	Refer to Section 5.2.1.1
Company Spokesperson	1	Updates media on plant conditions during briefings.
Emergency Plant Manager	1	Refer to Section 5.2.1.2
EOF Manager	1	Refer to Section 5.2.1.3
Joint News Center Director	1	Responsible for overall direction of JNC; supervises information flow in JNC; approves news releases; coordinates briefings with State, counties and Company Spokesperson and presides over media briefings.
TSC Manager	2	Refer to Section 5.2.1.5
Technical Assessment Coordinator	2	Directs the activities of the technical assessment team; assists the TSC Manager in planning and performing engineering assessments of plant conditions and actions to be taken to mitigate plant damage.
Core Physics Engineer	2	Monitors and assesses plant conditions for any indications of core damage; assists operations personnel in tracking core reactivity; assesses status of fission product barrier integrity.

Emergency Title	Figure 5-4 Sheet No.	Roles/Responsibilities
Operations Advisor	2	Monitors fission product barrier integrity and plant status, provides recommendations for emergency classification changes based on EALs; clarifies plant parameter information for the technical assessment team; works with other members of the TSC staff to provide support to the CCR to mitigate the effects of the event.
Radiological Advisor	2	Monitors plant radiological conditions and any release or potential release of radioactive materials; provides radiological status updates to TSC personnel; assists the Radiation Protection Coordinator in the development of emergency radiation work permits; assesses plant radiological parameters and informs other staff of the significance; provides input regarding decisions on emergency exposure authorization and issuance of KI.
I&C/Electrical Engineer	2	Assists in clarifying I&C/electrical information to members of the technical assessment team; provides support to the CCR to mitigate the effects of the event; assists OSC Maintenance and I&C Coordinators in preparing repair teams for dispatch into the plant.
Mechanical Engineer	2	Assists in clarifying mechanical information to members of the technical assessment team; provides support to the CCR to mitigate the effects of the event; assists OSC Maintenance Coordinator in preparing repair teams for dispatch into the plant.
TSC Data Coordinator	2	Activates computerized information systems in the TSC/OSC Complex; ensures necessary drawings and procedures are available; assists the TSC staff in obtaining plant data from various sources.
TSC Clerical	2	Provides clerical support to the TSC staff

Emergency Title	Figure 5-4 Sheet No.	Roles/Responsibilities
TSC Communicator	2	Establishes an open line of communications between the TSC and the CCR and EOF; monitors communications from the CCR keeping aware of CCR personnel actions and procedures being implemented.
CCR Communicator	2	Establishes an open line of communications between the CCR and the TSC and EOF; monitors communications from the TSC keeping aware of TSC personnel actions and procedures being implemented.
Document Controller	2	Provides document control support for the TSC/OSC Complex.
Data Logger	2	Updates plant data for display in the TSC/OSC Complex.
Shift Manager	2	Refer to Section 5.2.1
Shift Operating Staff	2	Refer to Section 5.2.2.1
Security Supervisor	2	Refer to Section 5.2.2.10
Shift Security Staff	2	Per Security Plan
Emergency Director Technical Advisor	3	Obtains and monitors plant data and advises the Emergency Director regarding plant condition changes, observable trends in plant data, major operator actions being undertaken and any condition which may effect emergency classification; maintains plant status chronology, assists ED in interpreting data, assists in the conduct of briefings.
Administrative & Logistics Manager	3	Provides interface with corporate organization for logistical support.

Emergency Title	Figure 5-4 Sheet No.	Roles/Responsibilities
Information Liaison	3	Facilitates the timely and accurate flow of information from the EOF to the JNC; provides interface between the IP2 Emergency Response organization and Media Relations; obtains clearance of news releases from Emergency director.
Offsite Radiological Assessment Director	3	Refer to Section 5.2.1.4
Dose Assessment HP	3	Evaluates plant radiological data; conducts dose projections; assists the ORAD in directing onsite and offsite field monitoring teams; evaluates offsite survey data.
MIDAS Operator	3	Obtains and maintains status of meteorological information; obtains offsite radiological data from fixed radiation monitoring systems; performs dose assessments as directed.
EOF Communicator #1	3	Transmits directions to offsite monitoring teams; receives and records onsite and offsite monitoring team data.
Field Monitoring Teams	3	Perform onsite and offsite radiological monitoring; report monitoring results to the EOF.
EOF Communicator #2	3	Performs required notifications to offsite authorities including the NYS Radiological Emergency Data Form Parts I and II.
NYS EOC Liaison	3	Provides clarification regarding plant information and notifications received by the NYS EOC.
EOF Clerical Staff	3	Provides clerical support to the EOF staff

Emergency Title	Figure 5-4 Sheet No.	Roles/Responsibilities
JNC Technical Advisors	4	Monitors information from the EOF/CCR to the JNC; advises utility workroom personnel and Company Spokesperson on plant conditions and technical matters.
JNC Assistant Director	4	Supervises operations in the utility work room; coordinates personnel workshifts and overall non-news events at the JNC; acts as JNC director in the Director's absence.
Media Room Liaison	4	Monitors news briefings; notes unanswered questions from briefings; responds to logistical/administrative questions of reporters; announces upcoming briefings; provides administrative support.
Technical Briefer	4	Supplies technical information on plant operations between briefings; follows Company Spokesperson's statements for technical accuracy.
Utility Room Documenter	4	Establishes and maintains folders to hold pertinent documents.
Government Liaison	4	Interfaces with State and county Public Information Officers at the JNC; ensures news releases are distributed to Corporate Media Referral, ensures status boards are maintained, signs off on EAS messages and initials State and county news releases.
Audio Visual Coordinator	4	Sets up and manages recording of news broadcasts; directs videotaping of all news briefings.
Media Monitors	4	Monitors radio and television broadcasts in accordance with specified procedures.
News Release Writer	4	Drafts news releases and briefing notes.

Emergency Title	Figure 5-4 Sheet No.	Roles/Responsibilities
Radiological Advisor	4	Clarifies radiological information for utility workroom personnel and Company Spokesperson.
Media Referral	4	Distributes news releases to media organizations unable to come to the JNC.
Public Inquiry Coordinator	4	Fulfills the rumor control function as defined in specified procedures.
Radiological Health Expert	4	Supplies information on radiation exposure and its potential health effects to media.
Corporate Media Referral	4	Distributes news releases to media organizations unable to come to the JNC.
Admin Manager	4	Opens the JNC; oversees setup and activation of the JNC; oversees overall facility operations.
JNC Security/ Registration Coordinators	4	Registers and badges all personnel entering the JNC.
Assistants	4	Provide clerical support as required.

6.0 EMERGENCY MEASURES

Emergency measures begin with the activation of an emergency class and its associated emergency organization. Additional measures are organized into assessment actions, corrective actions, and aid to affected persons, where applicable to each emergency class.

6.1 ACTIVATION OF EMERGENCY ORGANIZATION

The emergency conditions classified in Section 4 involve the alerting or activation of progressive segments of the total emergency organization. This section describes the communication steps taken to alert and activate authorities for each class of emergency.

6.1.1 Notification of Unusual Event

A Notification of Unusual Event is declared by the Shift Manager if any one of the conditions listed in the EAL Table (Section 4) is met.

Depending on the particular circumstances of the situation, the Control Room Operator under the Shift Manager's direction alerts the affected plant personnel and Unit 3 Control Room personnel and gives instructions regarding the event, using the public address system, the telephone or by messenger. Distinctive sounding signals are used to announce fire alarms or air raid alerts.

Immediate Notification 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 using the Radiological Emergency Communications System (RECS) phone (primary method) or the Local Government Radio (LGR) (backup method). The New York State Warning Point relays the information to the New York State Department of Health.

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

6.1.1 Notification of Unusual Event (cont.)

Con Edison Corporate Headquarters is notified by phone. The Central Information Group (CIG) would notify the applicable individuals on their notification lists.

The telephone numbers of the State and County Warning Points are contained in the Emergency Telephone Directory.

Confirmation calls from the New York State Emergency Management Office and the Four County Emergency Management Offices are not required unless notification is made via the normal telephone system when used as a backup.

Closeout is accomplished by a verbal summary to offsite authorities followed by a written summary within 24 hours.

6.1.2 Alert

An Alert is declared by the Shift Manager in the event any one of the Alert conditions listed in the EAL Table (Section 4)is met.

Immediate corrective actions, using plant emergency procedures, may be taken by the Control Room Operator to place the plant in a safe condition if the automatic protective systems have not already done it.

Notification of site personnel is accomplished by the Control Room Operator/Communicator initiating the site assembly alarm which is a rapid pulsing sound of at least 30 seconds duration. In addition, the Unit 2 Control Room Operator/Communicator also contacts the Unit 3 Control Room personnel.

In the case of fire, additional notification in the form of a distinctive 30 second duration sirens is also provided.

The Shift Manager may request, by phone, outside assistance from local support services as necessary.

6.1.2 Alert (cont.)

The activation of the Emergency Operations Facility, Technical Support Center, and Operations Support Center is initiated by the Shift Manager. During normal working hours the necessary personnel are available in the plant and are contacted by the Public Address System, the plant telephone or messenger. During off-hours individuals can be contacted at their homes by telephone or page "beeper" system. Telephone numbers are in the Emergency Telephone Directory available in the Control Room.

Immediate notification of an Alert is made by the Shift Manager or his designee to the New York State, Westchester, Rockland, Putnam and Orange County and Peekskill Warning Points using the Radiological Emergency Communications System (RECS) phone (primary method) or the Local Government Radio (LGR) (backup system).

The Nuclear Regulatory Commission's Operations Center is notified by the Shift Manager or his designee using the Emergency Notification System (ENS) to the NRC Operations Centers in Bethesda, Maryland.

Corporate Headquarters is notified by phone. The Central Information Group notifies the applicable individuals on their notification lists.

Confirmation calls from the New York State Emergency Management Office and the Four County Emergency Management Offices is not required unless the notification was made via the normal telephone system when used as a backup. The telephone numbers of the State and County Warning Points are contained in the Emergency Telephone Directory.

If there is a radiological release above Technical Specification limits involved with the event, the Shift Manager or his designee will provide to the offsite authorities information on the release.

Closeout or reduction in emergency class is accomplished by a verbal summary to offsite authorities followed by a written summary within eight hours.

6.1.3 Site Area Emergency

A Site Area Emergency is declared by the Shift Manager if any one of the Site Area Emergency conditions listed in the EAL Table (Section 4) are met.

Notification of site personnel is accomplished by the Control Room Operator initiating the Site Assembly Alarm which is a rapid pulsing sound of at least 30 seconds duration. In addition Unit 3 Control Room Personnel are contacted by the Unit 2 Control Room Operator.

The activation of emergency personnel to staff the Emergency Operations Facility, Technical Support Center, and Operational Support Center is initiated by the Shift Manager. The minimum organization is described in Section 5. During normal working hours the necessary personnel are contacted in their assembly areas via public address system, plant telephone, or messenger. During off-hours individuals can be contacted at their homes by automatic telephone or page "beeper" system. Telephone numbers of Emergency Personnel are in the Emergency Telephone Directory available in the Control Room.

Con Edison Corporate Headquarters is notified by phone. The Central Information Group (CIG) would notify the applicable individuals on their notification lists.

Immediate notification of a Site Area Emergency is made by the Shift Manager or his designee to the New York State, Westchester, Rockland, Putnam, and Orange County and Peekskill Warning Points using the State/County Radiological Emergency Communications System phone (primary method) or the State Emergency Management Warning Point relays the information to the New York State Emergency Management Office.

The Nuclear Regulatory Commission's Operations Center is notified by the Shift Manager or his designee using the Emergency Notification System (ENS) to the NRC Operations Centers in Bethesda, Maryland.

6.1.3 Site Area Emergency (cont.)

Confirmation calls from the New York State Emergency Management Office and the Four County Offices of Disaster and Emergency Services/Civil Defense are not required unless the notification was made via the normal telephone system when used as backup. The telephone numbers of the State and County Warning Points are contained in the Emergency Telephone Directory.

After arrival of personnel to staff the Emergency Operations Facility and the Technical Support Center, dedicated individuals would be assigned to provide plant status and meteorological and dose estimates for actual and projected releases.

If there is a radiological release above Technical Specification Limits involved with the event, the Shift Manager/Emergency Director or his designee shall provide to the offsite authorities information on the release.

Close out reduction in emergency class is accomplished by the briefing of offsite authorities at the Emergency Operations Facility and by phone, followed by a written summary within eight hours.

6.1.4 General Emergency

A General Emergency is declared if any one of the General emergency conditions listed in the EAL Table (Section 4) is met.

The activation of the emergency organization, the notification of offsite authorities, Unit 3 Control Room personnel, Corporate Headquarters and the closeout or reduction in emergency classification is the same as described in Section 6.1.3 for a Site Area Emergency.

6.2 ASSESSMENT ACTIONS

Effective coordination and directions of all elements of the emergency organization require continuing assessment throughout an emergency situation. In the case of a Notification of Unusual Event, the assessment and coordination of efforts is handled through the Control Room. During Alert, Site Area and General Emergencies the Technical Support Center and the Emergency Operations Facility are activated. Technical Support Center personnel assist the watch personnel in the assessment of the accident and recommend appropriate steps to mitigate the accident. The Emergency Operations Facility personnel continue the evaluation of offsite consequences started by the Shift Manager. Contact with the offsite agencies is maintained by the Control Room and then by the Emergency Operations Facility when activated.

The Emergency Director sends one of his staff to be an advisor to the New York State Emergency Operations Center (i.e., building No. 22, State Campus, Albany, New York) and to perform liaison duties during Site Area and General Emergencies.

This section describes for each the emergency classification defined in Section 4 of this Plan those actions taken during or after an accident to obtain and process information that is necessary to make decisions to implement specific emergency measures. Section 10, Appendix C, lists the subject matter covered by implementation procedures designed to guide the actions of the personnel.

6.2.1 Notification of Unusual Event

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

6.2.1 Notification of Unusual Event (cont.)

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 Con Edison's Engineering Departments in evaluating data; and make personal 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. Health Physics personnel would be sent into the affected plant area to make observations and evaluate radiation levels.

6.2.2 Alert

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

The Shift Manager, acting as the Emergency Director at the start of the emergency, and the Emergency Director after taking over control at the Emergency Operation Facility, will continually assess the relative condition of the three fission product barriers and radiological conditions onsite and offsite.

6.2.3 Site Area Emergency

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

An immediate assessment of the projected exposure to the offsite populace is made by using the Meteorological Information Dose Assessment System (MIDAS - see Appendix F) or by using an Implementation Procedure which includes determining a source term (curies), release rate (curies per second), radioactive airborne concentrations (microcuries per cubic centimeter) in the environment and projected exposure (Rem) to the whole body and thyroid of individuals exposed to the plume. The specifics of these are as follows:

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

- The release rate is determined from the Plant Vent Monitor (R-44, 27), Air Ejector Monitor (R-45) or the Main Steam Line Monitors (R-28, 29, 30, and 31). Should the plant vent monitors read off-scale or be inoperable, a remote monitor, gamma field indicating instrument has been installed to read contact field measurements 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 procedure requires a field survey to be performed by a Health Physics Technician after reading the remote monitor.

6.2.3 Site Area Emergency (cont.)

- The radioactive airborne concentrations in the environment are determined first by calculation and then by actual measurement. The calculations are done, using MIDAS automatically or by hand, using the Implementation Procedures.

  1. 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 implementation procedure for the meteorological data display on the control room flight panel.

  2. 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.

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

This assessment is updated based on air sampling and field surveys performed by offsite monitoring teams using radio and cell phone equipped, vehicles under the direction of the Emergency Director. The area within a 10-mile EPZ is divided into 16 equal 22½° sectors. In each sector there are three thermoluminescent dosimeters at approximately 1, 5 and 10 miles from the site.

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

Updated information is transmitted by the Emergency Director to the New York State Emergency Management Office and the Westchester, Rockland, Putnam and Orange County Offices of Emergency Management.

6.2.3 Site Area Emergency (cont.)

Radioactive contamination assessment is performed after a release is terminated. The ongoing Indian Point Radiological Environmental Monitoring Program described in Section 4.2.1 of the Unit 2 Environmental Technical Specifications is utilized to determined the extent of contamination.

Total population dose is calculated by radiological assessment personnel in accordance with an implementation procedure. The calculation utilizes established demographic information in combination with the thermoluminescent dosimeter dose distributions to obtain total population exposure within the ten-mile EPZ.

6.2.4 General Emergency

The assessment actions for a General Emergency (loss of any two barriers with loss or potential loss of a third) are the same as those described in Section 6.2.3 for a Site Area Emergency.

6.3 CORRECTIVE ACTIONS

In some emergency situations, actions can be taken to correct or mitigate the situation at or near the source of the problem. Such actions supplement design features and are both a backup and an extension of automatically initiated actions. This section identifies those actions that can and would be implemented when necessary.

The Shift Manager and the Control Room Operators are licensed by the Nuclear Regulatory Commission to operate the Unit 2 plant systems. Besides their knowledge of plant systems, plant emergency procedures which cover responses to a wide range of system malfunctions are available in the Control Room. Operators are familiar with these procedures through ongoing training, part of which is on a plant-specific simulator.

6.3.1 Plant System Operation

The Shift Manager and the Control Room Operators, utilizing these procedures, perform the necessary actions to mitigate the accident and place the plant in a safe condition.

6.3.2 Fire Control

Fire control is initiated by the Field Support Supervisor. Fire fighting equipment is used by the Fire Brigade to extinguish the fire. If the Field Support Supervisor requires additional assistance, it is requested from the local fire department. Periodic fire drills are conducted to keep firefighting proficiency high. Local fire department personnel participate in an annual fire drill and are instructed in the radiological aspects of fire fighting in radiation areas.

6.3.3 Repair

The Shift Manager and the Nuclear Plant Operators are trained in the operation of all system components and in many cases have the knowledge to repair these components. In emergency conditions they would be the first to handle repairs with the station maintenance force on immediate call to augment the repair force. Con Edison maintains spare parts and a tool room at Indian Point to support normal maintenance.

6.3.4 Damage Control

Damage control operation is handled by the Shift Manager and Nuclear Plant Operators with the station maintenance force on immediate call to assist. Depending on the area or equipment damaged, the watch force would perform necessary actions (system shutdown, auxiliary system intervention) to isolate the damage and reduce the possibility of the condition escalating in severity. If necessary the reactor would be tripped and the plant put into a cold shutdown. Con Edison maintains spare parts and a tool room at Indian Point to support normal maintenance.

6.4 PROTECTIVE ACTIONS

Protective actions for all personnel (company employees, visitors and contractors) at the Indian Point Site are the responsibility of the Shift Manager/Emergency Director. Offsite protective actions initiated by local authorities may be either sheltering or evacuation.

6.4.1 Plant Site

Onsite personnel are notified of an emergency by means of the public address system, the use of distinct audio signals for an air raid alerts, fire, and site assembly alarm for all personnel to assemble at predetermined initial assembly areas.

Depending upon the emergency classification there would be movement, assembly and evacuation of personnel. For Notification of Unusual Events, personnel may be instructed to evacuate certain areas of the plant. For Alerts, personnel may be directed to leave certain areas of the site if there is a radioactive release through the plant vent. For Site Area and General Emergencies, personnel assemble at the initial assembly areas and all non-emergency personnel may be evacuated from the site.

Assembly areas and evacuation routes are specific in the Implementation Procedures. Depending on meteorological conditions, the Shift Manager/Emergency Director decides whether to evacuate and the appropriate evacuation routes. Inclement weather, high traffic density and specific radiological conditions are considered in making the decision. The evacuation is under the direction of the Shift Manager/Emergency Director. Evacuees walk from the initial assembly areas to the reassembly area (Indian Point Service Center). Evacuees continue from site reassembly area using their own cars when practical or other transportation such as busses provided by Con Edison Emergency Foreman.

Implementation procedures contained in the Emergency Procedures Document are utilized to account for all personnel including employees having emergency assignments, visitors and contractors/construction personnel. Individuals go to their pre-established assembly areas where accountability is performed. Within approximately 30 minutes lists of personnel not accounted for are compiled. These lists are relayed to the Emergency Plant Manager who may dispatch search and rescue teams.

6.4.1 Plant Site (cont.)

Radiological monitoring of personnel, their possessions and their automobiles would be performed by Health Physics personnel using instrumentation specifically assigned for this purpose.

External radioiodine skin decontamination is performed using reduction materials and following plant radiation protection procedures. Extra clothing is available.

Public access to the site is controlled by the Con Edison Indian Point Security Supervisor and the security force in following with emergency and security plan procedures.

6.4.2 Offsite Areas

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

- Offsite protective actions will be recommended for a General Emergency. The Alert Notification System described in Section 6.6 is activated to alert the public.

- The recommended protective actions are based on the EPA Manual of Protective Action Guides and Protective Actions for Nuclear incidents, (Revised May 1992) and 10 CFR 50. Dose rates, evacuation times and weather conditions are considered. The decision to implement the recommendations is made by State and local officials following their emergency plans and the Laws of New York State.

Evacuation time estimates developed by an outside consultant are appended to this plan in Appendix G. Appendix G contains details on population distribution in the Emergency Response Planning Areas.

6.4.3 Use of Onsite Protective Equipment and Supplies

Special equipment and supplies are available for onsite personnel to minimize their exposure to airborne contaminants. Refer to Section 10 Appendix D for the equipment and its location.

For the most part, the protection provided to non-watch nonessential personnel in areas onsite is the eventual removal to offsite locations; therefore, respiratory equipment and protective clothing are not necessary. Potassium iodide may be administered as a thyroid block for radioiodine. In areas that are highly contaminated or have high airborne radioiodine and other particulate concentrations, protective clothing (coveralls, shoecovers, gloves and hats) is worn. Respiratory protection equipment is used to reduce or protect the emergency worker from a significant thyroid exposure from radiodine (25 Rem or more). Potassium iodide may be used when the individual's thyroid dose (CDE) is expected to exceed 25 Rem.

The Shift Manager/Emergency Director decides on the use of potassium iodide. Potassium iodide is stored in the Emergency Operations Facility, the Unit 1-2 Control Room and the Command Guard House. Respiratory equipment and protective clothing stored at the Emergency Operations Facility, the Unit 1-2 Control Room, the Operational Support Center will be used as directed by the Shift Manager/Emergency Director.

6.4.4 Contamination Control Measures

6.4.4.1 Plant Site

At an Alert, Site Area or General Emergency access to and egress from the site is restricted by the plant Security Force as directed by the Emergency Director. Equipment and personnel that may have been contaminated by a radiological release are checked by Health Physics personnel before leaving the site. The Emergency Procedures Document establishes levels for decontamination.

6.4.4.1 Plant Site (cont.)

No agricultural products or water supplies originate or pass through site. Precautions shall be taken onsite to prevent the contamination of drinking water and food supplies. Radiation Protection Procedures include methods and criteria for returning contaminated areas to normal. The priority of decontamination is decided by the Emergency Plant Manager, Emergency Director and Recovery Manager.

6.4.4.2 Offsite Areas

Local and State agencies are responsible for implementing protective actions offsite.

Protective actions and contamination control measures are contained in the State and County Emergency Plans. Field surveys and air monitors are done during an emergency and environmental sampling of appropriate media is done after the release is terminated. Survey, monitoring and sampling information is passed to the New York State Emergency Management Office.

6.5 AID TO AFFECTED PERSONNEL

6.5.1 Emergency Personnel Exposure

Exposure to emergency personnel will be as low as reasonably achievable.

The Emergency Director and Health Physics supervisory personnel are responsible for exposure control as prescribed in the Emergency Procedures Document. Access to areas is controlled and exposure to personnel entering controlled areas is documented. Individual exposures are normally kept below 10 CFR 20 limits for the emergency.

Volunteers may receive doses in excess of 10 CFR 20 limits authorized by the Emergency Director or the Emergency Plant Manager as prescribed in the Emergency Procedures Document.

6.5.1 Emergency Personnel Exposure (cont.)

The Emergency Director/Emergency Plant Manager may issue potassium iodide at the thyroid dose of 25 Rem CDE.

Doses received by emergency personnel during emergencies are continuously assessed by Health Physics personnel. Dosimeters, and/or themoluminescent dosimeters are distributed to emergency workers and are controlled, read and documented in accordance with the Radiation Protection Procedures and the Emergency Procedures Document.

NOTE: Protective measures such as the use of potassium iodide and respiratory protection would be used to reduce or protect the emergency workers from a significant thyroid exposure from radioiodine (25 Rem or more).

6.5.2 Decontamination and First Aid

The medical and first aid facilities available onsite for the treatment of injured and/or contaminated personnel are described in Section 7.5. With these facilities, a medical team consisting of a doctor, a nurse, a first aid technician and a health physics technician can treat a spectrum of medical emergencies from first aid to minor surgical procedures with concomitant radiological problems. Implementing Procedures contained in the Emergency Procedures Document specify treatment and decontamination of wounds.

There is a least one individual on every security watch who is trained in first aid techniques. A Health Physics Technician who has received training in decontamination procedures is on duty 24 hours a day. During weekday day shift hours, there is a doctor and a nurse on duty. During off-hours, they can be called in from home. Their telephone numbers are listed in the Emergency Telephone Directory. There are also first aid technicians and emergency medical technicians on duty during weekday day shift hours.

6.5.3 Medical Transportation

Arrangements have been made for transporting injured, contaminated and irradiated personnel to the hospital via the Verplanck Fire Department Ambulance which provides 24 hour services. Backup ambulance service is available through a mutual aid system. A written agreement is contained in Section 10 Appendix A. The Verplanck Fire Department Ambulance participates at least once per year in the annual medical emergency drill.

6.5.4 Medical Treatment

The Hudson Valley Hospital Center at Peekskill/Cortlandt has agreed to accept injured/contaminated/irradiated patient(s) from the Indian Point Site. The Phelps Memorial Hospital Center, Tarrytown, has agreed to serve as the backup hospital. In addition, a highly qualified and experienced medical doctor has been retained as a consultant to the Consolidated Edison Medical Department to supervise special cases of massive whole body exposure or extreme contamination problems. Written agreements for the hospitals and the medical consultant are contained in Section 10 Appendix A. Physicians and nurses at the Hospital participate in and are also given a seminar to acquaint them with the special precautions and techniques required for care of contaminated patients.

6.6 Public Alert and Notification

The Consolidated Edison Company of New York (Con Edison) and Entergy have provided an Alert Notification System (ANS) in the 10-mile radius surrounding the Indian Point Nuclear Plants. The design objective of the ANS is to provide local county governments with the means to alert the general public within EPZ in the event of an emergency at the Indian Point Plants within 15 minutes of the decision to do so. The intended purpose of the alert signal is to instruct the public to refer to public media (radio and television) for more specific information.

6.6 Public Alert and Notification (cont.)

The responsibility for the activation of the ANS resides with the county governments having jurisdiction in the 10-mile EPZ. The alerting devices in each county are controlled by respective county authorities.

The Public Alert Notification System (ANS) is composed mainly of sirens and is augmented with individual alerting devices for special facilities.

The high sirens employed in the ANS are electro-mechanical with rated output of 119-122 dB © at 100 feet and are initiated from each County EOC via transmitted radio signals.

The system design consists of 154 sirens with a distribution as follows:

- Westchester - 77
- Rockland - 51
- Orange - 16
- Putnam - 10

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

- Bi-weekly silent test - intended to check encoder equipment, radio transmitter/repeater and siren receiver and encoder.
- Quarterly growl test - intended to test the siren sub-system from receiver antenna to siren motor (satisfies the requirement of the bi-weekly silent test).
- Annual activation test - test the actuation and operation of the siren system (satisfies the requirements of the bi-weekly silent test if the cancel signal is initiated following the activation).

7.0 EMERGENCY FACILITIES AND EQUIPMENT

This section of the plan identifies, describes and gives the location of facilities and equipment used or maintained by Con Edison to respond to emergencies at Indian Point.

7.1 EMERGENCY RESPONSE FACILITIES

The emergency response activities of the Indian Point Emergency Plan are distributed among the functions of seven (7) emergency response facilities (ERF)s:

- Central Control Room (CCR)
- Emergency Operations Facility (EOF)
- Alternate Emergency Operating Facility (AEOF)
- Technical Support Center (TSC)
- Operations Support Center (OSC)
- Corporate Response Center (CRC)
- Joint News Center (JNC)

Each facility has procedures, staff, accommodations, equipment, services and supplies for implementing its function. Figure 7-1 shows the location of the Emergency Response Centers.

7.1.1 Central Control Room (CCR)

The CCR in the Unit 2 Control Building, 53' elevation contains the necessary instrumentation for operating the plant under normal and accident conditions. The CCR Watch personnel make the initial declaration and classification of an emergency and performs activities of other facilities until those facilities are activated and operational. Manipulations of the reactor or the plant to mitigate the consequences of an accident and restore safe conditions, however, remain as the primary function of the CCR.

The CCR staff is part of the Watch with two additional positions for assuring plant parameter data is available to the TSC.

7.1.1 Central Control Room (CCR) (cont.)

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

7.1.2 Emergency Operations Facility (EOF)

The EOF is located at the Con Edison Buchanan Service Center on Broadway in Buchanan, NY. Functions performed at the EOF include:

- overall management of the Con Edison emergency response;
- accident assessment including environment samples, surveys and dose calculations;
- alert and notification of Federal, State and local government authorities of plant events, conditions, emergency action levels, emergency classifications and dose projections;
- protective action recommendations to State and Local government authorities for the population around the site;
- coordination with Federal, New York State (NYS) and local government;
- radiological exposure control for the individuals assigned to the EOF.

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

7.1.2 Emergency Operations Facility (EOF) (cont.)

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

There are two levels in the EOF. The Emergency Control Center (ECC), MIDAS Area, NRC Room, Electrical Equipment Room and Communications Equipment Room are on the lower level and the Observer's Deck is on the upper level.

Except for the two equipment rooms, air in the remainder of the EOF is kept at a slight pressure and recirculated through HEPA filters to minimize airborne contamination.

7.1.3 Alternate Emergency Operating Facility (AEOF)

The AEOF, at the southeast wing of the Con Edison Eastview Service Center, Old Saw Mill River Road, Greenburgh, NY; is the alternate location for the EOF outside the plume exposure emergency planning zone (EPZ). AEOF and EOF functions are similar. The only radiological exposure control activity to be performed at AEOF is decontaminating individuals evacuated from Indian Point.

Procedures, staff, accommodations, equipment, services and supplies for the AEOF are similar to those for the EOF.

7.1.4 Technical Support Center (TSC)

The TSC in the Unit 1 Superheater Building, 53' elevation across the hall from the CCR includes:

- plant management and technical support to the Emergency Plant Manager and reactor operating personnel in the Central Control Room and

7.1.4 Technical Support Center (TSC) (cont.)

- information on plant events and conditions, including plant parameter data, to the Emergency Director and emergency response personnel in the EOF.

The TSC is activated with a minimum staff personnel within 60 minutes after a declaration of an Alert, SAE or GE.

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

Included in the TSC are the Computer Room, NRC Office, Records Management Office and Workspace, Telephone Equipment Room, 53'-62'-72' elevation stairwell and toilets, and former Whole Body Counting Room. The Ventilation System assures that the General Design Center Criterion 19 (GDC) exposures Limits of 5 Rem whole body and 30 Rem thyroid, during the first 30 days of a Design Basis Accident (DBA) can be met.

7.1.5 Operations Support Center (OSC)

The OSC is located in the Unit 1 Superheater Building, 53' elevation across the hall from the CCR, adjacent to the TSC. The OSC is the staging and dispatch area for individuals who may be assigned to first aid, search, survey, rescue, repair and corrective action teams.

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

- working with the Emergency Plant Manager in planning field operations to mitigate emergency conditions in the plant;

- accountability of all individuals on the site who are assigned to an Emergency Response Force, the Watch or the Security Force including anyone dispatched from the OSC;

7.1.5 Operations Support Center (OSC) (cont.)

- mobilizing the Material Control Storekeeper and individuals on the emergency roster needed to fill the positions in the OSC,

- radiological exposure control for the individuals within the OSC.

The OSC is activated with a minimum staff within 60 minutes after a declaration of an Alert, SAE or GE.

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

The OSC Staff is responsible for Radiological Exposure Controls for the members of the Emergency Response Organization within the Protected Area.

7.1.6 Corporate Response Center (CRC)

A CRC will be established near the EOF. It will be staffed by the Admin & Logistics Manager and additional personnel as needed. The CRC provides a common point of communication and coordination for the Emergency Director and the Indian Point emergency response organization with the resources available through other Con Edison organizations.

7.1.7 Joint News Center (JNC)

The JNC is located outside the plume exposure emergency planning zone in the former Air National Guard Building at the Westchester County Airport; Interstate I-684, Exit 2; White Plains, NY and provides a place for;

- point of contact between the Con Edison corporate spokesperson and the news media

- coordination of public information released to the news media and the public by Con Edison, State and Local government including alerts, notifications and protective action recommendations

7.1.7 Joint News Center (JNC) (cont.)

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

Con Edison activities at the JNC are managed by the JNC Director and the JNC has equipment to support the activities including telephones, facsimile and photocopiers.

The JNC is activated upon declaration of an Alert, SAE or GE.

7.2 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, Operational Support Center personnel, onsite and offsite monitoring teams, security forces and Corporate Management. Table 7.1 lists the major communications systems available in the Emergency Response Facilities.

7.2.1 Public Address System

The Public Address System is designed for paging within the Unit 1-2 site from the Unit 2 Control Room. Personnel paged have the ability to talk to the Control Room Operator via party line phones that are strategically located within the units. Plant personnel may initiate the communication to the Control Room from outlying party lines. This system is used to call personnel and announce emergencies in the Unit 1-2 buildings. A similar system exists for Unit 3 (ENTERGY) areas.

7.2.2 Telephones

Normal telephone communication service includes Private Branch (PBX) and Commercial and Federal Telephone System (FTS) exchange in the Central Control Room, Emergency Operations Facility, Technical Support Center, Operational Support Center, Joint News Center, Corporate Response Center, and Recovery Center. The

7.2.2 Telephones (cont.)

commercial telephone service to Indian Point includes service from both the Peekskill and Croton telephone exchanges.

A microwave system provides alternate telephone communication through a NYC (212 exchange) from the Central Control Room and Emergency Operations Facility. The microwave system is utilized by the Local Government Radio Channel

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 Nuclear Regulatory Commission. This system has extensions at the Central Control Room, Technical Support Center and the Emergency Operation Facility.

7.2.3 Direct Line Phones

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

- Radiological Emergency Communication System (RECS) with phones in the Control Room and the Emergency Operations Facilities is the primary means of simultaneously notifying the City of Peekskill, State, County and Emergency Operations Centers Warning Points of an emergency. This system is staffed twenty-four hour per day in the Control Room and City, County and State Warning Points. State and County Warning Point procedures detail the activation of their respective responses organization. (Figure 7-2)

- Direct line phones connect the Emergency Operations Facility, Corporate Response Center, Joint News Center, Alternate Emergency Operations Facility and the Control Room of Unit 1-2 and Unit 3. Automatic ringing phones connect the Technical Support Center with the Control Room, Emergency Operations Facility and the Alternate Emergency Operations Facility.

7.2.4 Radio Systems

A two channel radio system which operates in the ultra-high frequency range is available for communication between the site and emergency facilities. A channel, designated "Central" channel is provided between the Unit 1-2 Control Room and the Con Edison System Operator at the New York City Energy Control Center. A second channel, designated "Area" channel is a separate radio system for emergency forces that connects the Emergency Operations Facility, the Unit 3 Control Room, the Unit 1-2 Control Room and the emergency environmental survey vehicles.

A separate security radio system is used by the Security Force connecting the Command Guard House with all guard posts. In addition, the Local Government (LG) radio channel has been installed in the Control Room and Emergency Operations Facilities to be used as backup to the Radiological Emergency Communications System (RECS) phone. Figure 7-3 depicts the LG radio channel.

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

7.2.5 Radio Paging System - (Page "Beeper" Service)

A commercial radio paging service is used for recalling personnel that are offsite at the start of an emergency. The paging service is contacted to initiate the page. The paging service then transmits a message to all personnel to whom a pager has been issued. Personnel acknowledge by calling a pre-designated number connected to an answering machine which receives the caller's name and time of the call for accountability purposes.

7.3 ASSESSMENT FACILITIES

Many of the emergency measures described in Section 6 depend on the availability of monitoring instruments and laboratory facilities. This section lists the monitoring systems that are used to initiate emergency measures, as well as those used for continuing assessment.

7.3.1 Onsite Systems and Equipment

7.3.1.1 Seismic Monitoring Equipment

The seismic monitoring equipment at the Indian Point Station is located in the Unit 3 Containment Building. Information from this equipment is transmitted by the Unit 3 Control Room Operator to the Unit 2 Shift Manager. The monitoring system consists of three (3) peak shock records in a tri-axial mount at EL-46'-0" on the base mat; two (2) 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 (3) peak recording accelerograph one each on a steam generator, a reactor coolant pump and the pressurizer.

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

7.3.1.2 Meteorological Monitoring Equipment

A primary 122 meter meteorological tower located on the Indian Point Site provides real-time meteorological parameters as specified in Enclosure 1 to Appendix 2 of NUREG-0654 (January 1980) and USNRC Regulatory Guide 1.23 Revision 1. The three basic functions outlined in Annex 1 to Appendix 2 of NUREG-0654-Rev 1 have been implemented. Electrical service to the tower is backed up with an alternate diesel generator power supply through automatic power transfer switch.

A 33 meter backup tower is located on the site and a 10 meter standby tower is located on the roof of the Indian Point Service Center Building. Real-time wind speed and wind direction data are continuously recorded. An estimator of atmospheric stability (sigma theta) is derived from the wind direction fluctuations. There is an alternate source of power for data collection at both towers available automatically at the loss on normal power.

Real-time atmospheric transport and diffusion calculations are made using the MIDAS operating on a dedicated computer and peripherals. The Class A model can provide relative concentration output within a few minutes. A Class B type model produces refined estimates of transport and diffusion incorporating terrain, time and space variations, and forecasts of meteorological conditions.

Data from the meteorological tower and Class A model can be accessed remotely via telephone communication using a terminal-printer or a personal computer with a modem and is displayed in the control room. 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 be obtained from the National Weather Services stations and other offsite meteorological facilities identified in Section 7.3.2.

7.3.1.2 Meteorological Monitoring Equipment (cont.)

The telephone communications described in Section 7.2.2 provide access to the meteorological data from the EOF, TSC, CR and offsite NRC center.

Further information on the MIDAS system can be found in Section 10 Appendix F.

7.3.1.3 Radiological Monitors

A Radiological Monitoring System, consisting of fixed process (air, liquid or gas) monitors and area radiation monitors, is installed throughout each Unit with remote readouts and alarm indications in the Control Room. Table 7-2 lists area and process monitor locations.

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

The portable survey instruments, counting equipment and supplies available in emergency lockers are listed in Section 10 Appendix D.

7.3.1.4 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 Room.

Process instrumentation inside containment required to operate and provide assessment information after a loss of coolant accident or a steamline break include:

- Pressurizer Pressure channels: PT-455,456, 457,474
- Pressurizer level channels: LT-459,460, 461,462
- High-head flow channels: FT-924,925,926,927
- Accumulator pressure channels:PT-936A,B,C,D; PT-937A,B,C,D

7.3.1.4 Process Instrumentation (cont.)

- Recirculation spray flow channels: FT-945A,B
- Recirculation sump level channels: LT-938,939
- Containment sump level channels: LT-940,941
- Residual heat loop flow channels: FT-640;FT-946A, B,C,D

7.3.1.5 In-plant Iodine Instrumentation

To measure airborne iodine concentrations within Unit 2, Consolidated Edison can perform gamma energy spectrum analyses 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.

7.3.1.6 Post-accident Sampling

Plant design includes the capability to sample the reactor coolant system, the discharge of the recirculation and residual heat removal pumps, and the post accident containment atmosphere. The post accident sampling capability is in accordance with the criteria of NUREG-0578.

7.3.1.7 Instrumentation for Detecting Inadequate Core Cooling

Instrumentation for detecting inadequate core cooling includes:

- reactor coolant saturation meter
- hot leg wide range temperature
- cold leg wide range temperature
- wide range reactor coolant pressure
- pressurizer level
- reactor vessel level indication system (RVLIS)

7.3.1.7 Instrumentation for Detecting Inadequate Core Cooling (cont.)

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. Degradation of core cooling is indicated by cold and/or hot leg wide range temperatures which are higher than the saturation temperature.

7.3.1.8 Fire Detection

Heat and smoke detectors are located throughout the plant with alarms annunciated in the Control Room. A detailed description of the fire detection equipment is in the Con Edison Indian Point Nuclear Generating Unit No. 2 Fire Protection Program Plan.

7.3.2. Facilities and Equipment for Offsite Monitoring

7.3.2.1 Survey Vehicles

Two survey vehicles, equipped with two-way radios, cell phones, air samplers, sample counters, portable survey meters (including low-level radioiodine detection equipment with a minimum sensitivity of 1 x 10^{-7} µCi/cc), personnel dosimeters and respirators are available for offsite monitoring. Backup vehicles are available from New York State Power Authority Unit No. 3. Equipment in the survey vehicles is listed in an Implementation Procedure in the Emergency Procedures Document.

During an emergency the survey vehicles are sent to pre-selected locations within 10 mile radius of the site. Radio communication tests and access checks were performed for each location. Each location is shown on large maps located in the Control Room and Emergency Operations Facility. Laboratory facilities for personnel whole body counting and for environmental sample preparation and counting exist at the site.

7.3.2.2 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 within a seven and half-mile radius of the plant. The Indian Point Radiological Environmental Monitoring Program is described in Section 4.2.1 of the Indian Point Unit No. 2 Environmental Technical Specifications.

Backup facilities for the environmental sample preparation and counting are available by agreement with an offsite laboratory. A copy of the agreement letter is in Section 10 appendix A.

7.3.2.3 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 the MIDAS computer at the Emergency Operations Facility.

The data is available to the Control Room and may be used to estimate whole body exposure offsite.

7.3.2.4 Offsite Meteorological Information

Offsite meteorological information is available by telephone from the following sources:

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 at upper air sounding.

7.4 PROTECTIVE FACILITIES AND EQUIPMENT

Assembly areas and evacuation routes are specified in the Emergency Procedures Document. Assembly areas are located to assure that some are not in the path of the plume. Plant and contractor personnel are assigned assembly areas. Each assembly area has a telephone. The assembly areas within the Protected Area fence are within the range of the plant paging system. Emergency lighting is provided in the buildings within the Protected Area fence. Non-watch, non-emergency personnel will be relocated to less affected areas of the site and eventually evacuated to offsite locations. Depending on existing radiological and meteorological conditions, the Shift Manager/Emergency Director decides when relocation/evacuation is necessary and which route will be used. A procedure for evacuation is contained in the Emergency Procedures Document. The use of onsite protective equipment and supplies is described in Section 6.4.2.

7.5 FIRST AID AND MEDICAL FACILITIES

7.5.1 First Aid-Decontamination Room

Con Edison Medical facilities at Indian Point Station are in a two room First Aid-Decontamination Suite located on the 72 foot elevation of the Unit No. 1 Nuclear Service Building. This suite includes a decontamination room and an examination room with a stainless steel decontamination table, shower facilities, foot sink and hand sink, stainless steel flooring with drains to holdup tank, and first aid and medical supplies for life support and minor surgery.

7.5.2 First Aid Room

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

7.5.3 Indian Point Service Center-Medical Bureau

The Medical Bureau in the Indian Point Service Center located within the Exclusion Area boundary about 0.7 miles from Unit No. 2 is an alternate location for medical and decontamination supplies and an alternate treatment facility for radiation casualties.

This facility is accessible without leaving either the Site or the Exclusion Area boundary.

The Service center is the principal location for the Emergency Operations Facility and is also used to reassemble, monitor and decontaminate personnel evacuated from the plant.

7.6 DAMAGE CONTROL EQUIPMENT AND SUPPLIES

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

Figure 7-1
Location of Emergency Response Facilities

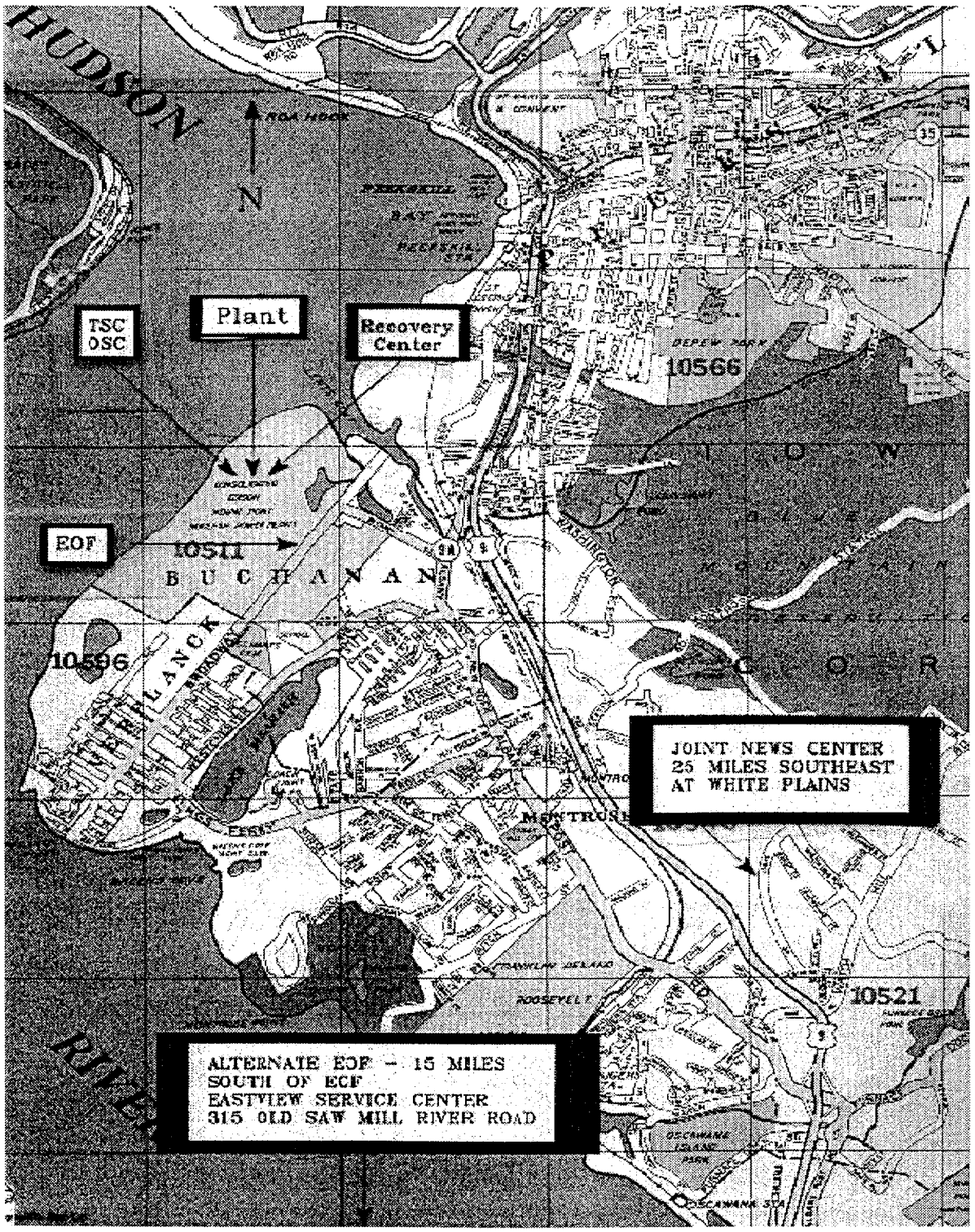


Figure 7-2
Radiological Emergency Communications System (RECS)

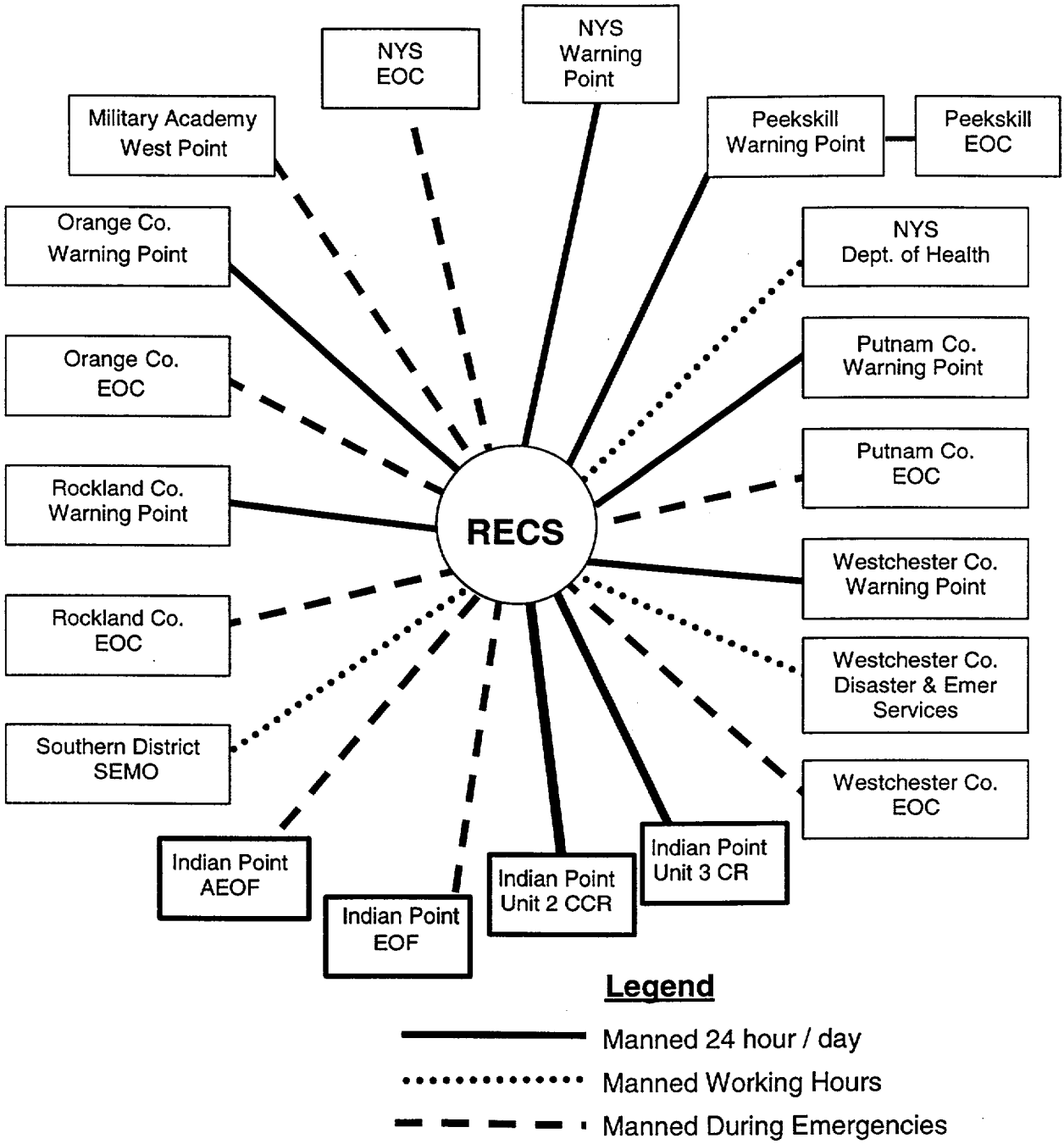


Figure 7-3
Local Government Radio Channel

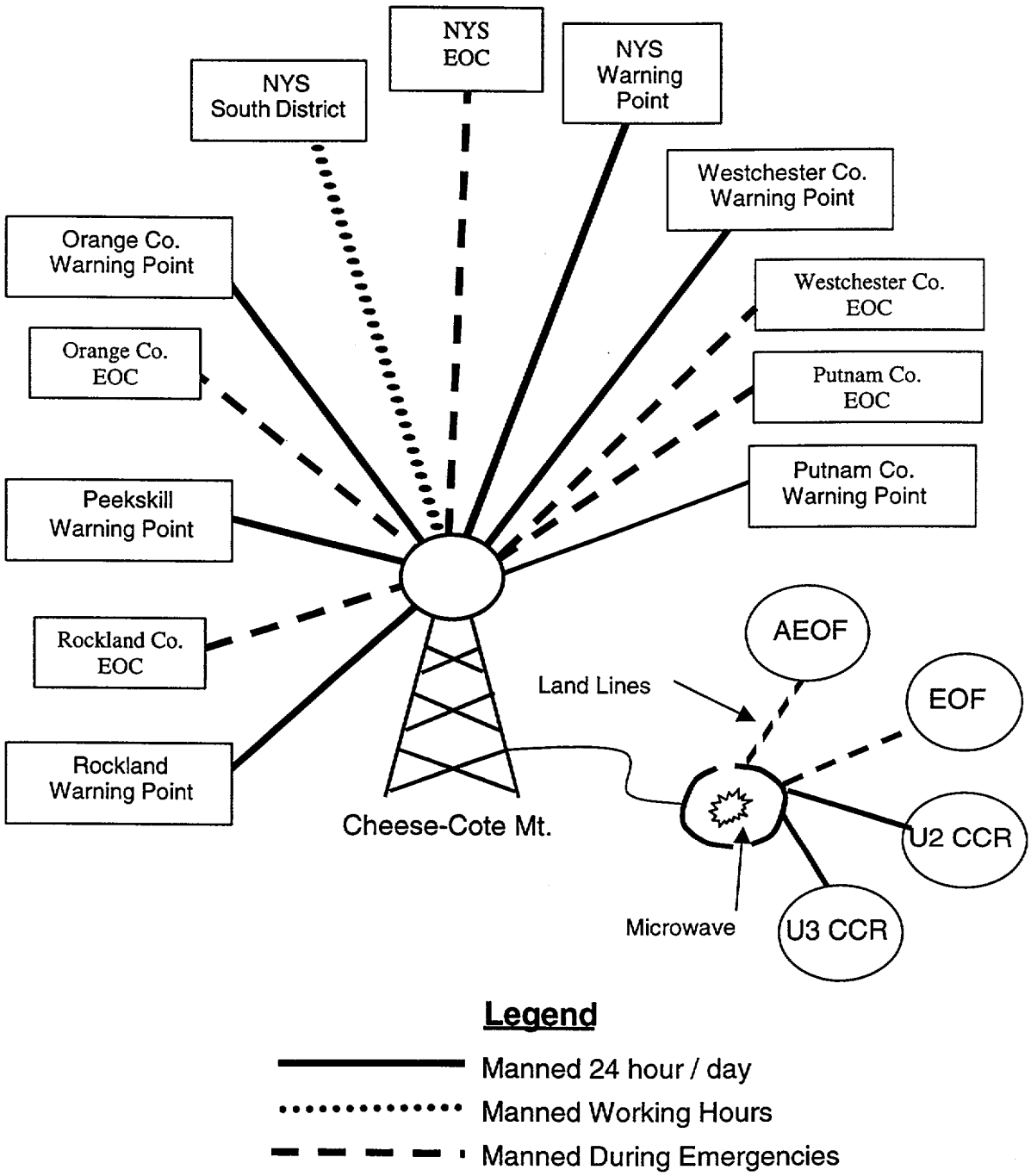


Table 7-1

Emergency Response Facility Communication Systems

Facility	Communications System	Connected to ---
CCR	Central Radio	EOF
		Corporate Response Center (CRC)
		AEOF
	Area Radio	EOF
		AEOF
		Monitoring Teams
		Security
		Unit 2 or 3 CCR
	Local Government Radio	EOF
		AEOF
		Peekskill EOC and Warning Point
		State and County EOC and Warning Points
		Unit 2 or 3 CCR
		West Point Military Academy
		State South District
	212 Phone Exchange	All Indian Point Facilities
	914 Phone Exchange	All State and County Facilities
	Station PBX	All Federal Facilities
		All Industry Contacts
		All Private Facilities

Table 7-1

Emergency Response Facility Communication Systems

Facility	Communications System	Connected to ---
CCR (cont.)	Direct Line	EOF
		AEOF
		TSC
	RECS	EOF
		AEOF
		Peekskill EOC and Warning Point
		State and County EOC and Warning Points
		Unit 2 or 3 CCR
		West Point Military Academy
		State South District
	700 Exchange	NRC
EOF & (AEOF)	Central Radio	CCR
		Corporate Response Center (CRC)
		AEOF (EOF)
	700 Exchange	NRC
	Area Radio	CCR
		AEOF (EOF)
		Monitoring Teams

Table 7-1

Emergency Response Facility Communication Systems

Facility	Communications System	Connected to ---
EOF	Area Radio (cont.)	Security
&		Unit 2 or 3 CCR
(AEOF)	Local Government Radio	CCR
		AEOF (EOF)
		Peekskill EOC and Warning Point
		State and County EOC and Warning Points
		Unit 3 CCR
		West Point Military Academy
		State South District
	212 Phone Exchange	All Indian Point Facilities
	914 Phone Exchange	All State and County Facilities
	Station PBX	All Federal Facilities
		All Industry Contacts
		All Private Facilities
	Direct Line	CCR
		AEOF (EOF)
		TSC
	RECS	CCR
		AEOF (EOF)

Table 7-1

Emergency Response Facility Communication Systems

Facility	Communications System	Connected to ---
EOF & (AEOF)	RECS (cont.)	Peekskill EOC and Warning Point
		State and County EOC and Warning Points
		Unit 2 or 3 CCR
		West Point Military Academy
		State South District
TSC	Direct Line	EOF
		AEOF
		NRC
		CCR
	914 Exchange	All Indian Point Facilities
	PBX Exchange	All State and County Facilities
		All Federal Facilities
		All Industry Contacts
		All Private Facilities
	700 Exchange	NRC
OSC	914 Exchange	All Indian Point Facilities
	PBX Exchange	All State and County Facilities
		All Federal Facilities
		All Industry Contacts

Table 7-1

Emergency Response Facility Communication Systems

Facility	Communications System	Connected to ---
OSC	PBX Exchange (cont.)	All Private Facilities
	Plant Radio	Hand-Held Radios

Table 7-2
Area and Process Radiation Monitors

AREA MONITORS	
Channel	Monitor
R-1	Control Room
R-2	80' Air Lock V.C.
R-4	Charging Pump Room
R-5	Spent Fuel Building
R-6	Sampling Room
R-7	In-Core Instrument Area
R-25	High Range Containment (Accident)
R-26	High Range containment (Accident)
R-37	High Radiation Sampling System
R-5987	Motor Control Center 98' Elv PAB
R-38	Air Intake For Control Room
R-39	CCW Service Water Return #21 Heat Ex.
R-40	CCW Service Water Return #22 Heat Ex.
PROCESS MONITORS	
R-41	Containment Air Particulate
R-42	Containment Gas
R-43	Plant Vent Particulate
R-44	Plant Vent Gas
R-45	Condenser Air Ejector Gas
R-46 and R-53	Containment Fan Cooling Water
R-47	Component Cooling Liquid
R-48	Waste Disposal System Liquid Effluent
R-49	Steam Generator Liquid Sample
R-20	Waste Disposal System Gas Analyze
R-27	High Range Plant Vent Gas
R-28	No. 21 Main Steam Line Radiation
R-29	No. 22 Main Steam Line Radiation
R-30	No. 23 Main Steam Line Radiation
R-31	No. 24 Main Steam Line Radiation
R-52	Sec. B/D Purification System Service Water
R-55	Steam Generator Blowdown Sample
R-57	Sewage Discharge from Station
R-59	House Service Boiler Condensate
R-60	Plant Vent Unit #1

8.0 MAINTAINING EMERGENCY PREPAREDNESS

This section of the Plan describes the means employed to ensure that the Plan will continue to be effective throughout the lifetime of the Station.

8.1 ORGANIZATION PREPAREDNESS

8.1.1 Emergency Personnel

All onsite Emergency Personnel designated to be part of the Emergency Response Organization as listed in Figure 5-4, of Section 5, are listed in the Emergency Telephone Directory. The upkeep of the Emergency Telephone Directory is coordinated by the Emergency Planning Section. Individuals are assigned by Department Managers in accordance with station administrative orders.

8.1.2 Training

Con Edison has an Emergency Planning Training Program description, "Emergency Plan Training Program" which provides for initial and annual retraining to maintain the proficiency of emergency personnel. Emergency Plan training may consist of formal classroom lectures, self study modules, procedure reviews, computer based training, facility walkthroughs, field exercises and/or drills. During drills, on-the-spot correction of erroneous performance shall be made and a demonstration of the proper performance offered by the instructor. The type and extent of training each individual receives depends upon the specific duties assigned to that individual in the Emergency Plan. Drills and or test are utilized to evaluate the effectiveness of the training accomplished.

The content and the extent of the training for each emergency job function is specified in detail in individual position ERO Qualification Records. Initial training includes introductory lessons on the fundamentals of the Emergency Plan as well as job specific training such as emergency facility orientation and job task specific training (e.g. dose assessment, emergency classification, field team monitoring). Continuing training is provided each year which consists of annual General Employee Re-Training,

8.1.2 Training (cont.)

required reading, walkthroughs and other practical training exercises.

Training to develop skills not unique to the emergency plan job function i.e. reactor operator, multi media/first aid etc., but utilized during an emergency is included as part of the individual's normal job training program. Emergency Plan training is conducted in accordance with administrative procedures.

Emergency response training for offsite emergency organizations who may be called upon to provide assistance during an emergency (police, fire, ambulance, hospital) is coordinated by the Con Edison organization (Security, Fire Protection, Medical) which normally interfaces with these groups.

All onsite plant personnel, offsite Con Edison personnel who routinely visit the site and extended onsite visitors (i.e., construction personnel, outage support personnel, etc.) receive introductory training including familiarization with emergency plan, the location of assembly areas, and accountability procedures.

8.1.3 Drills and Exercises

Annual drills are conducted by Con Edison at the Indian Point Station for each of the following scenarios and will be supervised by qualified drill controllers.

- A medical emergency involving a simulated contaminated individual in which the Consolidated Medical Department, the hospital, site first-aid team, radiation protection personnel and security force participate.

- A radiological emergency in which the Onsite Emergency Response Organization participates in a simulated emergency scenario. As part of this drill, plant environs and radiological monitoring (onsite and offsite) will be conducted and may include collection and analysis of sample media (e.g., water, vegetation, soil and air) and provisions for communications and record keeping.

8.1.3 Drills and Exercises (cont.)

- In addition, the scenarios may require the call for assistance of Entergy personnel to demonstrate the coordination between the two licensees.

The annual radiological emergency exercise is conducted each calendar year nine to fifteen months after the last annual radiological emergency exercise. Additional drills and communications checks designed to test various aspect of the Plan, shall be conducted as follows:

- The Radiological Emergency Communication System (RECS) link between the Control Room, EOF and the State and four county Warning Points will be tested monthly.

- The Emergency Notification System with the NRC will be tested monthly.

- The telephone links with Federal response organizations (i.e., Department of Energy Radiological Assistance Program) and County governments within the ingestion pathways will be tested quarterly.

- The radio communication link between the Emergency Operations Facility, the Control Room and with the offsite survey team vehicles will be tested quarterly.

- The emergency communications links between facilities will be operationally checked quarterly.

- Health Physics (offsite monitoring) drills will be conducted semi-annually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment. Analysis of inplant liquid samples (chemistry drill) with actual elevated radiation levels including use of the post-accident sampling system will be conducted annually.

8.1.3 Drills and Exercises (cont.)

Any of the above drills may be performed in conjunction with other drills. The emergency drills are designed to test the adequacy of timing and content of the immediate action and implementation procedures, to test emergency equipment, communication links and notification procedures, and to ensure that emergency organization personnel are familiar with their duties. Offsite support agencies are invited to participate in the annual drills and exercises.

In addition to, or in conjunction with, the above drills, a site emergency preparedness exercise involving response by offsite authorities will be conducted on biennial basis as set forth in NRC and FEMA rules. The scenarios for these exercises will be varied in an effort to assure that all major elements of the various plans and organizations are tested within a five-year period. Efforts will also be made to vary the timing of the exercises such that back-shifts will be involved once every six years (i.e. between 6:00 p.m. and 4:00 a.m.). Attempts will be made to have some drills unannounced. When feasible, drills will be conducted under adverse weather conditions.

Preplanned scenarios appropriate to the objectives of each drill or exercise are used. The scenarios for use in each drill or exercise will include, but not be limited to, the following:

- Basic objective(s) and evaluation criteria.
- Date, time period, place(s), personnel and organization(s) participating.
- Simulated events.
- A time schedule of real and simulated initiating events.
- A narrative summary of the proposed drill or exercise to describe such things as simulated casualties, rescue of personnel, use of protective clothing etc.
- Arrangements for qualified observers.

8.1.3 Drills and Exercises (cont.)

The emergency drills and exercises are observed and evaluated by qualified Con Edison personnel and Federal, State and local officials where appropriate. A critique is held following each drill or exercise at which time observers present their recommendations for improving performance and emergency preparedness. An Emergency Plan Corrective Action Report is written for major items that need follow-up, and is entered into the IP-2 Condition Reporting System (CRS). The CRS item is reviewed by the Corrective Action Group (CAG) and an action addressee is assigned and the time frame for completion. The Manager of Emergency Planning reviews the completed CRS items from the action addressee and reports the results to the Station Nuclear Safety Committee. The conduct of emergency drills and exercise is specified in greater detail in a Site Services Department Procedure.

8.1.4 Emergency Planning Responsibility

The corporate officer in charge of Nuclear Power has overall authority and responsibility for radiological emergency response planning. He is assisted by the Emergency Planning Manager. The Officer in charge of Nuclear Power assures the proper qualification of the Emergency Planning Manager prior to assignment to that position. Training activities such as seminars and professional development courses shall be utilized to maintain adequate knowledge by the Emergency Planning Manager and his staff.

The Emergency Planning Manager, a member of the normal Station staff, has been appointed to coordinate Emergency Planning. He reports to the Vice President Nuclear Engineering on emergency planning matters (see Figure 5-2). His responsibilities include assisting Department Managers in designating Emergency Personnel to fill the Emergency Response Organization (ERO), coordinating Con Edison emergency planning with offsite agencies, updating the Emergency Plan and the Emergency Procedures Document to keep them compatible with State and Federal Regulations, coordinating drill activities, and maintaining Emergency Plan records.

8.2 REVIEW AND UPDATING OF PLAN AND PROCEDURES

The Emergency Planning organization shall annually review the Plan and the Emergency Procedures Document to determine if there are needed additions or changes to increase their effectiveness. This review shall include the prior year's drill critique and Condition Reports, changes to the site and environmental parameters. A report of review results shall be sent to the Vice President Nuclear Engineering, the Chairman of the Station Nuclear Safety Committee and the Chairman of the Nuclear Facilities Safety Committee incorporating any recommended changes. The Station Nuclear Safety Committee shall review this report and shall submit any recommended changes to the Chairman of the Nuclear Facility Safety Committee via the Station Nuclear Safety Committee meeting minutes.

Updating of the Plan and the Emergency Procedures Document shall be accomplished by the Emergency Planning Manager as necessitated by the results of the review. All changes to the Plan and the Emergency Procedures Documents shall be reviewed and approved as stipulated in Emergency Plan Administrative Procedure EP-AD-02, SA0-100 and the plant Technical Specifications. Changes shall be provided to the Entergy to facilitate consistency in the site emergency planning efforts.

Controlled copies of the Plan and the Emergency Procedures Document are issued to individuals, locations, and offsite agencies, and are used to keep them cognizant of changes to the Plan and Emergency Procedures Document. A return receipt routing sheet system is used to record the receipt by the controlled copy holders. Revised pages shall be marked to show where the changes have been made. Pages shall contain a Revision number which is made up of the last 2 digits of the year and the revision number for the year.

The Emergency Plan and written agreements, copies of which are included in Section 10 Appendix A, shall be reviewed and updated as needed, and certified to be current on an annual basis.

The telephone numbers of all Con Edison personnel and offsite participating support agencies and individuals listed in the Emergency Telephone Directory shall be verified on a quarterly basis.

8.2 REVIEW AND UPDATING OF PLAN AND PROCEDURES (cont.)

A yearly audit of the emergency preparedness program is performed by the Consolidated Edison Quality Assurance Organization under the cognizance of the Nuclear Facilities Safety Committee. The Quality Assurance Program provides the management controls for documenting, reporting and retaining audit results and for evaluation and correcting audit findings.

8.3 MAINTENANCE AND INVENTORY OF EMERGENCY EQUIPMENT AND SUPPLIES

Items of emergency equipment and supplies are checked quarterly and after each use to insure operational readiness. All defective or missing equipment and supplies are replaced by the responsible organization. Specific check lists are used in this determination and the calibration due date for instrumentation is recorded.

Survey instruments and counters have been placed on a rotating calibration schedule of 100 days. Other equipment requiring calibration will be calibrated as recommended by the manufacturer. Normally, equipment requiring calibration will be calibrated at the Station and will be immediately available in the event of an emergency.

In any case, sufficient reserves are available to replace defective or missing items or an item which may be out of service for calibration. Completed check lists are forwarded to the Emergency Planning manager for record keeping.

8.4 DISSEMINATION OF EDUCATIONAL INFORMATION TO THE PUBLIC

The Consolidated Edison Corporate Affairs Department is responsible, in consultation with the Entergy, New York State and the counties of Westchester, Orange, Rockland and Putnam, for periodic dissemination of educational information to the public within the 10 mile Emergency Planning Zone

Educational information to the public within the 10 mile radius of the Indian Point Site, has been prepared in a booklet form which summarizes the role of the individual and family in dealing with a local emergency. The booklet focuses on the planning area in which the individual lives and has been mailed to each household within 10 mile radius under the auspices of the Four County Nuclear Safety Committee.

A copy of one of the booklets (each booklet covers a separate county of the 10 mile Emergency Planning Zone) is included at the end of this section. Updated booklets will be distributed each year.

In addition, an advertisement containing the specified information has been prepared for insertion in telephone books, and for use as a posting in such places as motels, hotels, and workplaces.

Con Edison, in cooperation with appropriate Power Authority, State and county officials, 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.

9.0 RECOVERY

The recovery begins after plant accident conditions are mitigated (i.e., fuel in the core is in a coolable condition or configuration; heat removal equals or exceeds the decay heat with no foreseeable danger of losing heat removal capability; radiological releases to the environment are terminated with no expected resumption). The Emergency Director shall declare the accident mitigation phase over and the recovery phase initiated.

The organization for the Recovery may be a continuation of the emergency organization with the Emergency Director replaced by the Recovery Manager. The Recovery Manager directs the organization from the Recovery Center. At the beginning of the recovery, the Manager caucuses with facility managers and other selected personnel to prepare an overall plan for the Recovery and to facilitate a smooth transition for the recovery organization.

As the Recovery continues, the Recovery Manager may decide to either reduce and eliminate or add and expand any portion of the organization. Once recovery issues have been identified and a method of tracking them to completion assured, the normal station organization may be used to complete recovery.

9.1 REENTRY TO PLANT AREAS

The Recovery Manager supervises the reentry. Generally, site problems are addressed first to make the site tenable for all with a series of radiation surveys to establish accessibility and restore the Station to normal.

All data gathered from reentry 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. The Nuclear Facilities Safety Committee reviews and approves recovery operations in accordance with its charter and the Technical Specifications.

9.2 Offsite Actions

Offsite activities during the Recovery include assisting State and local authorities to survey, map and decontaminate areas necessary to return the general public evacuated from around the site.

9.3 General Recovery Activities

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 reentry to affected areas.

9.4 Recovery Center

The Recovery Center will normally be located in the Vice President, Nuclear Power's office area on the south east end of the 72' elevation office area. This area will be used by the Recovery Manager to hold meetings with the various facility and discipline managers. The Recovery Manager may designate other Con Edison facilities as the Recovery Center or use normal station work areas as necessary. The Toddville School, located in Peekskill, may be used as a backup Recovery Center if an onsite location can not be used.

10.0 APPENDIX

This section contains the following appendices:

A. Letters of Agreement

B. Evaluation of Accidents

B.1 Estimated Offsite Dose During the Design Basis Accident

B.2 Methodology of Relating R-25 and R-26 Monitor Readings to Limits Given in EPA Protective Action Guides

C. Listing of Subject Matter Covered by Implementation Procedures

D. Stored Emergency Equipment and Supplies

E. NUREG-0654 Rev 1/Emergency Plan for the Indian Point Unit Nos. 1 and 2 Cross Reference

F. Assessment Resources for Radiological Monitoring

G. County Evacuation Planning Material

A. LETTERS OF AGREEMENT

Copies of agreement letters for the offsite emergency response supporting organizations listed below are contained in this section. A copy of a memorandum of Understanding with Entergy who owns and operates Unit 3 at the Indian Point Site is also included in this section

Verplanck Fire Department (Fire & Ambulance)

Hudson Valley Hospital Center at Peekskill/Cortlandt

Medical Consultant (RMC)

Buchanan Fire Department

Entergy (Old agreement with New York Power Authority)

Department of Energy Radiological Assistance Plan

Westinghouse Electric Corporation

Phelps Memorial Hospital Center

New York State Emergency Management Office

New York State Police

Institute of Nuclear Power Operations

VERPLANCK FIRE PROTECTIVE ASSOCIATION
POST OFFICE BOX 518 * EIGHTH STREET
VERPLANCK, NY 10596-0778
Chief's Office (914) 788-6943 * Fax (914) 737-3932
Business Phone (914) 737-8233

January 17, 2000

Mr. Robert Barrett
Site Executive Officer
New York Power Authority
Mr. John Groth
Chief Nuclear Officer
Con Edison
Indian Point Nuclear Power Plant
P.O. Box 215
Buchanan, NY 10511-0215

Dear Mr. Barrett and Mr. Groth:

This letter is to affirm that, in the event of an emergency situation or accident at the Indian Point Facilities, the Verplanck Fire Department and/or ambulance will respond upon notification.

The proper means of notification is to telephone the emergency number, 911, for both the fire department and ambulance. Please give all available information at the time of notification. Should the ambulance respond, and after initial first aid treatment, we will then provide ambulance transportation to the appropriate medical facility, which will determine by the extent or type of injuries.

If at any time you feel that you have a unique situation that may require a pre-plan, please feel free to contact us at your convenience at our Chief's Office number. 788-6943 or our fax number 739-3932. I may also be reached through my home phone, 739-6276.

Firematically yours,

Ted Karalak
Chief VFD

HUDSON VALLEY HOSPITAL CENTER

January 7, 2000

Mr. Robert Barrett
Site Executive Officer
New York Power Authority

Mr. John Groth
Chief Nuclear Officer
Con Edison

Indian Point Nuclear Facility
P.O. Box 215
Buchanan, NY 10511

Dear Mr. Barrett and Mr. Groth:

This letter confirms that New York Power Authority and Con Edison will pay Hudson Valley Hospital Center a sum of $15,000 each year per Utility, in accordance with our agreement to accept as patients any personnel from Indian Point Nuclear Generating Station who may be considered to have sustained radiation injuries and/or contamination.

Sincerely,

John C. Federspiel
President

JCF/jg
attachment

JOINT COMMISSION ACCREDITATION • THE QUALITY DISTINCTION •
WITH COMMENDATION

1980 CROMPOND ROAD ■ CORTLANDT MANOR, NY 10567 ■ 914 737-9000

HUDSON VALLEY HOSPITAL CENTER

AGREEMENT

This agreement, made this First day of April , 2000, between HUDSON VALLEY HOSPITAL CENTER, 1980 Crompond Road, Cortlandt Manor, New York 10567 (hereinafter referred to as "Hospital") and the Indian Point Nuclear Plants, P.O. Box 215, Buchanan, New York 10511.

1. The Hospital will accept as patients, in accordance with the plant and Hospital procedures, any personnel from the Indian Point Nuclear Power Plants who may be considered to have sustained radiation injuries and/or who may have been exposed to radioactive material, provided that: All potentially contaminated patients will be transported to the Hospital by the Indian Point Facility personnel; and the Indian Point Facility will take all appropriate precautionary radioactive contamination and will advise the Hospital by telephone in advance of patient's arrival, of the patient's status, and radiation hazard.

2. Both utilities at the Indian Point site will:

   a) Pay the Hospital the sum of $15,000 each year per utility and in addition thereto, will:

   b) Compensate or reimburse the Hospital for all materials and equipment consumed or which must be destroyed or replaced due to radiation.

   c) Indemnify and hold the Hospital harmless from any and all claims of third persons resulting from radiation exposure not resulting from the Hospital's negligence.

   d) Be responsible for decontaminating the Hospital's equipment and property and disposing of materials contaminated as a result of services rendered to personnel of NYPA/CON ED.

HUDSON VALLEY HOSPITAL CENTER

JOHN C. FEDERSPIEL
PRESIDENT

NEW YORK POWER AUTHORITY
INDIAN POINT NO. 3 NUCLEAR PLANT

ROBERT BARRETT
IP-3 SITE EXECUTIVE OFFICER

CON EDISON
INDIAN POINT NO. 2 NUCLEAR PLANT

JOHN GROTH
IP-2 CHIEF NUCLEAR OFFICER

JOINT COMMISSION ACCREDITATION · THE QUALITY DISTINCTION ·
WITH COMMENDATION

RMC
Radiation Management Consultants

January 14, 2000

Mr. Robert Barrett, Site Executive Officer/NYPA
Mr. John Groth, Chief Nuclear Officer/ConEd
Indian Point Nuclear Power Plant
P. O. Box 215
Buchanan, New York 10511

SUBJECT: Emergency Medical Assistance Program for 2000.

Dear Mr. Barrett and Goth,

This confirms an agreement between Radiation Management Consultants (RMC) and the Indian Point Nuclear Facilities wherein RMC agrees to furnish certain services to the nuclear station. These services comprise a program that is identified by RMC as an Emergency Medical Assistance Program (EMAP). This agreement remains in effect from January 1, 2000 through December 31, 2000. The EMAP program contains the following provisions:

1. Twenty-four hour per day availability of expert medical consultation on the management of radiation injuries.

2. Twenty-four hour per day availability of RMC's Radiation Emergency Medical Team (REM-Team) comprised of physicians, Certified Health Physicists and a technician with portable instrumentation to travel to your location and assist hospital personnel, attending physicians and/or plant personnel in the initial evaluation and treatment of radiation injuries.

3. Availability of and assistance with transfer of patients to Definitive Care Centers established at Northwestern Memorial Hospital, Chicago, IL for treatment of radiation injuries and Loyola University Medical Center, Chicago IL for the treatment of burns.

4. Twenty-four hour per day availability of RMC's dose assessment capabilities including:

   A Bioassay laboratory for urine, fecal, sputum and tissue analysis
   B Mobile Whole Body Counter
   C Experienced Certified Health Physicists and Physician Team for evaluation and treatment of radiation exposures.

3019 Darnell Road• Philadelphia, PA 19154•Tel: (215) 824-1300•Fax: (215) 824-1371

5. Annual training for the plant personnel in the handling and treatment of injured/contaminated patient(s).

6. Annual training for EMS personnel in the rescue and transport of injured/contaminated patient(s).

7. Annual training for hospital personnel in the handling, treatment and evaluation of injured/contaminated patient(s).

8. Annual radiation emergency medical drill to include preparation of accident scenarios, two drill observers and drill evaluation reports related to observations made at the plant, ambulance and hospital.

9. Annual inventories of support hospital radiation emergency medical supplies and equipment.

10. Performance of annual telephone number verification as well as a review of the hospital procedural manual; revise and distribute changes to the manual under controlled document distribution system.

11. Accident Response: consultation and laboratory services under RMC's employment and control are at no extra charge except for travel, lodging and meals.

12. Preparation of incident/accident reports for NRC and other regulatory bodies at no additional charge.

13. Legal and medical appearances as required and requested by New York Power Authority or Con Edison.

RADIATION MANAGEMENT CONSULTANTS, INC.

Roger E. Linnemann, M.D.
President

3019 Darnell Road• Philadelphia, PA 19154•Tel: (215) 824-1300•Fax: (215) 824-1371

Buchanan Engine Co. No. 1, Inc.
Buchanan, New York 10511

January 7, 2000

Mr. Robert Barrett
Site Executive Officer
New York Power Authority

Mr John Groth
Chief Nuclear Officer
Con Edison

Indian Point Nuclear Facility
P. O. Box 215
Buchanan, New York 10511

Dear Sirs,

This letter is to confirm your intention for Buchanan Engine Co. No. 1, Inc. to respond to fires at the Indian Point Station when called upon under the mutual aid system.

Sincerely,

Tim Donahue
Chief
Buchanan Engine Co. No. 1, Inc.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC
INDIAN POINT STATION
BROADWAY AND BLEAKLEY AVENUES BUCHANAN, NY 10511

NEW YORK POWER AUTHORITY
P. O. BOX 215
BUCHANAN, NY 10511

January 04, 2000
IP3-EPG-99-099

Buchanan Engine Co. No. 1, Inc.
Buchanan, New York 10511

Attention: Tim Donahue
Chief

Dear Mr. Donahue:

As part of the Indian Point Emergency Preparedness Program we are required to review and update all Letters of Agreement every two years.

The current Letter of Agreement dated January 1, 1996, confirms that Buchanan Engine Co. No. 1 agrees to respond to fires at the Indian Point Faclity when called upon under the mutual aid system.

Please confirm your acceptance by signature and return copy by February 1, 2000.

Please address the new letter to:

Mr Robert Barrett, Site Executive Officer/NYPA
Mr. John Groth, Chief Nuclear Officer/ConEd
Indian Point Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511

Any questions, please call Mary Ann Wilson at (914)736-8404.
Thank you for your continued support.

Sincerely,

Mary Ann Wilson
NYPA
Emergency Preparedness Coordinator
Indian Point No. 3

Sincerely,

Frank Inzirillo
ConEd
Emergency Planning Manager
Indian Point No. 2

MAW/rde

Accepted:
Tim Donahue
Chief

MEMORANDUM OF UNDERSTANDING

NO. 28 REV. 3 Date 9/25/93

RULES GOVERNING THE IMPLEMENTATION OF
THE EMERGENCY PLAN AT THE INDIAN POINT SITE

The following rules shall govern the implementation of the Site Emergency Plans and use of the associated facilities and personnel for Alert, Site Area, and General Emergencies declared by either the Power Authority or Con Edison.

A. All revisions to each party's Emergency Plan and Emergency Plan Implementation Procedures shall be submitted to the other party for review. As used in this Memorandum of Understanding the term "emergency" shall also include an Emergency Plan Drill.

B. If an emergency is caused by conditions at Indian Point 3, a Power Authority representative will be designated the Emergency Director. If an emergency is caused by conditions at Indian Point 1 or 2, a Con Edison representative will be designated as Emergency Director. It is agreed that all actions requested by the Emergency Director of either Con Edison or the Power Authority during an emergency will be followed as quickly and precisely as possible. Except during a drill, this includes a request to shut down an operating plant if its operation is hampering emergency actions.

C. In the event of an emergency, as defined in the Power Authority's Emergency Plan, which stems from Indian Point Unit No. 3, Con Edison shall provide to the Power Authority:

1. Dedicated use during a Unit 3 emergency of the Emergency Operations Facility (EOF), located at the Con Edison Buchanan Service Center. This includes access authorization and the issuance of keys to Power Authority EOF staff personnel.

2. Physicians for both routine and emergency situations, to the extent that they are available for an emergency on Unit 2. This includes physicians specializing in radiation emergency patient care.

3. Use of the various normal communications avenues and assessment equipment available in the plant (i.e. public address system, party lines, dial

APR 24 1996

phones) and the following specific avenues and equipment:

a. 451.10 Mhz UHF radio system to link together the EOF, IP3 Control Room, IP1 and IP2 Control Room, Emergency Environmental Sampling Vehicles and the portable walkie-talkies used by the Security Guards and Survey Teams.

b. The MIDAS computer.

c. The Radiological Emergency Communication System (RECS).

4. Use of Con Edison personnel and equipment as available and determined necessary by the Power Authority Emergency Director or his designee, to support emergency corrective actions.

D. In the event of an emergency, as defined in Con Edison's Emergency Plan, which stems from Indian Point Units No. 1 or 2, the Power Authority will provide Con Edison:

1. Dedicated use during a Unit 1 or 2 emergency of the Joint News Center located at the Westchester County Airport.

2. Use of Power Authority IP3 personnel and equipment, as available and determined necessary by the Con Edison Emergency Director or his designee, to support emergency corrective actions.

E. In the event of an emergency referred to in Section C or D, the party having the emergency will be provided by the other party with the use, to the same extent that they are available for an emergency at the other party's unit(s), of the site environmental monitoring facilities, personnel and equipment of the other party, with authorization for personnel of the party having the emergency to call in necessary personnel of the other party as needed (each party to provide appropriate call lists).

F. Con Edison and the Power Authority periodically test equipment associated with Sections C and D. Each party is invited to monitor testings or calibrations. Upon request each party will provide a schedule for testing so the other party can arrange to participate.

APR 24 1996

G. Each party will notify the other of periodic drills and exercises relating to simulated radiation incidents detailed in their respective emergency plans, and the other party may participate in the drills if it so chooses.

H. Each party reserves the right to periodically audit the common facilities, equipment, and administrative controls of the Emergency Plan that are under the control of the other party.

If either party finds, as a result of an audit, any items failing to meet regulatory requirements, the auditing party shall notify the other party of the audit results. Corrective actions will be taken by the responsible party in a manner and time frame as mutually agreed to by Con Edison's Vice President - Nuclear Power and the Power Authority's IP3 Resident Manager.

I. Joint operation of the EOF will occur only when both Con Edison and the Power Authority are considered to be causing agents of an emergency. Otherwise, it is understood that only the organization which is having an emergency will be required to man the EOF and assign an Emergency Director. To ensure that the EOF will operate smoothly in the event of a joint emergency, and that the ultimate responsibility of directing emergency actions is placed on one individual, the following is agreed:

1. A Joint Emergency Director (JED) will be designated.

2. The designation will be the result of an oral agreement between the highest ranking Emergency Director from each organization present at the site at the time of the joint emergency.

3. The JED will be responsible for all actions necessary to initially recover from the emergency.

4. Following initial recovery, the highest ranking Emergency Director from each organization present at the site will assume ultimate responsibility for his organization's unit and property.

5. Some factors that should be used in deciding who will be designated JED are as follows:

   a. Which unit is the primary causing agent (if it can be determined);

APR 24 1996

b. Which organization's property is most affected by the emergency (based on radiation fields, contamination levels, damage incurred and wind direction); and

c. Which unit will require the most corrective actions to return it to a stable condition.

J. Each party will coordinate activities associated with training exercises, meetings, etc., with outside agencies or services that may respond to any emergency at Indian Point.

This Memorandum of Understanding is subject to the termination stipulations detailed in Memorandum of Understanding No. 32.

Costs incurred by either party as a result of this Memorandum of Understanding shall be determined and billed as per Memorandum of Understanding No. 33.

Resident Manager - IP3 - NYPA

Vice President - Nuclear Power
Consolidated Edison

APR 24 1996

Mary Ann

Department of Energy
Brookhaven Group
Building 464
P.O. Box 5000
Upton, New York 11973

JAN 1 9 2000

Mr. Robert Barrett, Site Executive Officer/NYPA
Mr. John Groth, Chief Nuclear Officer/ConEd
Indian Point Nuclear Power Plant
P.O. Box 215
Buchanan, NY 10511

Dear Mr. Barrett and Mr. Groth:

SUBJECT: RADIOLOGICAL ASSISTANCE

This letter constitutes a renewal of the Department of Energy's (DOE) commitment to provide emergency radiological assistance to your organization. Since your nuclear facility(s) is/are located in Region I, the Brookhaven Group Office is the DOE office charged with the responsibility for providing radiological assistance in the event of a radiological emergency. Such assistance can be requested at all times by calling (631) 344-2200 and asking for radiological assistance, indicating the nature of the incident, the location, and which authorities have been notified so that we can coordinate our response with them.

DOE will respond to requests for emergency radiological assistance from Federal, State, and local agencies, licensees, private organizations, or individuals involved in or cognizant of an incident believed to involve source, by-product, or special nuclear materials as defined by the Atomic Energy Act of 1954, as amended, or other ionizing radiation sources.

Unless the DOE or a DOE contractor is responsible for the activity, ionizing radiation source, or radioactive material involved, the rendering of assistance to control the immediate hazards to health and safety will be terminated as soon as the emergency situation is under control. Therefore, responsibility for post-incident recovery, including further action for the protection of individuals and the public health and safety, should be assumed by the appropriate responsible Federal, State, or local government agency, or private authority as soon as the emergency conditions are stabilized.

If you have any questions or desire further information, please contact Steve Centore of my staff at (631) 344-7309.

Sincerely,

George J. Malosh
Brookhaven Group Manager

cc: J. McBroom, SO-40, FORS

WESTINGHOUSE PROPRIETARY CLASS 2

Westinghouse
Electric Company
A Division of CBS Corporation

100 Mill Plain Road
Danbury, CT. 06811

June 8, 1998

IPP-98-555

Mr. Paul Kinkle Vice President Nuclear
Consolidated Edison Company of New York
Indian Point Unit 2
Broadway & Bleakley Avenue
Buchanan, NY 10511

Subject: Indian Point Unit 2
Westinghouse Emergency Response Plan

Dear Mr. Kinkle:

Westinghouse Emergency Response Plan Initial Contacts

The purpose of this letter is to provide an update to the Westinghouse Emergency Response Plan roster in response to your request in the referenced letter. Following is a list of Westinghouse personnel to contact should it be necessary under your Emergency Response Plan.

Title	Name	Office	Home	Beeper/ Cell Phone
First Contact	Steve Ira	(412) 722-5658	(412) 744-3149	(888) 897-2755
1st Alternate	Mike Miller	(412) 374-3353	(724) 327-5904	(412) 644-3690
2nd Alternate	Dave Lewis	(203) 791-3800	(315) 637-2001	(315) 436-4855 Pager (888) 894-8572

Very truly yours,

David G. Lewis

David G. Lewis
Account Manager

cc: Mr. Anthony Ferraro IP2

Attachment

TABLE G
ENERGY SYSTEMS BUSINESS UNIT EMERGENCY RESPONSE ROSTER

Title	Name	Office	Home	Home Hotline Cell Phone Pager
ESBU EMERGENCY RESPONSE DIRECTOR				
Director	Hank Sepp	(412) 374-5282	(412) 856-4036	Cell (412) 302-3558 Pager (412) 649-1885
1st Alternate *	Bob McFetridge	(412) 374-5557	(412) 372-6397	
Deputy Director	Rick Lee	(412) 722-5017	(412) 733-5409	Pager (412)-649-2612 Cell Phone (412) 855-3226
1st Alternate	Ken Quinn	(412) 374-6390	(412) 366-2623	Cell Phone (412) 965-5813
ESBU SERVICE RESPONSE				
Service Response Mgr.	Chuck Gerstberger	(412) 722-5660	(412) 325-1756	
1st Alternate *	Bruce Bevilacqua	(412) 722-5225	(412) 733-4142	
2nd Alternate	N/A	N/A	N/A	
ESBU EMERGENCY NEWS COMMUNICATIONS				
ENC Manager	Lynnann Reid	(412) 374-6824	(412) 727-2189	
1st Alternate *	Joe Kazan	(412) 374-6511	(412) 925-7823	
ESBU EMERGENCY RESPONSE TECHNICAL SUPPORT MANAGER				
Technical Support Mgr.	Mike Young	(412) 374-5081	(412) 243-7996	
1st Alternate	Rich Prokopovich	(412) 374-5427	(412) 833-1264	
ESBU EMERGENCY RESPONSE LOGISTIC MANAGER				
Logistics Manager	Rick Sovic	(412) 374-6050	(412) 744-3295	(412) 744-1200 Pager (412) 272-1820
1st Alternate	Chuck Baker	(412) 374-5425	(412) 272-1820	Pager (412) 832-0594

*Denotes change from last issue.

TABLE G-1
EMERGENCY RESPONSE PLAN SITE RESPONSE ROSTER

Title	Name	Office	Home
SRT Leader	Mark Stickel	(412) 722-5692	(412) 327-8380
1st Alternate	Lou Tylman	(412) 374-4890	(412) 372-6174
Operations Support	Warren Brown	(412) 963-3953	(412) 733-8741
1st Alternate	Roger Hine	(412) 963-3732	(412) 668-8973
Health Physics Support	Griff Holmes	(412) 374-5124	(412) 243-0113
1st Alternate	Cary Blotzer	(412) 722-5944	(412) 694-9538
2nd Alternate	Craig Wilson	(412) 722-5734	(412) 339-2934

*Denotes change from last issue.

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

P H E L P S

January 7, 2000

Mr. Robert Barett, Site Executive Officer
New York Power Authority

Mr. John Groth, Chief Nuclear Officer
Con Edison
Indian Point Nuclear Facility
P. O. Box 215
Buchanan, New York 10511

Dear Sirs:

This letter will confirm that the New York Power Authority and Con Edison will each pay the Phelps Memorial Hospital Center a sum of $15,000 per year, in accordance with our agreement to accept as patients any personnel from Indian Point Nuclear Generating Station who may be considered to have sustained radiation injuries and/or contamination.

Sincerely,

Keith F. Safian

Keith F. Safian, FACHE
President and CEO

KFS:bd

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT STATION
BROADWAY AND BLEAKLEY AVENUES BUCHANAN, NY 10511

NEW YORK POWER AUTHORITY
P. O. BOX 215
BUCHANAN, NY 10511

January 04, 2000
IP3-EPG-99-079

Phelps Memorial Hospital
North Broadway
North Tarrytown, New York 10591

Attention: Mr. Kieth F. Safian
President and C.E.O.

Dear Mr. Safian:

As part of the Indian Point Emergency Preparedness Program, we are required to review and update all Letters of Agreement every two years.

The current Letter of Agreement dated January 13, 1998, confirms an agreement between Phelps Memorial Hospital Center and Indian Point Nuclear Facility, wherein PMHC agrees to accept as patients any personnel from Indian Point Facility who may be considered to have sustained radiation injuries and/or contamination.

Indian Point Facility will pay the Phelps Memorial Hospital Center a sum of $15,000 each year per Utility, for this service.

Please sign below and return by February 1, 2000.

Please address the new letter to:

Mr Robert Barrett, Site Executive Officer/NYPA
Mr. John Groth, Chief Nuclear Officer/ConEd
Indian Point Nuclear Power Plant, P.O.Box 215
Buchanan, New York 10511

Any questions, please call Mary Ann Wilson at (914)736-8404.
Thank you for your continued support.

Sincerely,

Mary Ann Wilson

Mary Ann Wilson ,NYPA
Emergency Preparedness Coordinator
Indian Point No. 3

MAW/rde

Sincerely,

Frank Inzirillo

Frank Inzirillo, ConEd
Emergency Planning Manager
Indian Point No. 2

Accepted: Kieth F. Safian
President & CEO
Phelps Memorial Hospital Center

Edward F. Jacoby, Jr., Director

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

January 13, 2000

RECEIVED
JAN 24 2000
By

Mr. Robert Barrett, Site Executive Officer//NYPA
Mr. John Groth, Chief Nuclear Officer/ConEd
Indian Point Nuclear Power Plant
PO Box 215
Buchanan, New York 10511

Dear Mr. Barrett and Mr. Groth:

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

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

Sincerely,

Edward F. Jacoby, Jr., Director

Cc: Mary Ann Wilson
Emergency Preparedness Coordinator
Indian Point No. 3

NEW YORK STATE POLICE
BLDG. 22, 1220 WASHINGTON AVE.
ALBANY, NY 12226-2252

JAMES W. McMAHON
SUPERINTENDENT

January 27, 2000

Mr. Robert Barrett
Mr. John Groth
Indian Point Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511

Dear Mr. Barrett and Mr. Groth:

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

The radio communication equipment installed at our Peekskill station allows for continuous communication capability with the Indian Point nuclear facilities, and for any emergency contingency that may arise.

Please be assured of our continued cooperation in all matters of mutual interest.

Sincerely,

James W. McMahon
Superintendent

INPO

Institute of
Nuclear Power
Operations

700 Galleria Parkway, NW
Atlanta, GA 30339-5957
770-644-8000
FAX 770-644-8549

January 23, 1998

cc: M. Drexel ✓
M. Blatt

Mr. Paul H. Kinkel
Vice President, Nuclear Power
Indian Point Station Unit No. 2
Consolidated Edison Company of
New York, Inc.
Broadway & Bleakley Avenue
Buchanan, NY 10511

Paul

Dear Mr. Kinkel:

This letter certifies that the assistance agreement between INPO and its member utilities remains in effect. In the event of an emergency at your utility, INPO will assist you in acquiring the help of other organizations in the industry, as described in Section 1 of the *Emergency Resources Manual,* INPO 86-032. If requested, INPO will provide the following assistance:

- Facilitate technical information flow from the affected utility to the nuclear industry.
- Locate replacement equipment and personnel with technical expertise.
- Obtain technical information and industry experience regarding plant component and systems.
- Provide an INPO liaison to facilitate interface.

This agreement will remain in effect until terminated in writing. Should you have questions, please call me at (770) 644-8211.

Sincerely,

Donald L. Gillispie
Senior Vice President &
Director of Assistance

DLG:ss

cc: Mr. Michael Blatt
Mr. J. Mark Drexel
Mr. Kenneth A. Strahm

RECEIVED
JAN 27 1998
VICE PRESIDENT

L98-5D001

JAN 28

B. EVALUATION OF ACCIDENTS

B.1 Estimated Offsite Doses During the Design Basis Accident

B.2 Methodology of Relating R-25 & R-26 Monitor Readings to Limits given in EPA Protected Action Guides

B.1 Estimated Offsite Doses During the Design Basis Accident

The dose assessment of the most serious design basis accident (Loss-of-Coolant Accident) on the OFFSITE population is illustrated in Figures B.1-1, 2, and 3. Figures B.1-1 and 2 provide isodose graphs for thyroid and whole body doses respectively for time vs. distance. Figure B.1-3 illustrates thyroid dose vs. distance for the specific case of two hours. For comparative purposes, two curve sets are shown on each figure to illustrate two different meteorological conditions:

(1) Meteorological condition which is exceeded only 5% of the time (5% worst condition).

(2) Meteorological condition which is exceeded only 50% of the time (median condition).

The dose received during the median condition will be less than the dose received during a 5% worst meteorological condition, since greater effluent dilution is experienced under the median condition. These figures illustrate that the dose received by the OFFSITE public is influenced by the specific meteorological existing at the time of an accident. In the unlikely event of an actual accident, dose estimates will be made using existing site meteorological conditions and will be continuously updated with information received by monitoring teams.

The assumptions used to develop these figures are tabulated in Table B.1-1. References justifying these assumptions are also provided. A review of the assumptions used to develop these figures will show that these figures represent conservative estimates of OFFSITE doses.

The assumed containment leakrate is 0.075%/day; previous leak tests on containment have shown the actual leakrate to be less than this assumed value. Also, these previous tests were performed without use of two Engineered Safeguards: The Isolation Valve Seal Water System and the Weld Channel and

B.1 Estimated Offsite Doses During the Design Basis Accident (cont.)

Containment Penetration Pressurization System. If these two systems were operating during this test, the actual leakrate would approach zero. These two systems were designed and constructed to rigorous criteria and are required to be operational under Unit 2 Technical Specifications[1]. Thus, it is extremely conservative not to take credit for these two safeguards in the analysis, because they are designed to operate during a loss of coolant accident and would substantially reduce, if not effectively eliminate, Containment leakage.

The Containment leakrate value depends on the pressure differential across the Containment boundary; thus, the lower the pressure inside Containment, the smaller the leakrate. This analysis, in order to be conservative, assumes a constant 0.075%/day leakrate, whereas, physically, the leakrate will decrease with time as the pressure inside Containment drops. Internal pressure would decrease due to both Containment leakage and steam condensing inside Containment through continuous heat removal by the Containment Spray and/or Containment Fan Cooler Recirculation Systems.

The percentage of core fission products inventory available for release from Containment during a loss of coolant accident are defined by values given in Regulatory Guide 1.4[2].

Accordingly, 25% of the core's iodine inventory is immediately available for leakage from Containment. It is expected that, with operation of the Safety Injection System (with two out of three Diesel Generators supplying power) the fuel clad temperature will be maintained well below the melting point of Zircaloy-4 and limit the zirconium-water reaction to an insignificant amount, although some cladding

---

[1]Appendix A to operating License DPR-26, Technical Specification and Bases, Section 3.3, 4.4

[2]NRC Regulatory Guide 1.4, Rev. 2 "Assumptions used in Evaluating the Potential Radiological Consequences of a Loss of Coolant for Pressurized Water Reactors".

B.1 Estimated Offsite Doses During the Design Basis Accident (cont.)

failure may result in the hotter regions of the core. Clad failure results in the release of the volatile fission products in the pellet-cladding gap. It would be therefore conservative to assume that all gap activity is available for release, since not all the cladding is expected to fail. The iodine isotope gap activities are listed in Table 14.3.5-1 of the FSAR[3] as a function of percentage of core inventory. Iodine 131 has the highest percentage of those listed, therefore it is conservative to equate other iodine isotope core inventory percentages to that of Iodine 131.

This highest percentage (2.3%) is still more than factor of ten less than the iodine percentage (25%) given by Reg. Guide 1.4 available for release from Containment. Reg. Guide 1.4 defines the percentage of noble gas core inventory immediately available for leakage from Containment as 100%. The actual amount which escapes from the pellet-clad gap and is available for leakage will be significantly less. Therefore, it is clearly overly conservative to use the percentage defined in Reg. Guide 1.4, for noble gas and iodine releases to derive these figures.

The organic iodine charcoal filter efficiency assumed for this analysis is only 30%; an actual efficiency of 70% or greater is expected.[4]

The meteorological condition assumed in development of Figures B.1-1, 2, and 3 is a windspeed of 0.73 meters/sec and a Pasquill stability class F. These parameters are derived from the atmospheric dilution factor (X/Q) which is exceeded only 5% of the time as computed by the NRC Staff[5] for the Indian Point Site.

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[3]Final Facility Description and Safety Analysis Report, Indian Point Unit No. 2, Table 14.3.5-1.

[4]Final Facility Description and Safety Analysis Report, Indian Point Unit No. 2, Docket 50-247 Section 14.3.5.

[5]Safety Evaluation of the Indian Point Nuclear Generating Unit No.3, Docket No. 50-286, US AEC, Directorate of Licensing, Sept 21, 1973, pg. 244.

B.1 Estimated Offsite Doses During the Design Basis Accident (cont.)

A windspeed of 0.73 meters/sec was computed using this 5% X/Q value, the methodology presented in ERL-ARL-4[6], and assuming a Pasquill F stability class.

Credit for plume meander is accounted for by equation (3) of Regulatory Guide 1.145[7]; it is applied when windspeeds are less than 6 meters/sec coincident with Pasquill neutral (D) or stable (E, F, or G) conditions. Pasquill F stability class and 0.73 meters/sec windspeed satisfy the conditions for using this plume meander equation. Accordingly, centerline X/Q values per distance were computed using equation (3) of Reg. Guide 1.145.

This methodology is conservative in that the dose received, using these computed X/Q values, occurs only along the plume centerline. Under stable conditions, the plume crosswind dimension of the one percent isopleth (line of constant concentration which is one percent of the plume's centerline value) is relatively small. Specifically, the distances from the plume centerline to the one percent isopleth at the LOW POPULATION ZONE boundary (1100 meters) are 170 meters and 120 meters for Pasquill E and F, respectively. Therefore, an individual located on the plume centerline at the LOW POPULATION ZONE boundary need only move in a direction perpendicular to the centerline, 170 meters during a Pasquill E or 120 meters during a Pasquill F in order to reduce the dose rate by a factor of 100. Figure B.1-4 illustrates the distance to the one percent isopleth from the plume centerline (plume halfwidth) versus downwind distance for the Pasquill E and F stability classes.For any time interval of interest on the vertical axis of Figures B.1-1 and 2, the meteorological condition (5% or 50%) is assumed to prevail for that entire time interval.

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[6]NOAA Technical Memorandum ERL-ARL-42, "A Program for Evaluating Atmospheric Dispersion from a Nuclear Station, Jerrold F. Sagendorf, May 1974.

[7]NRC Draft Regulatory Guide 1.145, Rev. 1, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants", re-issued Feb. 1, 1983.

B.1 Estimated Offsite Doses During the Design Basis Accident (cont.)

The larger the time interval chosen, the more conservative it is to assume that the meteorological condition, and therefore wind direction, remain constant during that interval. Wind persis- tence analysis has illustrated that higher wind speeds are correlated to a persistent wind direction, while under low wind speeds, the probability of constant direction diminishes and the relative concentrations are dispersed over a larger area thereby decreasing the peak value. As the time interval in- creases, the probability of the wind direction remaining steady decreases. The valley wind system at Indian Point illustrates this wind direction variation effect. Analysis of 1977, Indian Point Site meteorological data shows that with stable conditions and low wind speed, the wind persistence diminishes as the time interval increases. Successive overlapping two hour intervals were analyzed; under stable conditions and windspeed less than 2 meters/sec, the wind persisted from a single 22.5° sector for the entire two hours in less than four percent of the total annual intervals analyzed. For eight hour time intervals, this percentage decreased to 0.012 percent.

Analysis of 1977 hourly meteorological data for the Indian Point Site shows the Pasquill F stability occurs almost entirely (92.5%) during non-working hours (1800 to 0700). The breathing rate approximated during non-working (non-active) hours is the standard man's average. Since this analysis assumes that the accident occurs during a Pasquill F stability and therefore during non-working hours, the breathing rate assumed in computation of the 5% curves of Figures B.1-1, 2, and 3 is the standard man's average.

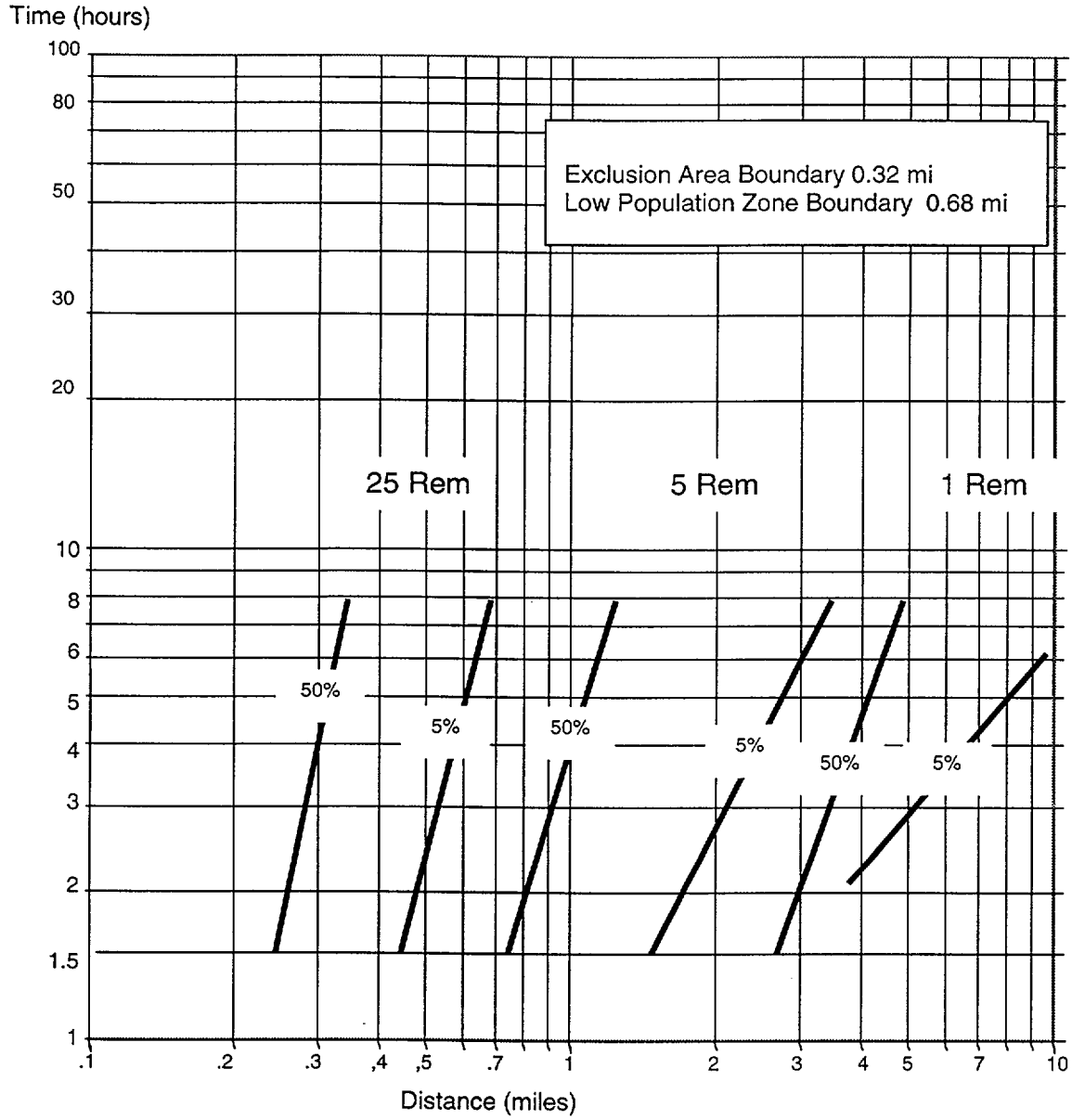
For comparison, dose curves, assuming the median (50% value) meteorological condition, are provided on Figures B.1-1, 2, and 3. The median meteorological condition was again derived from methodology presented in ERL-ARL-42 using site hourly meteorological data for the entire year of 1977. This resulted in determining that the median X/Q value is not exceeded more than 50% of the time. Assuming a Pasquill E stability (occurrence exceeded 50% of the hourly cases during 1977) and the above median X/Q, a windspeed of 1.67 meters/sec was derived.

B.1 Estimated Offsite Doses During the Design Basis Accident (cont.)

Therefore, this defines the median meteorological condition as being a windspeed of 1.67 meters/sec and Pasquill E stability class.

The breathing rates of individuals vary over different periods of the day. Since the Pasquill E stability, based on 1977 data randomly occurs over a twenty-four hour period, the maximum breathing rate (347 cc/sec) is conservatively assumed for computation of thyroid dose, when the accident is assumed to occur during the median meteorological condition.

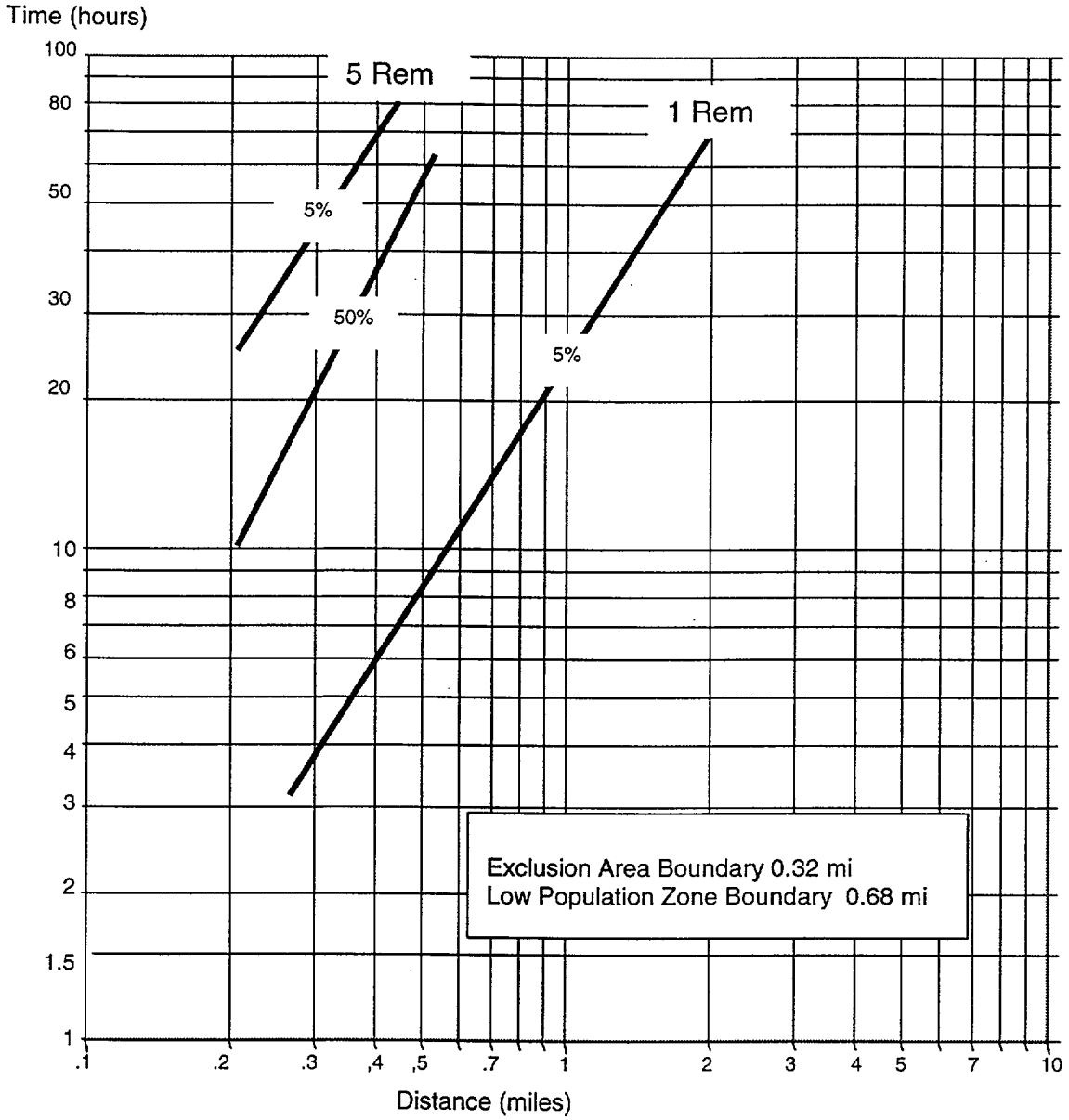
Figure B.1-1
Thyroid Dose
Time-Dose-Distance Curves
Loss of Coolant Accident
Indian Point Unit Two



5% = Meteorological condition which is exceeded only 5% of the time (worst condition)

50% = Meteorological condition which is 50% of time (median condition)

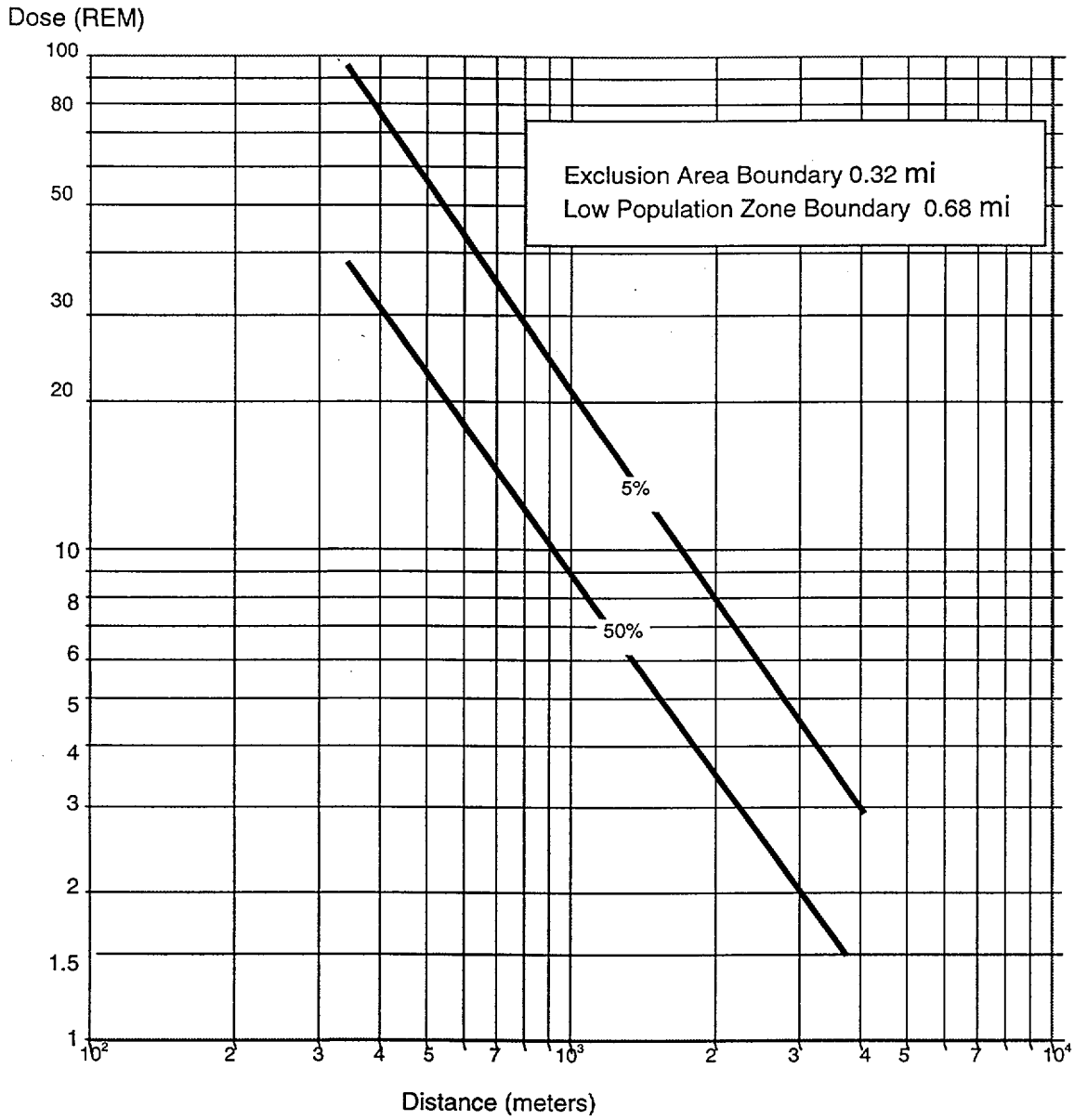
Figure B.1-2
Whole Body Dose
Time - Dose - Distance Curves
Loss of Coolant Accident
Indian Point Unit Two



5% = Meteorological condition which is exceeded only 5% of the time (worst condition)

50% = Meteorological condition which is 50% of time (median condition)

Figure 6.1-3
Thyroid Dose
Two Hours - Distance vs. Dose
Loss of Coolant Accident
Indian Point Unit Two



5% = Meteorological condition which is exceeded only 5% of the time (worst condition)
50% = Meteorological condition which is 50% of time (median condition)

Figure B.1-4
Plume Half-Width

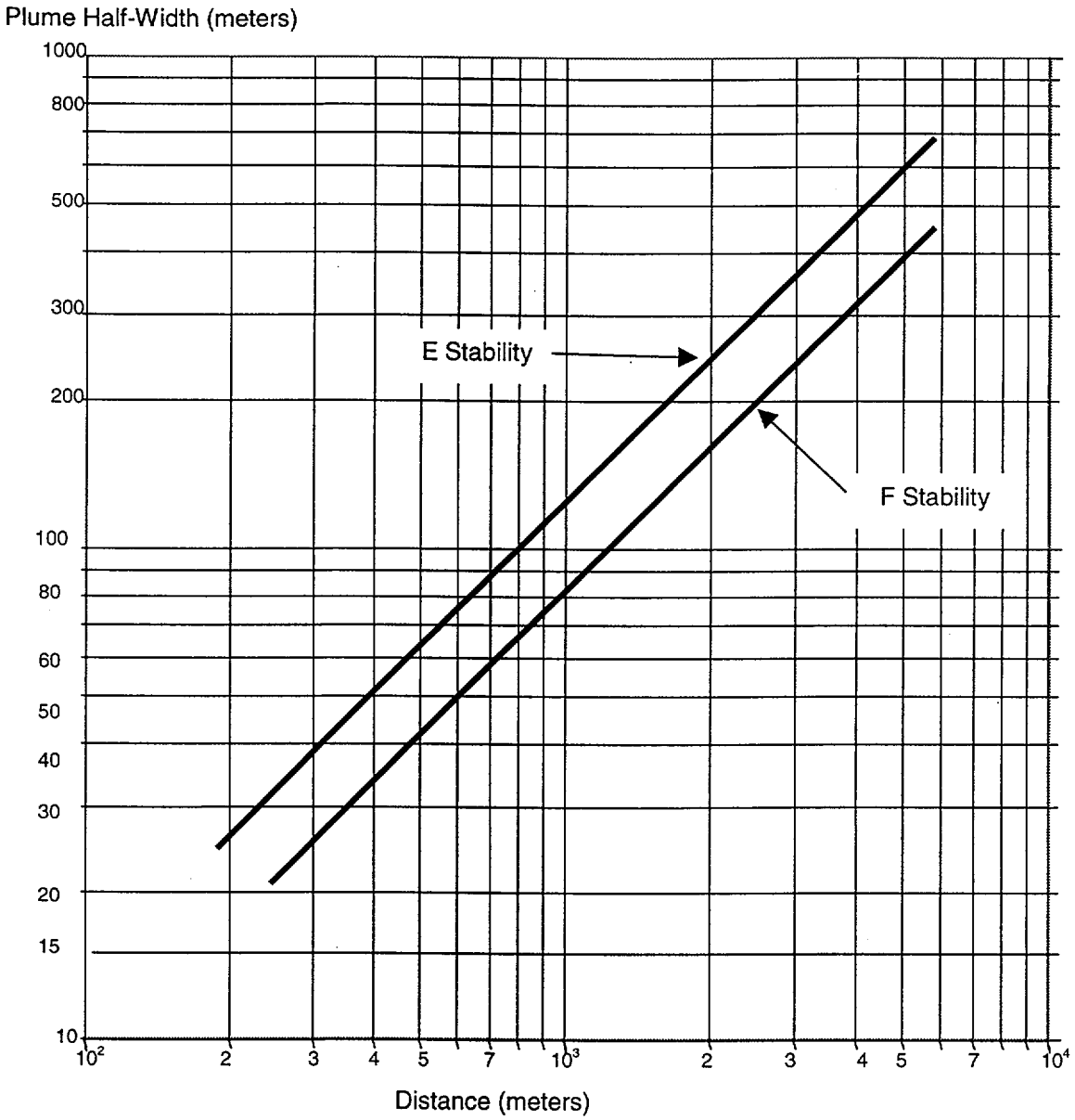


Table B.1-1
ASSUMPTIONS FOR THYROID AND WHOLE BODY DOSES - INDIAN POINT UNIT 2
LOSS OF COOLANT ACCIDENT

NO.	Assumptions	
1)	Isotope Inventory [1]	See Reference
2)	Containment Leakrate [2]	0.075%/day
3)	Charcoal Filter Efficiency:[3]	
	Inorganic Form	90%
	Organic Form	30%
	Particulate Form	90%
4)	Fraction of Iodine Released [4]	25%
5)	Fraction of Iodine Forms:[4]	
	Inorganic Form	91%
	Organic Form	4%
	Particulate Form	5%
6)	Radiological decay considered during holdup in Containment[4]	See Reference
7)	Plant Power Level[5]	2758 MWt
8)	Spray Removal Coefficient[3]	
	Inorganic Form	$9.83hr^{-1}$
	Methyl Form	$0hr^{-1}$
	Particulate Form	.45hr
9)	Ventilation/Filtration System[3]	
	Ventilation flow rate per uni	8000 cfm
	Number of Units assumed operating	3 of 5
10)	Breathing Rate	231 cc/sec
11)	Meteorological Condition Assumed	Pasquill Clas F, 0.73m/sec wind speed
12)	Containment Free Volume[3]	$2.61x106ft^3$
13)	Credit for Plume transit time and Radiological decay during transit[6]	See Reference
14)	Use of Reduction Factors expressing deviation between a finite and infinite cloud when computing whole body dose[7]	See Reference
15)	Duration of spray effectiveness[3]	1 day

Table B.1-1
References

(1) Technical Information Document 14844, March 23, 1962, U.S. Atomic Energy Commission, Table I. Page 20.

(2) Appendix J, 10CFR 50, "Reactor Containment Leakage Testing for Water Cooled Power Reactors".

(3) Final Facility Description and Safety Analysis Report, Indian Point Unit Three, Table Q14.11-1. (Ventilation and Spray Equipment, and Containment free volume, are the same for Indian Point Two and Three).

(4) NRC Regulatory Guide 1.4, Rev. 2, June, 1974 "Assumptions Used for Evaluating the Potential Radiological Conse- quences of a Loss of Coolant Accident for Pressurized Water Reactors".

(5) Appendix A to Facility Operating License DPR-26, Docket No. 50-247, "Technical Specifications and Bases", 1.1(a).

(6) NRC Regulatory Guide 1.70.14, Dec. 1974. "Information for Safety Analysis Report Emergency Planning".

(7) Meteorology and Atomic Energy, U.S. Atomic Energy Commission, 1968, 7-5.2.3.

B.2 Methodology of Relating R-25/R-26 Monitor Readings to Limits Given in EPA Protective Action Guides

The R-25 and R-26 monitors are area radiation monitors located inside Containment. For the calculations that estimate radiation fields as seen by these monitors, the monitors were assumed to be located 5' above the 95' elevation on the wall surrounding Steam Generators #21 and #22; the R-26 radiation monitor was located 27' above the 95' elevation on the wall surrounding the pressurizer. These monitors are presently used for accident categorization based on the following data provided by calculations performed in-house:

Postulated Accident	Maximum Calculated Radiation Level R/hr	
	R-25	R-26
LOCA & 100% equivalent core meltdown	4.70×10^5	5.50×10^5
LOCA & fuel rod gap release	3.90×10^3	4.50×10^3
LOCA & reactor coolant activity release (1% equivalent fuel rod defects)	9.60×10^0	1.50×10^1

The above values were verified using QADCG, a point kernel integration code. The input to this code included a simple physical configuration and core fission product inventories consistent with the information provided in Section 14 of the Final Safety Analysis Report. A functional relationship between airborne activity within the Containment Building and

the R-25 and R-26 monitor readings can then be established for the above postulated accidents and a linear interpolation of the corresponding radiation levels at the monitor location.

By relating the airborne activity levels within the Containment Building to corresponding offsite dose levels, the relationship between the R-25 and R-26 readings and any such offsite level can be ascertained. The calculations have assumed a noble gas to iodine release rate of 10000 to 1.

B.2 Methodology of Relating R-25/R-26 Monitor Readings to Limits Given in EPA Protective Action Guides (cont.)

Using the assumptions given in Table B.2-1 as input, the govern- ing pathway offsite dose corresponding to those assumptions was calculated. Since, with all other variables held constant, a direct proportionality exists between the airborne source within Containment and the resulting offsite dose, the Containment air- borne activity corresponding to the EPA Protective Action Guide (PAG) limits could then be determined. The R-25 and R-26 Monitor readings were determined to be as follows:

	Site Boundary Whole Body Dose	
	1 Rad	5 Rads
R-25 Readings	1.77×10^5	$>4.7 \times 10^5$
R-26 Readings	2.08×10^5	$>5.5 \times 10^5$

R-25 and R-26 readings given in R/hr.

C LISTING OF SUBJECT MATTER COVERED BY IMPLEMENTATION PROCEDURES

Implementation procedures have been written that implement the Plan and are contained in the Emergency Procedures Document. They cover the following subjects:

- Mobilization of emergency organization
- Emergency Notification
- Methods of calculating release rates to the environment
- Methods of determining the radiological exposure to the population
- Offsite sampling and field surveys
- Use of radiation monitoring and counting equipment
- Search and rescue
- Repair and corrective action
- Medical emergencies
- Obtaining meteorological data
- Operation of facilities
- Use of communication systems
- Accountability and evacuation of personnel
- Emergency personnel exposures
- Recovery

D. STORED EMERGENCY EQUIPMENT AND SUPPLIES

Radiological equipment and supplies are stored at various locations for immediate use by emergency forces. A general listing of the equipment and supplies stored at each location is presented below.

Unit 1-2 Control Room

- Air Sampler and Counting Equipment
- Respirators
- Anti "C" Clothing
- Log Books
- Potassium Iodine
- Survey Instrument
- Emergency Procedures Document
- Maps, Overlays
- Self Contained Breathing Apparatus

Emergency Operations Facility

- Air Sampler and Counting Equipment
- Potassium Iodide
- Dosimeters
- Survey Instruments
- Maps and Overlays
- Emergency Procedures Document
- Log Books
- Radiological Health Handbook
- Decon Kit (Medical Office)

Emergency Operations Facility (cont.)

- Communications Equipment and Directories
- Respirators
- Thermoluminescent Dosimeter Badges
- Anti "C" Clothing

Survey Vehicles

- Dosimeters
- Respirators
- Thermoluminescent Dosimeter Badges
- Maps
- Procedure Book
- Air Sampler and Counting Equipment
- Survey Instruments

Command Guard House

- Thermoluminescent Dosimeter Badges
- Dosimeters
- Potassium Iodide
- Respirators

Technical Support Center

- Air Sampler and Counting Equipment
- Survey Instruments
- Emergency Procedures Document
- Noble Gas Monitor

Operational Support Center

- Air Sampler and Counting Equipment
- Survey Instruments
- Dosimeters
- Respirators
- Anti "C" Clothing
- Friskers

E. NUREG 0654-Rev 1 / Emergency Plan Cross Reference

This Appendix provides a cross-reference of 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 to sections of the Emergency Plan for Indian Point Unit Nos. 1 & 2.

NUREG-0654-REV 1	Plan Section
A.1.a	5.2, 5.3, 5.4
A.1.b	3., 5.1, 5.2, 5.2.2
A.1.c	Figures 5-3 & 5-4
A.1.d	5.2, 5.2.1
A.1.e	5.2, 5.2.2.2
A.2.a	Note 1
A.2.b	Note 1
A.3	Section 10 Appendix A
A.4	5.3.1
B.1	5.1, 5.2, Table 5-1, Figure 5-4
B.2	1.0, 5.2.1
B.3	5.2.1
B.4	5.2.1, 5.2.1.1
B.5	5.2, Table 5-1
B.6	Figure 5-3
B.7	5.2, Figures Table 5-1, Figure 5-4
B.7.a	Figure 5-4
B.7.b	Figures 5-4 & 5-4
B.7.c	5.2.4
B.7.d	5.2.3
B.8	5.3.4
B.9	5.3.2, 6.5.3, Section 10 Appendix A

NUREG-0654-REV 1	Plan Section
C.1.a	5.2.1.1, 5.4.2
C.1.b	5.4.2
C.1.c	5.4.2, Section 10 & Appendix A
C.2.a	Note 1
C.2.b	6.2
C.2.c	Note 3
C.3	5.3.4, 7.3.2.2
C.4	5.3, Section 10 Appendix A
C.5	Note 3
D.1	4.1
D.2	4.2
D.3	Note 1
D.4	Note 1
E.1	6.1
E.2	6.1
E.3	6.1, 6.2
E.4.a-n	6.1, 6.2
E.5	Note 1
E.6	6.6
E.7	6.1
E.8	Note 3
F.1.a	5.1, 5.2.2.2, 7.2.3
F.1.b	7.2.3
F.1.c	7.2.3
F.1.d	7.2.2, 7.2.3, 7.2.4
F.1.e	6.4.1, 7.2.5
F.1.f	7.1.1, 7.2.3, 7.2.4

NUREG-0654-REV 1	Plan Section
F.2	5.3.2.1, 7.2.2
F.3	8.1.2
G.1	8.4
G.2	8.4
G.3.a	5.2.3
G.3.b	7.1.7
G.4.a	Figure 5-4
G.4.b	5.2.3, 7.1.7
G.4.c	5.2.3, Table 5-2
G.5	8.4
H.1	7.1.4, 7.1.5
H.2	7.1.2
H.3	Note 1
H.4	6.1, 7.1
H.5	7.3.1
H.5.a	7.3.1.1, 7.3.1.2
H.5.b	7.3.1.3, 7.3.1.5, 7.3.1.6
H.5.c	7.3.1.4, 7.3.1.7
H.5.d	7.3.1.8
H.6.a	7.3.2.4
H.6.b	7.3.2.2, Section 10 Appendix F
H.6.c	5.3.4.1, 7.3.2.2, Section 10, Appendix A
H.7	7.3.2.1, 7.3.2.2, 7.3.2.3, Section 10 Appendix F
H.8	7.3.1.2
H.9	7.1.3, Section 10 Appendix D
H.10	8.3

NUREG-0654-REV 1	Plan Section
H.11	Section 10 Appendix D
H.12	7.1.1
I.1	4.1, Table 4-1
I.2	7.3.1.3, 7.3.1.5, 7.3.1.6
I.3a	6.2.3, Section 10, Appendix B
I.3.b	6.2.3
I.4	6.2.3
I.5	7.3.1.2
I.6	6.2.3
I.7	Section 10 Appendix F
I.8	6.1, 6.2.3, 7.3.2, Table 5-1, Section 10 Appendix F
I.9	7.3.2.1
I.10	6.2.3
I.11	Note 1
J.1.a-d	6.4.1
J.2	6.4.1
J.3	6.4.1
J.4	6.4.1, 6.4.3, 6.5.2, 7.5.3
J.5	5.2.2.10, 6.4.1
J.6.a	6.4.2
J.6.b	6.4.2
J.6.c	6.4.2
J.7	6.1, 6.4.2
J.8	Appendix G, Evacuation Time Estimate
J.9	Note 1

NUREG-0654-REV 1	Plan Section
J.10.a	Appendix F
J.10.b	Appendix G, Note 2
J.10.c	6.4.2, 6.6, 8.4
J.10.d-1	Note 1
J.10.m	6.4.2
J.11	Note 1
J.12	Note 1
K.1.a-g	6.5.1
K.2	6.4.2, 6.5.1
K.3.a-b	6.5.1
K.4	Note 1
K.5.a	6.4.3, 6.5.2, 6.4.4.2
K.5.b	6.5.2, 7.5
K.6.a-c	6.4.4
K.7	6.4.1
L.1	6.5.4
L.2	6.5.2, 7.5
L.3	Note 1
L.4	6.5.3
M.1	9.1
M.2	9.0, 9.1
M.3	9.0
M.4	6.2.3
N.1.a	8.1.3
N.1.b	8.1.3
N.2.a-e	8.1.3
N.3.a-f	8.1.3

NUREG-0654-REV 1	Plan Section
N.4	8.1.3
N.5	8.1.3
O.1	8.1.1
O.1.a	8.1.2
O.1.b	Note 1
O.2	8.1.2
O.3	8.1.3
O4.a-j	8.1.2
O4.k	Note 3
O.5	8.1.2
P.1	8.1.4
P.2	8.1.4
P.3	8.1.4, 8.2
P.4	8.2
P.5	8.2
P.6	5.4
P.7	Section 10 Appendix C
P.8	Section 10 Appendix E, Table of Contents
P.9	8.2
P.10	8.2

Note 1 - Applicable to State and/or local plans only.

Note 2 - Located in County Plans.

Note 3 - Applicable to utility supplied offsite response organization.

F. ASSESSMENT RESOURCES FOR RADIOLOGICAL MONITORING

The capability for monitoring the area around the Indian Point Nuclear Power Station for released radioactivity, for following and predicting its movement and spread, and for assessing its potential hazard exists under programs by Consolidated Edison.

I. METEOROLOGICAL INFORMATION AND DOSE ASSESSMENT SYSTEM (MIDAS)

A. Consolidated Edison and the Power Authority have procured and installed the MIDAS system, a minicomputer based system, which is capable of:

1. Calculating the dispersion path of radioactive material if released to the atmosphere by the plant;

2. 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;

3. Calculating the radiological consequences of accidental radioactive releases to the atmosphere;

4. Providing simultaneous real-time meteorological data and transport and diffusion estimates in the vicinity of the site to the licensee, emergency response organizations and the NRC Staff, via telephone computer access;

5. Obtaining additional radiological and meteorological inputs which assist in defining the site generated dispersion path calculations.

6. Producing the present location and shape of the plume in two modes, Class A static model and Class B dynamic model, utilizing the information on a real time basis.

I. METEOROLOGICAL INFORMATION AND DOSE ASSESSMENT SYSTEM (MIDAS) (cont.)

B. Radiological instruments with telemetry capability.

1. A Reuter Stokes Sentri 1011 Environmental Radiation Monitoring System consisting of a network of monitors is installed in each of the 16 standard meteorological sectors around the Indian Point Site at a distance of 0.5 to 2.5 miles. These devices will continuously telemeter, over dedicated telephone lines, radiation level readings to the MIDAS.

II. ENVIRONMENTAL MONITORING

Nuclear Power personnel have the responsibility for gathering and documenting ongoing radiological and meteorological readings in the ten mile Emergency Planning Zone. In addition, they have the operational responsibility for the equipment described below and for supplying teams of trained technicians who utilize special portable equipment for surveys at predesignated emergency sampling sites (refer to subsection III). The identification of radiological sampling and monitoring points is discussed in detail in the implementing procedure.

A. Reuter Stokes Equipment - Refer to subparagraph I.B.1.

B. Thermoluminescent Dosimeters (TLD's) - TLD's are deployed in three (3) rings at approximately 1, 5 and 10 miles from the site. Each ring has 16 TLD stations, one in each of the sectors, for a total of 48 stations. TLD's are sensitive to Gamma radiation and are gathered and read periodically.

C. Air Samplers deployed at a number of the sampling sites where they are constantly in operation passing ambient air through a series of filters capable of trapping radioactive iodine and other radioisotopes in the air. The filters are periodically removed and analyzed by the Nuclear Power personnel.

II. ENVIRONMENTAL MONITORING (cont.)

D. Portable Equipment - Field teams utilize portable equipment during an emergency to gather data from any of the sixty-one predesignated emergency sampling locations around the Indian Point Site. These sampling locations as described in an implementation procedure, are located so that there are 3 or 4 in each of the 16 sectors, at approximately 1, 3, 6 and 10 miles from the site. Large scale maps showing the locations are in the Control Room and Emergency Operations Facility for use by the Emergency Director. Readings taken by these teams are relayed back to the site via radio, using commercial telephones as back-up. A partial list of the equipment utilized by these teams is presented in subsection III.

III. EMERGENCY OFFSITE MONITORING TEAMS

Consolidated Edison has trained members of their staff in the operation of radiological monitoring equipment. In general, personnel utilized for this work have prior experience and demonstrated capability working in areas of radioactivity exceeding normal levels. These individuals would supplement and assist the radiation monitoring teams already assigned to the monitoring task in the event of an emergency at either of Units 2 or 3.

Kits containing necessities including the following radio- logical equipment area 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 acti- vated charcoal or silver zeolite filter. The filters remove and absorb radioisotopes from the air.

C. Sample counter which is is a device used to measure the radioactivity of filters used in the air sampler.

III. **EMERGENCY OFFSITE MONITORING TEAMS (cont.)**

D. Equipment for personnel protection such as ANTI-C clothing and special respirators for use in radiation environments.

E. Support equipment and supplies such as spare filters, a stop watch, a filter holder, instruction kits, spare batteries, tools and spare rolls of chart paper.

G. EVACUATION PLAN

Evacuation plan for Westchester, Rockland, Orange and Putnam counties.

I. INTRODUCTION

The evacuation plan is based on the identification of both the population to be evacuated and the transportation facilities required to accomplish this evacuation. These are the essential data around which the plan and detailed procedures are built. Because the population in the areas to be evacuated can vary with the time of day, the day of the week, and the seasons, a set of six time-based scenarios has been developed as a means of characterizing the population shifts. These scenarios, prepared for both fair and adverse weather conditions, address variations in both the general population, transient population and the special facilities (e.g., schools, nursing homes, hospitals, and recreation areas), include: (1) winter weekday - school in session - early dismissal; (2) winter weekday - school in session - direct evacuation; (3) winter night; and (4) summer weekend - holiday.

Several important contingencies can introduce significant variations in emergency action and in the execution of an actual evacuation and are thus addressed in the detailed Procedures. The contingencies include situations such as loss of particular evacuation routes or segments of routes, called links, because of construction work, accidents or flooding; severe weather conditions, such as a blizzard; and special single events.

In order to provide the plan with the flexibility to evacuate sub-areas of the EPZ in the event that a full evacuation is not necessary, the 10 Mile EPZ has been divided into 51 Emergency Response Planning Areas (ERPAs) (See Figure 1). The delineation of the ERPAs is based on the following criteria:

1. Major population areas have been preserved or grouped.

2. The boundary definitions have been simplified as much as possible (by using, e.g., political divisions or major roads) for purposes of clarity.

I. INTRODUCTION (cont.)

3. Important topographic features, such as rivers, hills, and valleys, have been utilized as boundaries when practical.

4. The size and orientation of the planning areas are adequate to respond to various levels of accident severity.

5. The effects of meteorological conditions and patterns which can be responded to.

In general evacuation is necessary, individual ERPAs will be evacuated as units. In other words, if it is decided that any given portion of an ERPA is required to evacuate, then the entire ERPA will be required to evacuate. The ERPA definitions for the EPZ surrounding the Indian Point Nuclear Power Plant Site are presented on pages G-4 through G-12. Estimates of the 1980 resident population for each of the planning areas and totals for the ERPA's are shown on Table 1.

For each ERPA within the EPZ, primary evacuation routes have been identified. The ERPAs have been further subdivided into traffic zones. Each traffic zone is assigned an evacuation route for each mode of travel. Descriptions of the traffic zones and their associated evacuation routes are given in the county plan procedures. Listings and maps of reception centers for each traffic zone are also included in the county procedures.

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

II. EVACUATION ROADWAY TRAVEL TIME ESTIMATES

Evacuation travel time estimates by ERPA and evacuation area for each of the four scenarios for the resident general population (with and without vehicles) are presented for fair and adverse weather conditions in tables 2 through 5. For a more detailed discussion, consult the actual Evacuation Travel Time Estimates report prepared by HMM Associates, Incorporated.

III. DESCRITPION 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.

EMERGENCY RESPONSE PLANNING AREAS:

DEFINITION OF BOUNDARIES

The plume exposure Emergency Planning Zone (EPZ) for the Indian Point Nuclear Power Station (IPNPS) has been subdivided into 51 discrete Emergency Response Planning Areas (ERPAs) as shown in Figure 1. Preliminary 1990 population estimates for each ERPA are shown in Table 1. The boundaries of the various ERPAs are described below:

ERPA 1 The Village of Buchanan.

ERPA 2 City of Peekskill, including Blue Mountain Reservation North of Dickey Brook.

ERPA 3 West-central part of Town of Cortlandt: The hamlet of Verplanck, being defined as the Verplanck Fire District south of the Village of Buchanan, bounded on the south by Kings Ferry Road and the Cortlandt Yacht Club.

ERPA 4 Central to southwest part of the Town of Cortlandt: The hamlet of Montrose and the Blue Mountain Reservation; south of the City of Peekskill, the Village of Buchanan and the Verplanck Fire District, and including all of the Montrose Postal Area (10548) except the Verplanck Fire District and the FDR VA Hostipal.

ERPA 5 Southeast Town of Cortlandt (including "Mount Airy"): South of a line from the Benchmark near the intersection of Croton Avenue and Baptist Church Road to 450+ foot promentary on the west-northwest side of Salt Hill, thence to the headwaters of the Brook which rises in the eastern end of Pine Lake Park, thence to the line dividing the properties which are accessed from Colabaugh Pond Road and Reber Road from the properties which are accessed from Furnace Dock Road, thence southwesterly along a line northwest of the properties which front upon the northwest of Woodybook and of the Brinton Book Santuary; north of the incorporated Village of Croton-on-Hudson and of the Croton River near Croton Reservoir.

ERPA 6 The Village of Croton-on-Hudson.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 7 Camp Smith Military Reservation, and the adjacent portions of the Town of Cortlandt (to the W, S, and SE of Camp Smith) along the Hudson River and along Annsville Creek, south of the intersection of Doris Lee Road with U.S. Route 9 (New York-Albany Post Road), about 0.2 miles north, northeast of the juncture of Annsville Creek and Sprout Brook.

ERPA 8 Northeastern area in the Town of Cortlandt: bounded on the west by Camp Smith and Annsville Creek (South of the intersection of Doris Lee Road and U.S. Route 9), and on the south by the City of Peekskill and Bear Mountain State Parkway (also Route 202 - Route 35 to the East).

ERPA 9 East-central area in the Town of Cortlandt ("Toddville"): South of Bear Mountain State Parkway (also U.S. Route 202 - Route 35 to the East), east of the City of Peekskill, and north of west side of Dickey Brook of Matasak Road and of the Hendrick Hudson Central School District and of the Benchmark near the intersection of Croton Avenue and Baptist Church Road.

ERPA 10 Northeastern area of the Town of Yorktown, west of the Taconic State Parkway, and north of Route 202 - Route 35.

ERPA 11 Northeastern area of the Town of Yorktown, east of the Taconic State Parkway and north of Route 202 - Route 35.

ERPA 12 Southeastern part of the Town of Yorktown, west of the Taconic State Parkway northbound, and south of Route 202 - Route 35.

ERPA 13 Southeastern part of the Town of Yorktown, east of the Taconic State Parkway northbound, and south of Route 202 - Route 35.

ERPA 14 Northerwestern part of the Town of Somers, west of the Route 118 and Route 202, and North of Route 202 - Route 35-118.

ERPA 15 Southwestern part of the Town of Somers south of Route 35; west of (north to south) Route 35, Wood Street, and Moseman Avenue; and north of Route 100.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 16 Southwestern portion of the Town of Philipstown, except for the area of Continental Village included in ERPA 18, bounded on the north and east by (Southeast to Northwest) U.S. Route 9 (New York-Albany Post Road), Cat Rock Road (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 the Village of Garrison.

ERPA 17 Central portion of the Town of Philipstown, bounded on the south and west by (east and west) Canopus Hollow Road, Old West Point Road, Capistrano Avenue, U.S. Route 9 (New York-Albany Post Road) northward, Cat Rock Road (Route 403). Lower Station Road as it nears the river to the boat basin just south of the Village of Garrison; on the north (west to east) by the Cold Spring eastern Village line, Moffet road north-eastwardly, Lane Gate Road, U.S. Route 9 (New York- Albany Post Road), Old Albany Post Road, Indian Brook Road, and the Southwest boundary of Clarence Fahnestock Memorial State Park.

ERPA 18 Southwestern portion of Putnam County, including Continental Village in the southeastern corner of the Town of Philipstown, bounded on the west by U.S. Route 9 (New York-Albany Post Road) and on the north by Capistrano Avenue, Old West Point Road, Old Albany Post Road, and Canopus Hollow Road; and the Village of Lake Peekskill in the southwestern corner of the Town of Putnam Valley, bounded on the north by an east-west line through the unpopulated area north of the village from the town line to the north end of Howard Street, and on the east by Howard Street and Oscawana Lake Road.

ERPA 19 The central and southern part of the Town of Putnam Valley, except for the area of the village of Lake Peekskill included in ERPA 18, bounded on the north (west to east) by the south boundary of Clarence Fahnestock Memorial State Park, Sunken Mine Road, Northshore Road, Lake Road (Route 20), Tinker Hill Road, Peekskill Hollow Road, and Bryant Pond Road; and on the east by the Taconic State Parkway.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 20 Southeastern corner of the Town of Putnam Valley, bounded on the west by the Taconic State Parkway, and on the north by Bryant Pond Road and Lake Secor Road; and the southwestern corner of the Town of Carmel, bounded the east by Austin Road, Route 6N, Stillwater Road (including northern branch), and the Muscoot River.

ERPA 21 Western part of the Town of New Castle, bounded on east (south to north) by Hardscrabble Road, Quaker Street (Route 120), Millwood Road (Route 133), and Seven Bridges Road (Route 5).

ERPA 22 The incorporated Village of Ossining and the unincorporated area of the Town of Ossining.

ERPA 23 The Village of Cold Spring; the Village of Nelsonville except for the portion in Hudson Highlands State Park; and a small part of the Town of Philipstown, south of Route 301 (Cold Spring - Carmel Road) and west of Moffet Road.

ERPA 24 U.S. Military Academy West Point Military Reservation.

ERPA 25 Northwestern part of the Town of Highlands north and west of the West Point Military Reservation; and the southern part of the Town of Cornwall, bounded on the east and north by Route 9W (not included in the EPZ), and on the Northwest by (Northeast to Southwest) Angola Road (County Route 9), Long Hill Road, and Woodbury Road.

ERPA 26 Town of Highlands east and south of West Point Military Reservation; and north of the Palisades Interstate Parkway - U.S. Route 6, and on a east-west line connecting PIP - U.S. Route 6 to the West Point Military Reservation boundary, about 1 1/2 miles west of the Bear Mountain Bridge.

ERPA 27 Northeastern part of the Town of Woodbury, bounded on the east by (north to south) the West Point Military Reservation boundary, the Harriman State Park boundary, on the south by the northerly boundary of U.S. Route 6 and on the west by (south to north) the easterly boundary of the New York State Thruway in the Town of Woodbury.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 28 Southern part of the Town of Woodbury west of Harriman State Park and south of the Village of Harriman; and northern part of the Town of Tuxedo, bordered on the east, and south, by Harriman State Park, bordered on the west by the easterly boundary of the New York State Thruway and the easterly boundary of the Village of Harriman.

ERPA 29 Northeastern portion of the Town of Stony Point, south of Bear Mountain State Park, bounded on the south and west by (southeast to northwest) the southern boundary of Stony Point State Park, Park Road north, Routes 9W-202 (Liberty Drive), Free Hill Road and Buckberg Road (Road 78), the western edge of the Tomkins Lake Community (North of Mott Farm Road), and a short line connecting the road to the north and northwest of Tomkins Lake to the Bear Mountain State Park boundary where the road is closest to the boundary.

ERPA 30 Town of Stony Point east of the main body of Harriman State Park and south of Bear Mountain State Park, except for the northeastern portion constituting ERPA 29; and the industrial and marshy northeastern corner of the Town of Haverstraw to the east and north of the Villages of West Haverstraw and Haverstraw.

ERPA 31 Town of Haverstraw east of the Palisades Interstate Parkway, except for the northeastern corner included in ERPA 30, and the portion of High Tor State Park in the Town of Clarkstown.

ERPA 32 Northeastern part of the Town of Clarkstown, excepting High Tor State Park, bounded on the south and west by (southeast to northwest) the south and west boundaries of Nyack Beach State Park, Hook Mountain State Park, and Rockland Lake State Park, Lake Road and Congers Road (Route 92), the western edge of DeForest Lake, the small stream entering DeForest Lake just west of its north end, Route 304 northeastward for about 0.1 mile, the north-northwest running road connection Route 304 with Long Clove Road, a short section of Long Clove road, Scratchup Road, and Route 101.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 33 Eastern-central part of the Town of Clarkstown, bounded on the north by Congers Road and Lake Road (Route 92); on the east by the boundaries of Rockland Lake State Park and Hook Mountain State Park and Route 9W southward; on the south by (east to west) Christian Herald Road, Morris Road, Crusher Road, and the southern edge of DeForest Lake from the intersection of Crusher Road with Old Mill Road; and on the west by the western edge of DeForest Lake.

ERPA 34 Northwestern part of the Town of Clarkstown, excepting High Tor State Park, bounded on the east by the western boundary of ERPA 32, and on the south by (east to west) Congers Road, Goebel Road northward, 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 Route 45.

ERPA 35 Central part of the Town of Clarkstown, bounded on the south by (west to east) Clarkstown Road, a short segment of the Palisades Interstate Parkway, Church Road, Germonds Road, Parrott Road (excluding facilities on the north side), 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, 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 Palisades Interstate Parkway and south of Conklin Road and a short section of Route 45 connecting Conklin Road to the Palisades Interstate Parkway.

ERPA 36 The northereastern part of the Town of Ramapo, west of the Palisades Interstate Parkway and east of Harriman State Park, bounded on the south by (east to west) Route 45, Pomona Road, Camp Hill Road northward, Route 202, Route 306 (Monsey-Ladentown Road) northwestward, Calls Hollow Road northward, and Mountain Road; and the central part of the Town of Haverstraw east of Harriman State Park and West of the Palisades Interstate Parkway.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 37 Eastern part of the Town of Ramapo, west of Palisades Interstate Parkway and east of Harriman State Park, bounded on the north by (east to west) Route 45, Pomona Road, Camp Hill Road northward, Route 202, Route 306 (Monsey-Ladentown Road) northeastward Calls Hollow Road northward, and Mountain Road; on the south by (east to west) Eckerson Road (Route 107, Union Road, and Viola Road (Route 106); and on the west by Spook Rock Road (U.S. Route 6), Sky Meadow Road, and a line formed by extending the east-west running section of Sky Meadow Road west to Harriman State Park boundary.

ERPA 38 Eastern part of Bear Mountain State Park and the Jones Point and Dunderberg areas, south of Salisbury Meadow and Ring Meadow and east Routes 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.

ERPA 39 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 Routes 9W-202 and the Park boundary, where the boundary is west of Routes 9W-202.

ERPA 40 The central and eastern parts of Harriman State Park, bounded on the east by the Palisades Interstate Parkway northbound and a line connecting PIP-U.S. Route 6 to the West Point Military Reservation boundary, about 1 1/2 miles west 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 and the (northwest - southeast) running utility right-of-way crossing Smith Rock and Pound Mountain.

ERPA 41 The southern part of Harriman State Park, contained in the Town of Ramapo, bounded on the west and south by the utility right-of-way running northwest - southeast across Pound Mountain to a point near where Johnsontown Road and Spring Brook cross the Park boundary, and running west-northwest - east-southeast from that point to Kakiat County Park, about 1 mile west of Wesley Chapel.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 42 Hudson River north of Hook Mountain and south of the north tip of Croton Point.

ERPA 43 Hudson River north of the north tip of Croton Point and south of Stony Point.

ERPA 44 Hudson River north of Stony Point and south of Round Island.

ERPA 45 Hudson River north of Round Island and south of Con Hook.

ERPA 46 Hudson River north of Con Hook and south of Little Stony Point.

ERPA 47 The Franklin D. Roosevelt Veterans Administration hospital in Montrose.

ERPA 48 Southwestern part of the unincorporated Town of Cortlandt: The hamlets of Crugers and Oscawana (including Amberlands Apartments) bounded on the north by Montrose and on the northeast by Washington Street, Furnace Dock Road and Mount Airy Road West to a point approximately one furlong (approximately 220 feet) west of Reber Road and on the southeast by the Village of Croton-on- Hudson, Brinton Brook Sanctuary and properties which front upon the northwest side of Woodybrook.

ERPA 49 Central part of the Town of Cortlandt ("Furnace Woods"- "Pleasantside"): east of the Blue Mountain Reservation, south of the east side of Dickey Brook, and of the Lakeland and Yorktown Central School Districts, north of a line from the Benchmark near the intersection of Croton Avenue and Baptist Church Road to 450+ foot promentary on the west-northwest side of Salt Hill, thence to the headwaters of the Brook which rises in the eastern end of Pine Lake Park, thence to the line dividing the properties which are accessed from Colabaugh Pond Road and Reber Road from the properties which are accessed from Furnace Dock Road; north east of Washington Street - Furnace Dock Road - Mount Airy Road West.

EMERGENCY RESPONSE PLANNING AREAS (cont.)

ERPA 50 The extreme southeastern portion of the Town of Cortlandt, all of which lies south of Croton River/New Croton Reservoir.

ERPA 51 The incorporated Village of Briarcliff Manor and unincorporated area of the Town of Mount Pleasant northwest of Washburn Road and south of Underhill and Chappaqua Roads.

TABLE 1

1990 POPULATION ESTIMATES EMERGENCY RESPONSE PLANNING AREAS

Emergency Response Planning Area	1990 Resident Population Estimate
1	1,970
2	19,536
3	1,858
4	3,406
5	1,460
6	7,018
7	46
8	11,016
9	3,428
10	6,980
11	17,165
12	2,504
13	6,818
14	2,672
15	1,040
16	470
17	1,984
18	3,560
19	5,511
20	3,740
21	4,399
22	27,658
23	2,598
24	8,024
25	790
26	5,639
27	1,667
28	92

TABLE 1 (cont.)

1990 POPULATION ESTIMATES EMERGENCY RESPONSE PLANNING AREAS

Emergency Response Planning Area	1990 Resident Population Estimate
29	1,070
30	11,710
31	30,314
32	4,169
33	11,679
34	7,329
35	21,827
36	2,804
37	20,602
38	76
39	60
40	80
41	29
42	0
43	0
44	0
45	0
46	0
47	753
48	3024
49	2906
50	472
51	7459
Total	279,412

Totals by Counties:

- Orange County 16,212
- Putnam County 17,863
- Rockland County 111,749
- Westchester County 133,588

Source of Table 1 are the County Radiological Response Plans

TABLE 2
Evacuation Time Summary by ERPA -- All Conditions
Evacuation Time (hours:minutes)

ERPA	Winter Weekday School in Session Early Dismissal				Winter Weekday School in Session Direct Evacuation			
	Fair Weather		Adverse Weather		Fair Weather		Adverse Weather	
	90%	100%	90%	100%	90%	100%	90%	100%
1	2:50	3:20	3:15	3:50	2:50	3:20	3:15	3:50
2	3:10	4:10	4:00	5:40	3:15	4:40	3:55	6:50
3	2:45	2:50	2:50	3:00	2:50	3:00	3:00	3:10
4	3:10	4:10	3:50	5:40	3:15	4:30	4:05	6:00
5	3:50	4:10	4:35	5:30	3:55	4:10	4:45	6:00
6	4:25	5:00	6:00	7:10	4:30	5:20	6:15	7:30
7	2:50	3:40	3:15	4:00	3:00	3:40	3:15	4:00
8	3:50	5:10	5:35	6:50	4:30	5:20	6:10	7:10
9	3:30	4:00	4:15	5:00	3:35	4:00	4:25	5:10
10	4:30	5:20	6:00	7:20	4:40	5:30	6:15	7:30
11	3:25	5:20	4:35	7:20	3:30	5:30	4:40	7:40
12	3:30	5:10	4:20	7:20	3:35	5:20	4:30	7:40
13	3:40	5:20	4:35	7:20	3:40	5:30	4:45	7:40
14	3:55	5:20	5:10	7:20	4:00	5:30	5:20	7:40
15	2:45	4:10	3:10	5:10	2:45	4:20	3:05	5:20
16	3:00	3:40	3:15	4:10	3:00	3:40	3:20	4:10
17	3:00	3:50	3:15	4:20	3:00	3:50	3:15	4:20
18	3:10	4:30	3:55	6:30	3:25	5:20	4:25	7:20
19	4:05	5:20	5:40	7:20	4:25	5:30	6:00	7:40
20	3:35	5:20	6:25	7:20	3:40	5:30	4:55	7:40
21	4:10	5:20	5:25	7:20	4:10	5:30	5:30	7:40
22	4:25	5:20	5:55	7:20	4:30	5:30	6:10	7:40
23	2:50	3:50	3:00	4:20	2:45	3:50	2:55	4:20
24	2:25	2:50	4:15	5:10	2:35	3:10	4:35	5:30
25	2:00	2:40	3:25	5:10	2:00	2:40	3:40	5:30
26	2:30	2:50	4:20	4:50	2:40	3:00	4:35	5:10
27	2:40	3:00	3:10	5:20	2:40	3:00	3:25	5:40
28	2:35	3:00	4:45	5:20	2:35	3:00	5:00	5:40
29	2:05	2:30	2:05	2:30	2:05	2:30	2:05	2:30
30	3:05	3:30	4:10	4:50	3:20	3:50	4:30	5:10
31	3:00	3:40	4:00	4:50	3:15	3:50	4:20	5:20
32	2:50	3:10	3:35	4:35	3:10	3:40	3:50	4:40
33	3:25	3:50	4:15	4:50	3:40	4:00	4:35	5:10
34	2:45	3:20	3:30	4:00	2:55	3:30	3:45	4:20
35	3:10	3:50	4:10	5:00	3:25	4:00	4:30	5:30
36	3:00	3:40	4:00	5:00	3:15	4:00	4:20	5:20
37	3:05	3:50	4:05	5:00	3:20	4:00	4:25	5:30
38	2:10	2:30	2:10	2:30	2:10	2:30	2:10	2:30
39	1:00	1:30	1:00	1:30	1:00	2:00	1:05	2:00
40	3:15	3:50	4:30	5:20	3:25	4:10	4:45	5:40
41	3:20	3:50	4:20	5:10	3:30	4:10	4:40	5:40
47	3:00	3:10	3:45	4:00	3:05	3:20	3:50	4:10
48	4:20	5:00	5:50	7:10	4:30	5:10	6:05	7:30
49	3:45	4:00	4:20	4:40	3:45	4:00	4:25	5:00
50	3:05	3:10	3:20	3:30	3:05	3:10	3:35	3:40
51	4:25	5:20	5:55	7:20	4:30	5:30	6:10	7:40
Full EP:	4:25	5:20	6:25	7:20	4:40	5:30	6:15	7:40

TABLE 2 (cont.)
Evacuation Time Summary by ERPA -- All Conditions
Evacuation Time (hours:minutes)

ERPA	Winter Night				Summer Weekend - Holiday			
	Fair Weather		Adverse Weather		Fair Weather		Adverse Weather	
	90%	100%	90%	100%	90%	100%	90%	100%
1	2:55	3:20	3:05	3:30	2:55	3:20	3:05	3:30
2	3:05	3:30	3:20	4:30	3:15	4:50	3:35	5:20
3	2:45	2:50	2:55	3:00	2:50	3:00	2:50	3:00
4	3:05	3:30	3:30	4:30	3:25	4:50	4:05	5:20
5	3:45	4:00	4:25	4:50	3:55	4:30	4:25	5:50
6	4:00	4:50	5:25	6:40	4:55	5:30	5:50	6:40
7	3:00	3:30	3:15	4:00	2:50	3:20	2:55	3:40
8	3:15	3:40	4:25	6:50	3:15	5:10	3:55	6:10
9	3:30	3:50	4:05	4:40	3:35	4:10	4:00	4:30
10	4:25	5:20	6:00	7:10	4:30	5:30	5:25	6:30
11	3:25	5:20	4:25	7:10	3:25	5:30	4:05	6:40
12	3:25	5:00	4:10	6:50	3:25	5:40	3:55	6:50
13	3:35	5:00	4:25	6:50	3:45	5:40	4:20	6:50
14	3:55	5:20	5:05	7:10	3:55	5:30	4:45	6:40
15	2:45	4:10	3:05	5:00	2:45	4:20	3:00	4:50
16	3:05	3:40	3:20	4:10	2:50	3:30	3:05	3:40
17	3:05	3:40	3:15	4:10	2:55	3:40	3:10	3:50
18	2:55	3:40	3:30	5:10	3:00	3:40	3:30	4:40
19	3:45	5:20	5:00	7:10	3:45	5:30	4:30	6:40
20	3:30	5:20	4:35	7:10	3:35	5:30	4:15	6:40
21	3:55	5:00	5:00	7:00	4:20	5:40	5:15	6:50
22	2:45	5:00	5:25	7:00	4:30	5:40	5:30	6:50
23	2:30	3:50	3:00	4:20	2:50	3:40	3:00	3:50
24	2:00	2:50	4:15	5:10	2:30	2:50	2:50	3:30
25	2:00	2:40	3:25	5:10	2:00	2:40	2:00	2:50
26	2:30	2:50	4:15	4:50	2:30	2:50	3:00	3:20
27	2:35	3:00	3:15	5:20	2:40	3:30	2:55	4:00
28	2:40	3:00	4:45	5:20	3:05	3:30	3:50	4:00
29	2:05	2:30	2:05	2:30	1:55	2:30	1:55	2:30
30	2:55	3:30	3:55	4:30	3:35	4:00	4:10	4:40
31	2:45	3:20	3:45	4:30	3:30	4:10	4:05	4:50
32	2:45	3:10	3:20	4:10	3:10	3:50	3:30	4:20
33	3:25	3:50	4:05	4:30	3:40	4:00	4:15	4:50
34	2:45	3:20	3:20	3:50	2:50	3:30	3:20	4:00
35	3:05	3:40	4:00	4:50	3:20	4:10	3:55	4:30
36	2:55	3:20	3:45	4:40	3:45	5:00	4:15	5:40
37	3:00	3:40	3:55	4:50	3:30	4:20	4:05	5:00
38	2:15	2:30	2:15	2:30	2:00	2:30	1:55	2:30
39	1:00	1:30	1:00	1:30	1:35	1:50	1:50	2:10
40	3:10	3:40	4:25	5:20	4:50	5:40	5:30	6:40
41	3:15	3:40	4:05	5:00	5:10	5:40	6:05	6:40
47	2:55	3:10	3:35	3:50	3:10	3:30	3:35	3:50
48	3:55	4:50	5:25	6:30	4:45	5:30	5:25	6:40
49	3:40	3:50	4:20	4:40	3:45	4:10	4:10	4:30
50	3:05	3:10	3:20	3:20	3:05	3:10	3:10	3:20
51	4:05	5:00	5:25	7:00	4:30	5:40	5:25	6:50
Full EP:	4:25	5:20	6:00	7:10	5:10	5:40	6:05	6:50

Table 3

Evacuation Time Summary by Evacuation Area

Winter Weekday - School in Session Early Dismissal

Evacuation Area					Evacuation Time (hours:minutes)			
Downwind					Fair Weather		Adverse Weather	
	Direction	Sectors	Ring	Downwind	90%	100%	90%	100%
A			2 - Mile		3:00	4:10	3:35	5:40
B			ERPA 1,3,4		3:10	4:10	3:50	5:40
C	NNE	1,2,3	2-mile + 5-mile		3:40	5:10	5:00	6:50
D	NNE	1,2,3	5-mile + 10-mile		3:35	5:20	4:50	7:20
E	NE	2,3,4	2-mile + 5-mile		3:40	5:10	5:00	6:50
F	NE	2,3,4	5-mile + 10-mile		3:40	5:20	4:50	7:20
G	ENE	3,4,5	2-mile + 5-mile		3:30	5:10	4:35	6:50
H	ENE	3,4,5	5-mile + 10-mile		3:40	5:20	4:55	7:20
I	E	4,5,6	2-mile + 5-mile		4:05	5:10	5:35	6:50
J	E	4,5,6	5-mile + 10-mile		3:25	5:20	4:40	7:20
K	ESE	5,6,7	2-mile + 5-mile		3:55	5:00	5:20	7:10
L	ESE	5,6,7	5-mile + 10-mile		4:05	5:20	5:30	7:20
M	SE	6,7,8	2-mile + 5-mile		3:55	5:00	5:20	7:10
N	SE	6,7,8	5-mile + 10-mile		3:50	5:20	5:00	7:20
O	SSE	7,8,9	2-mile + 5-mile		3:00	5:00	3:45	7:10
P	SSE	7,8,9	5-mile + 10-mile		3:40	5:20	4:50	7:20
Q	S	8,9,10	2-mile + 5-mile		3:25	5:00	4:40	7:10
R	S	8,9,10	5-mile + 10-mile		3:40	5:20	4:50	7:20
S	SSW	9,10,11	2-mile + 5-mile		3:00	4:10	3:45	5:40
T	SSW	9,10,11	5-mile + 10-mile		3:30	5:10	4:35	7:10
U	SW	10,11,12	2-mile + 5-mile		3:00	4:10	3:55	5:40
V	SW	10,11,12	5-mile + 10-mile		3:25	5:10	4:30	7:10
W	WSW	11,12,13	2-mile + 5-mile		3:00	4:10	3:55	5:40
X	WSW	11,12,13	5-mile + 10-mile		3:30	5:10	4:40	5:40
Y	S	12,13,14	2-mile + 5-mile		3:05	4:10	3:55	5:40
Z	S	12,13,14	5-mile + 10-mile		3:40	5:10	4:45	7:10
AA	WNW	13,14,15	2-mile + 5-mile		3:00	4:10	3:40	5:40
BB	WNW	13,14,15	5-mile + 10-mile		3:40	5:10	4:45	7:10
CC	NW	14,15,16	2-mile + 5-mile		3:05	4:10	4:00	5:40
DD	NW	14,15,16	5-mile + 10-mile		3:40	5:10	4:45	7:10
EE	NNW	15,16,1	2-mile + 5-mile		3:15	5:10	4:35	6:50
FF	NNW	15,16,1	5-mile + 10-mile		3:35	5:10	4:40	7:10
GG	N	16,1,2	2-mile + 5-mile		3:15	5:10	4:20	6:50
HH	N	16,1,2	5-mile + 10-mile		3:40	5:20	4:55	7:20
II		Up River	2-mile + 10-mile		3:25	5:20	4:35	7:20
JJ		Down River	2-mile + 10-mile		3:40	5:20	4:50	7:20
KK			5 - Mile		3:35	5:10	4:45	7:10
LL			Full EPZ		4:05	5:20	5:35	7:20

Table 3 (cont.)

Evacuation Time Summary by Evacuation Area

Winter Weekday - School in Session - Direct Evacuation

Evacuation Area					Evacuation Time (hours:minutes)			
Downwind					Fair Weather		Adverse Weather	
	Direction	Sectors	Ring	Downwind	90%	100%	90%	100%
A			2 - Mile		3:10	4:40	3:50	6:50
B			ERPA 1,3,4		3:15	4:30	3:15	6:00
C	NNE	1,2,3	2-mile + 5-mile		4:00	5:20	5:30	7:20
D	NNE	1,2,3	5-mile + 10-mile		3:45	5:30	5:05	7:40
E	NE	2,3,4	2-mile + 5-mile		4:00	5:20	5:25	7:20
F	NE	2,3,4	5-mile + 10-mile		3:45	5:30	5:05	7:40
G	ENE	3,4,5	2-mile + 5-mile		3:45	5:20	4:55	7:10
H	ENE	3,4,5	5-mile + 10-mile		3:50	5:30	5:10	7:40
I	E	4,5,6	2-mile + 5-mile		4:25	5:20	6:00	7:30
J	E	4,5,6	5-mile + 10-mile		3:40	5:30	5:00	7:40
K	ESE	5,6,7	2-mile + 5-mile		4:10	5:20	5:40	7:30
L	ESE	5,6,7	5-mile + 10-mile		4:10	5:30	5:40	7:40
M	SE	6,7,8	2-mile + 5-mile		4:10	5:20	5:40	7:30
N	SE	6,7,8	5-mile + 10-mile		3:55	5:30	5:15	7:40
O	SSE	7,8,9	2-mile + 5-mile		3:10	5:20	4:10	7:30
P	SSE	7,8,9	5-mile + 10-mile		3:50	5:30	5:00	7:40
Q	S	8,9,10	2-mile + 5-mile		3:40	5:20	5:00	7:30
R	S	8,9,10	5-mile + 10-mile		3:50	5:30	5:00	7:40
S	SSW	9,10,11	2-mile + 5-mile		3:10	4:40	4:10	6:20
T	SSW	9,10,11	5-mile + 10-mile		3:40	5:20	4:50	7:30
U	SW	10,11,12	2-mile + 5-mile		3:10	4:40	4:15	6:20
V	SW	10,11,12	5-mile + 10-mile		3:35	5:20	4:50	7:30
W	WSW	11,12,13	2-mile + 5-mile		3:10	4:40	4:15	6:20
X	WSW	11,12,13	5-mile + 10-mile		3:40	5:20	4:55	7:30
Y	S	12,13,14	2-mile + 5-mile		3:15	4:40	4:20	6:20
Z	S	12,13,14	5-mile + 10-mile		3:45	5:20	5:00	7:30
AA	WNW	13,14,15	2-mile + 5-mile		3:10	4:40	4:00	6:20
BB	WNW	13,14,15	5-mile + 10-mile		3:50	5:20	5:00	7:30
CC	NW	14,15,16	2-mile + 5-mile		3:10	4:40	4:25	6:20
DD	NW	14,15,16	5-mile + 10-mile		3:50	5:20	5:00	7:30
EE	NNW	15,16,1	2-mile + 5-mile		3:30	5:20	4:55	7:10
FF	NNW	15,16,1	5-mile + 10-mile		3:40	5:20	4:55	7:30
GG	N	16,1,2	2-mile + 5-mile		3:25	5:20	4:40	7:20
HH	N	16,1,2	5-mile + 10-mile		3:50	5:30	5:10	7:40
II		Up River	2-mile + 10-mile		3:40	5:30	4:50	7:40
JJ		Down River	2-mile + 10-mile		3:50	5:30	5:05	7:40
KK			5 - Mile		3:40	5:20	5:00	7:30
LL			Full EPZ		4:25	5:30	6:00	7:40

Table 4

Evacuation Time Summary by Evacuation Area

Winter Night

Evacuation Area				Evacuation Time (hours:minutes)			
Downwind				Fair Weather		Adverse Weather	
	Direction	Sectors	Ring Downwind	90%	100%	90%	100%
A			2 - Mile	3:00	3:30	3:20	4:30
B			ERPA 1,3,4	3:05	3:30	3:30	4:30
C	NNE	1,2,3	2-mile + 5-mile	3:20	3:50	4:15	6:50
D	NNE	1,2,3	5-mile + 10-mile	3:20	5:20	4:30	7:10
E	NE	2,3,4	2-mile + 5-mile	3:20	3:50	4:15	6:50
F	NE	2,3,4	5-mile + 10-mile	3:25	5:20	4:30	7:10
G	ENE	3,4,5	2-mile + 5-mile	3:20	5:10	4:05	6:50
H	ENE	3,4,5	5-mile + 10-mile	3:30	5:20	4:35	7:10
I	E	4,5,6	2-mile + 5-mile	3:40	5:10	5:00	6:30
J	E	4,5,6	5-mile + 10-mile	3:10	5:20	4:20	7:10
K	ESE	5,6,7	2-mile + 5-mile	3:40	4:50	4:45	6:40
L	ESE	5,6,7	5-mile + 10-mile	3:45	5:20	3:45	7:10
M	SE	6,7,8	2-mile + 5-mile	3:40	4:50	4:45	6:40
N	SE	6,7,8	5-mile + 10-mile	3:30	5:10	4:40	7:00
O	SSE	7,8,9	2-mile + 5-mile	2:50	4:50	3:30	6:40
P	SSE	7,8,9	5-mile + 10-mile	3:30	5:10	4:30	7:00
Q	S	8,9,10	2-mile + 5-mile	3:10	4:50	4:10	6:40
R	S	8,9,10	5-mile + 10-mile	3:30	5:10	4:30	7:00
S	SSW	9,10,11	2-mile + 5-mile	2:55	3:30	3:30	4:30
T	SSW	9,10,11	5-mile + 10-mile	3:20	5:10	4:20	6:50
U	SW	10,11,12	2-mile + 5-mile	2:55	3:40	3:40	5:20
V	SW	10,11,12	5-mile + 10-mile	3:15	5:10	4:15	6:50
W	WSW	11,12,13	2-mile + 5-mile	2:55	3:40	3:40	5:20
X	WSW	11,12,13	5-mile + 10-mile	3:20	5:10	4:20	6:50
Y	S	12,13,14	2-mile + 5-mile	3:00	3:40	3:40	5:20
Z	S	12,13,14	5-mile + 10-mile	3:20	5:10	4:25	6:50
AA	WNW	13,14,15	2-mile + 5-mile	3:00	3:40	3:30	5:20
BB	WNW	13,14,15	5-mile + 10-mile	3:20	5:10	4:20	6:50
CC	NW	14,15,16	2-mile + 5-mile	3:00	3:40	3:45	5:20
DD	NW	14,15,16	5-mile + 10-mile	3:20	5:10	4:20	6:50
EE	NNW	15,16,1	2-mile + 5-mile	3:05	5:10	4:10	5:20
FF	NNW	15,16,1	5-mile + 10-mile	3:20	5:10	4:20	6:50
GG	N	16,1,2	2-mile + 5-mile	3:05	5:10	4:00	6:50
HH	N	16,1,2	5-mile + 10-mile	3:25	5:20	4:30	7:10
II		Up River	2-mile + 10-mile	3:20	5:20	4:20	7:10
JJ		Down River	2-mile + 10-mile	3:30	5:00	4:30	7:00
KK			5 - Mile	3:20	5:10	4:25	6:50
LL			Full EPZ	3:45	5:20	5:00	7:10

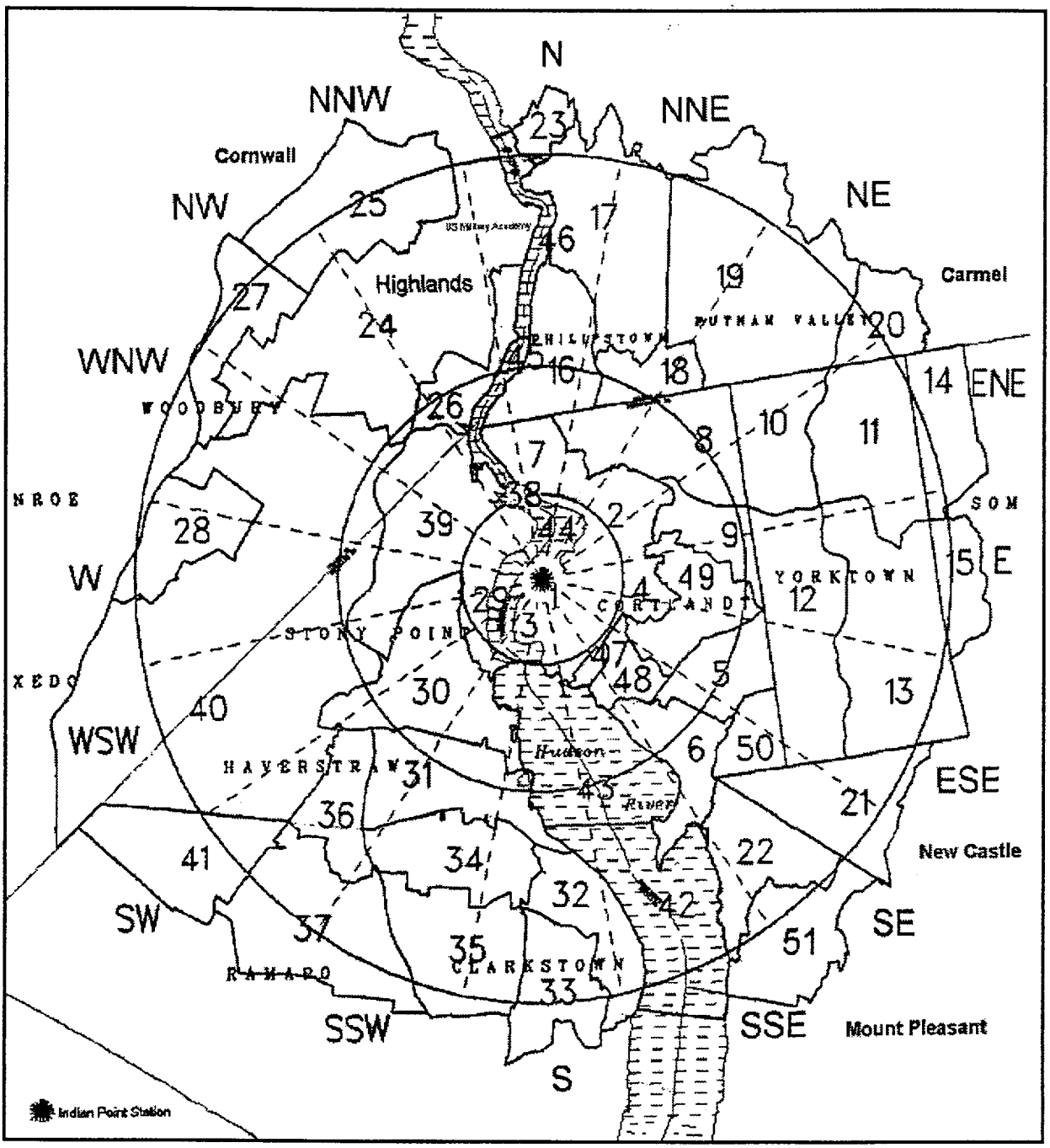
Table 5

Evacuation Time Summary by Evacuation Area

Summer Weekend - Holiday

Evacuation Area					Evacuation Time (hours:minutes)			
Downwind					Fair Weather		Adverse Weather	
	Direction	Sectors	Ring	Downwind	90%	100%	90%	100%
A			2 - Mile		3:11	4:50	3:30	5:20
B			ERPA 1,3,4		3:25	4:50	3:25	5:20
C	NNE	1,2,3	2-mile + 5-mile		3:25	5:10	3:55	6:10
D	NNE	1,2,3	5-mile + 10-mile		4:10	5:40	4:50	6:40
E	NE	2,3,4	2-mile + 5-mile		3:20	5:10	3:55	6:10
F	NE	2,3,4	5-mile + 10-mile		4:05	5:40	4:50	6:50
G	ENE	3,4,5	2-mile + 5-mile		3:10	5:10	3:40	6:10
H	ENE	3,4,5	5-mile + 10-mile		4:10	5:40	4:55	6:50
I	E	4,5,6	2-mile + 5-mile		3:55	5:30	4:30	6:40
J	E	4,5,6	5-mile + 10-mile		4:20	5:40	5:00	6:50
K	ESE	5,6,7	2-mile + 5-mile		4:10	5:30	5:00	6:40
L	ESE	5,6,7	5-mile + 10-mile		4:15	5:40	5:00	6:50
M	SE	6,7,8	2-mile + 5-mile		5:00	5:30	5:00	6:40
N	SE	6,7,8	5-mile + 10-mile		4:10	5:40	4:50	6:50
O	SSE	7,8,9	2-mile + 5-mile		4:55	5:30	4:55	6:40
P	SSE	7,8,9	5-mile + 10-mile		4:00	5:40	4:40	6:50
Q	S	8,9,10	2-mile + 5-mile		3:50	5:30	4:30	6:40
R	S	8,9,10	5-mile + 10-mile		4:00	5:40	4:40	6:50
S	SSW	9,10,11	2-mile + 5-mile		3:20	4:50	3:50	5:20
T	SSW	9,10,11	5-mile + 10-mile		4:00	5:40	4:40	6:40
U	SW	10,11,12	2-mile + 5-mile		4:45	5:40	4:50	6:40
V	SW	10,11,12	5-mile + 10-mile		3:55	5:40	4:35	6:40
W	WSW	11,12,13	2-mile + 5-mile		4:45	5:40	4:50	6:40
X	WSW	11,12,13	5-mile + 10-mile		4:05	5:40	4:50	6:40
Y	S	12,13,14	2-mile + 5-mile		4:55	5:40	5:00	6:40
Z	S	12,13,14	5-mile + 10-mile		4:20	5:40	5:05	6:40
AA	WNW	13,14,15	2-mile + 5-mile		4:55	5:40	5:00	6:40
BB	WNW	13,14,15	5-mile + 10-mile		4:25	5:40	5:10	6:40
CC	NW	14,15,16	2-mile + 5-mile		4:05	5:40	4:40	6:40
DD	NW	14,15,16	5-mile + 10-mile		4:25	5:40	5:10	6:40
EE	NNW	15,16,1	2-mile + 5-mile		4:10	5:40	4:45	6:40
FF	NNW	15,16,1	5-mile + 10-mile		4:15	5:40	5:00	6:40
GG	N	16,1,2	2-mile + 5-mile		3:10	4:50	3:40	6:10
HH	N	16,1,2	5-mile + 10-mile		4:15	5:40	5:05	6:40
II		Up River	2-mile + 10-mile		3:25	5:30	4:00	6:40
JJ		Down River	2-mile + 10-mile		3:55	5:40	4:40	6:50
KK			5 - Mile		4:20	5:40	5:05	6:40
LL			Full EPZ		5:00	5:40	5:10	6:50

Figure 1
Emergency Response Planning Areas



Evacuation Travel Time Estimate Notes

1. The evacuation cases represent a range of conditions. In using the Evacuation Travel Time Tables, choose the case which most closely matches the actual condition.
2. Evacuation Travel Times are from the time of decision and include: notification time (15 minutes), preparation time (15 minutes) and a range of mobilization (0-120 minutes).
3. Evacuation Travel Times are for the first wave only. See multiple wave evacuation times by ERPA for only those special facilities and/or transit-dependent populations requiring multiple wave transportation resources. These are indicated by shading. If resources are available to include them in the first wave, use the first wave evacuation travel times.
4. Adverse weather reduces roadway capacity by 20% for the summer and by 30% in the winter. These times can also be used for a reduced state of preparedness.
5. For the development of evacuation times, traffic control was only assumed on Bleakley Avenue at New York and Albany Post Roads in Buchanan. In all other cases, normal traffic control devices and lane utilization is assumed.
6. Evacuation Travel Times represent the time required to evacuate the designated evacuation areas except of the individual ERPA times where it is the time to clear the individual ERPA including vehicles traveling through the ERPA.
7. The Winter Weekday-School in Session Early Dismissal case can be used for the previous case of School not in Session.
8. Since the evacuation times assume a simultaneous evacuation of the entire EP:, evacuation areas can be combined. Choose the evacuation areas which contain all of the ERPAs to be included in the evacuation and use the highest time of the different cases. This also can be applied between evacuation areas and individual ERPA times.
9. The Winter Weekday-School in Session Early Dismissal evacuation travel times assume that school children are at home prior to an evacuation (except for Peekskill City School District and colleges which do not follow the early dismissal plan).
10. West Point U.S. Military Academy football games/graduation increase the evacuation times by 1 hour and 25 minutes.

TO: **Emergency Planning Document Controlled Copy #** 14 **Holder**

NRC Document Control Desk
Document Holder Organization

FROM: **Emergency Planning Document Custodian**

SUBJECT: **Emergency Planning Document Update**

Please update your controlled copy of the documents listed below as specified with the copy(s) attached. It is requested that the update be completed within 3 days of receipt.

Please sign this memo indicating that you have completed the update as specified and return to:

Consolidated Edison
Indian Point Nuclear Generating Station
Emergency Planning Department
Buchanan Service Center
Broadway & Bleakley Aves.
Buchanan, NY 10511
Attn: Document Custodian

Document #	Document Name	New Rev. #/ Date	Old Rev. #/ Date	Instructions
TOC	Emergency Plan Implementing Procedures Table of Contents	01/12/01	11/01/00	Replace entire document
Divider Tab	IP-1026	N/A	**New**	Place new tab in sequence with IP-1026
IP-1005	MS-2 / SPA-3 to Determine Thyroid Burdens	**Cancel**	**6** - 9/1/99	Remove Procedure & Tab
IP-1006	Site Perimeter Survey	**Cancel**	**6** - 9/1/99	Remove Procedure & Tab
IP-1015	Radiological Surveys Outside the Protected Area (Title Change)	**8** - 1/12/01	**7** - 9/13/99	Replace entire document
IP-1019	Coordination of Corporate Response (Title Change)	**9** – 1/12/01	**8** – 9/1/99	Replace entire document
IP-1020	Airborne Activity Determination	**8** – 1/12/01	**7** – 9/1/99	Replace entire document
IP-1023	Operations Support Center	**14** – 1/12/01	**13** – 3/28/00	Replace entire document
IP-1024	Emergency Classification	**8** – 1/12/01	**7** – 9/1/99	Replace entire document
IP-1026	Emergency Data Acquisition	**0** – 1/12/01	**New**	Place new document after Tab
IP-1027	Personnel Accountability and Evacuation	**12** – 1/12/01	**11** – 5/27/00	Replace entire document
IP-1028	Onsite (Out of Plant) Surveys	**Cancel**	**7** – 9/1/99	Remove Procedure & Tab
IP-1030	Emergency Operations Facility	**3** – 1/12/01	**2** – 9/15/00	Replace entire document
IP-1039	Offsite Contamination Checks	**9** – 1/12/01	**8** – 9/1/99	Replace entire document
IP-1040	Relocation of Personnel Dosimetry Facilities	**Cancel**	**8** – 9/1/99	Remove Procedure & Tab
IP-1041	Use of Triton for Monitoring Radiogas	**Cancel**	**5** – 9/1/99	Remove Procedure & Tab
IP-1042	In-Plant Radiological Surveys and Sampling	**Cancel**	**6** – 9/1/99	Remove Procedure & Tab

Update completed as specified: _____ _____
Signature of Controlled Copy Holder Date

Emergency Plan Implementing Procedures
Table of Contents

CONTROLLED COPY

Procedure No.	Procedure Title	Rev. No.	Effective Date
IP-1001	Mobilization of Onsite Emergency Organization	10	3/28/00
IP-1002	Emergency Notification and Communication	21	10/18/00
IP-1003	Planned Discharge of Containment Atmosphere During Accident Conditions	6	9/1/99
IP-1004	Post Accident Offsite Environmental Surveys, Sampling and Counting	5	9/1/99
IP-1005	Cancelled	--	01/12/01
IP-1006	Cancelled	--	01/12/01
IP-1007	Dose Assessment	10	9/1/99
IP-1008	Personnel Radiological Check and Decontamination	6	9/1/99
IP-1009	Radiological Check and Decontamination of Vehicles	7	9/1/99
IP-1011	Joint News Center	0	11/1/00
IP-1012	Onsite Medical Emergency	9	4/30/98
IP-1013	Protective Action Recommendations	8	11/1/99
IP-1014	Radiological Check of Equipment Before It Leaves the Site	6	9/1/99
IP-1015	Radiological Surveys Outside the Protected Area (Title Change)	8	01/12/01
IP-1016	Obtaining Meteorological Data	12	9/1/99
IP-1017	Issuance and Use of Radiological Equipment Stored in the Command Guard House	9	9/1/99
IP-1018	Media Relations	8	11/1/00
IP-1019	Coordination of Corporate Response (Title Change)	9	01/12/01
IP-1020	Airborne Activity Determination	8	01/12/01
IP-1021	Manual Update, Readout and Printout of Proteus Plant Parameter Data	5	9/1/99
IP-1022	Obtaining Meteorological, Radiological and Dose Assessment Data from MIDAS	5	9/1/99
IP-1023	Operations Support Center (OSC)	14	01/12/01
IP-1024	Emergency Classification	8	01/12/01
IP-1025	Handling Fire Department Personnel Fighting Fires in the Controlled Area	7	9/1/99

Emergency Plan Implementing Procedures
Table of Contents

Procedure No.	Procedure Title	Rev. No.	Effective Date
IP-1026	Emergency Data Acquisition	0	01/12/01
IP-1027	Personnel Accountability and Evacuation	12	01/12/01
IP-1028	Cancelled	--	01/12/01
IP-1030	Emergency Operations Facility (EOF)	3	01/12/01
IP-1031	Air Raid Alert	7	9/1/99
IP-1032	Tornado Emergency	5	9/1/99
IP-1035	Technical Support Center (TSC)	15	3/28/00
IP-1036	Estimation of Population dose Within the 10 Mile Emergency Planning Zone	6	9/1/99
IP-1037	Obtaining Offsite Reuter-Stokes Monitor Data	8	9/1/99
IP-1039	Offsite Contamination Checks	9	01/12/01
IP-1040	Cancelled	--	01/12/01
IP-1041	Cancelled	--	01/12/01
IP-1042	Cancelled	--	01/12/01
IP-1044	Cancelled	--	5/27/00
IP-1045	Activation of Alternate Emergency Operations Facility	8	9/1/99
IP-1046	Responsibilities of Con Edison Personnel During Emergencies at Unit No. 3	7	9/1/99
IP-1047	Obtaining Offsite Exposure Rates From Midas Using a Data Terminal	7	9/1/99
IP-1048	Termination and Recovery	8	5/27/00
IP-1049	Cancelled	--	5/27/00
IAP-10	Shift Manager	14	3/28/00
IAP-12	Watch Health Physics Technician (WHPT)	8	9/1/99
IAP-14	Cancelled	--	5/27/00

CONTROLLED COPY

RADIOLOGICAL SURVEYS OUTSIDE PROTECTED AREA

	Print Name	Signature	Date
Prepared by:	Al Lee		9/7/00
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Radiological Surveys Outside the Protected Area

1.0 PURPOSE

To describe the mobilization and duties of the Field Monitoring Teams that are involved with the response during Alert, Site Area and General Emergencies.

2.0 DISCUSSION

2.1 Two offsite monitoring teams from Con Edison respond to the emergency. The Shift Manager will call the New York Power Authority (NYPA) Unit No. 3 to request their offsite team to respond. During normal working hours the Con Edison team members are available on-site and report to the EOF when the assembly alarm is sounded. During off-hours the Offsite teams respond, within 60 minutes, to the location identified in the emergency notification message.

2.2 Onsite (out of Plant) is the area located outside of the Protected Area fence, but within the site boundary. The Emergency Director (ED) or the Offsite Radiological Assessment Director (ORAD) is responsible for initiating the performance of field surveys. The onsite monitoring team(s), operating from the EOF, perform the surveys. The surveys comprise beta and gamma readings taken with an ionization chamber instrument. The survey teams obtain personnel monitoring devices and survey instruments at the EOF. In addition, any respiratory protection equipment and KI that might be needed by the onsite monitoring team shall be specified by the Emergency Director/Offsite Radiological Assessment Director and obtained at the EOF.

2.3 The site boundary map, located in the EOF, may be used for planning and identifying the areas to be surveyed by the team(s).

2.4 Site perimeter surveys are performed to confirm whether or not an uncontrolled release of radioactive material to the atmosphere has occurred and to determine exposure rates. Site perimeter surveys indicate the MAXIMUM exposure rate, at that specific point in time, that members of the offsite population in the vicinity of the site may experience. Exposure rates generally decrease away from site due to the dispersion of radioactive material.

2.5 The normal responsibility for initiating the site perimeter survey AND the team performing the survey is as follows:

Perimeter Sector	Initiation Responsibility	Team
2 - 3	ORAD	Offsite
4 - 13	ORAD	Onsite
14,15,16,1	EPM / RPC	Inplant HP

2.6 In sectors where access to the site perimeter location is difficult (Sector 2 and 3) OR is NOT consistent with the ALARA concept, readings should be taken at a point further away from the site on the plume centerline. These readings then can be used to calculate the site boundary readings.

3.0 PRECAUTIONS AND LIMITATION

3.1 To provide access to all areas the Onsite Monitoring Team should normally consist of a Health Physics Technician (HPT) plus a Security Guard with a vehicle.

3.2 Sectors 1, 2, 12, 13 THROUGH 16 have plume going out over the water before it touches public OR private land. Site boundary Xu/Q in IP-1007, Dose Assessment is taken to be at the land fall point at the sector center.

3.3 Environmental sampling points are specified by the ORAD OR Communicator by sector/mile (see Addendum 8.1).

3.4 Unit No. 3 offsite teams should mobilize according to their procedures. AFTER the mobilization they shall report to the Con Edison ORAD for briefing BEFORE leaving site.

4.0 EQUIPMENT AND MATERIALS

4.1 The monitoring team shall obtain the following equipment before leaving the EOF. This equipment is stored in the EOF cabinet.

4.1.1 Portable radio (comes with the Security Guard).

4.1.2 Ion chamber survey instrument (5 R/hr range).

4.1.3 TLD badge.

4.1.4 Dosimeters (0-500 and 0-5000 mrem).

4.1.5 KI (if, in the judgement of the ED/ORAD, the individual could be expected to receive a thyroid exposure GREATER THAN 25 Rem CDE thyroid).

4.1.6 Iodine cartridge respirator (as directed by the ED/ORAD).

4.1.7 Site boundary map (Addendum 8.1).

4.2 Individuals performing site parameter surveys within the protected area shall obtain equipment from OSC.

5.0 INSTRUCTIONS

5.1 Initial Team Actions

5.1.1 Report to the EOF for team assignments.

5.1.2 BEFORE leaving the EOF OR AEOF parking area the following actions shall be performed:

A. EACH individual obtains a bottle of KI from the EOF OR AEOF. KI is taken at the direction of the ED or ORAD.

B. EACH individual selects a TLD badge and dosimeter from the truck supplies and wears them.

C. EACH individual selects respirator with iodine filters for use as directed by the ED OR ORAD.

Note:
Anti-C clothing is NOT worn off-site unless directed by the ORAD.

D. Check the operation of the ion chamber survey instrument, the sample counters AND the sample pumps.

(1) Ion Chamber - 5 uCi Cs-137 source on contact with unshielded chamber gives an APPROXIMATE 15 mR/hr indication.

(2) Counter - Reference IP-1020, Airborne Radioiodine Determination.

E. There is NO need to check the emergency vehicle for contamination BEFORE leaving the Indian Point Site UNLESS there has been an airborne release to the environment.

F. Check to ascertain that ALL equipment listed on the Monitoring Team Equipment Inventory (Form IP-1015-1) is present and calibration dates are current.

G. Contact the EOF or AEOF by radio AND report you are proceeding to sample point.

5.2 Onsite (Out of Plant) Field Surveys

5.2.1 Consult with ORAD for required surveys:

A. Identify area(s) requiring survey.

(1) Request review of site boundary map to determine areas of the site requiring a field survey. Some areas within the protected area boundary may be (or have already been) surveyed by Health Physics and should be considered when developing the survey plan.

(2) Determine travel route(s).

(3) Team members (team normally consists of a Health Physics Technician (HPT) and Security Guard with vehicle.

B. Discuss expected radiation and airborne contamination levels that the team may encounter:

(1) Minimize exposure. Plan for capability to maintain personnel exposure BELOW 5 Rem TEDE.

(2) Establish 1 R/hr field entry limit: Survey teams shall NOT enter areas where the radiation fields EXCEED 1 R/hr WITHOUT permission of the ORAD.

C. IF SG tube rupture event, THEN evaluate thyroid exposure due to radioiodines (NG/I ratios are considered to be as low as 100/1).

D. IF expected thyroid exposure 25 Rem CDE thyroid or more, THEN have ORAD consider issuing KI to EACH member of the team.

E. Have the ORAD determine whether respiratory protection is required as per Reference 6.1.

5.2.2 Get equipment:

A. EACH team member shall obtain a TLD badge and dosimeters (0-500 and 0- 5000 mrem or equivalent).

B. Ion chamber survey instrument (5 R/hr range).

C. Radio (comes with the Security Guard).

D. Get EOF telephone number to use in case of radio failure.

E. KI (if, in the judgement of the ED/ORAD, the individual could be expected to receive a thyroid exposure GREATER THAN 25 Rem CDE thyroid).

F. Iodine cartridge respirator, as directed by the ED/ORAD.

G. Site boundary map (Addendum 8.1).

H. Survey forms Field Survey Form (IP-1015-2).

I. Vehicle (normally provided with Security team member).

5.2.3 Check survey instrument:

A. Verify current calibration.

B. Do battery check.

C. Source check the survey instrument . Use the 5 µCi Cs-137 source. In the beta plus gamma mode the instrument indication should be APPROXIMATELY 15 mR/hr on contact.

5.2.4 Make initial radio contact:

A. Energize the radio AND contact the EOF Communicator BEFORE leaving the EOF parking area.

B. Make sure information about radiological conditions is still current.

C. Proceed to designated survey location.

5.2.5 Take field readings:

NOTES:

Gamma and beta field readings are normally highest at the center of the plume.

Addendum 4 of this procedure, Offsite Emergency Sampling Sites, provides directions to pre determined sampling sites.

A. Take open window (beta and gamma) and closed window (gamma) field readings during transit.

B. Determine beta reading: Subtract the closed window (CW) reading from the open window (OW) reading AND multiply the difference by 2 for mRad/hr beta.

C. Record the readings on Field Survey Form (IP-1015-2).

NOTE:

Opened window readings greater than closed window readings may be indication of nearby airborne or surface contamination.

D. Maintain radio contact with the EOF:

(1) Inform the Communicator of unexpected elevated readings as you proceed to the specified survey area.

(2) IF radio fails, THEN contact EOF by any other available means (e.g., telephone, cell phone, etc.). IF still unable to make contact, THEN return to EOF AND check yourself for contamination, if appropriate, prior to re-entry.

E. Do survey at required locations:

(1) Make sure to use specified personal protective equipment.

(2) Perform a beta and gamma survey at the specified location.

(3) Record results on Field Survey Form (IP-1015-2).

(4) Periodically check personal exposure.

(5) Communicate the results to EOF.

F. Contact EOF AND determine if additional surveys needed (proceed accordingly):

(1) Check if EOF requires plume centerline determination. IF required, THEN traverse plume in cross wind direction and identify maximum dose rate.

(2) Take OW and CW readings AND record results on survey form.

G. WHEN survey activities are completed, THEN do the following:

(1) Check yourself for contamination, if appropriate.

(2) Return to EOF.

(3) Submit data forms to the ORAD.

5.3 Mobilization and Operations of Offsite Monitoring Teams

5.3.1 Arrival At Emergency Operations Facility (EOF).

A. Normal Work Day: arrive at EOF WITH emergency vehicle.

(1) Report to the Offsite Radiological Assessment Director (ORAD) at the EOF. Contact the Unit No. 2 Control Room using the area radio, telephone or cell phone AND notify them of your availability.

B. Off-Hours: arrival WITHOUT emergency vehicle.

(1) EOF - Report to the ORAD. Vehicle keys are located in the EOF cabinet. Contact the Unit No. 2 Control Room using the area radio, telephone or cell phone AND notify them of your availability.

(2) AEOF - Report to the ORAD to find out IF any radiological problems are associated WITH the vehicles from the site. IF the ORAD has NOT arrived yet wait for him. Place a call to the Unit 2 Control Room using the area radio, telephone or cell phone AND notify them of your availability.

5.3.2 Emergency Radiological Surveys

A. Receive instructions via the radio or cell phone to PROCEED to an emergency sample site to perform surveys. Verify the instructions AND sample site location WITH the EOF communicator by repeating them over the radio channel/cell phone.

NOTE:
Beta field readings are obtained by subtracting the gamma field reading (closed window) from the beta/gamma field reading (open window) and multiplying by two.

B. WHEN proceeding to the specified sampling point, take beta/gamma (OW) AND gamma (CW) readings periodically by holding the ion chamber instrument outside the vehicle as you proceed along. Relate these readings to known areas such as intersections, shopping centers, etc. AND record on Field Survey Form (IP-1015-2). DO NOT enter areas where the gamma field reading is GREATER THAN 1 R/hr WITHOUT permission of the ORAD. AFTER arriving at the sample point transmit these readings to the EOF. DO NOT remain in areas where the gamma field reading is GREATER THAN 100 mR/hr WITHOUT permission of the ORAD.

C. Perform beta AND gamma field surveys at the sample point. Perform Beta/Gamma surveys 3' and 3" above ground, away from other contaminated surfaces. A difference between Open Window and Closed Window readings is indicative of airborne activity or surface contamination. Record on Field Survey Form (IP-1015-2).

D. Take an air sample (1000 liters OR 10 cubic feet unless otherwise directed by the ORAD OR EOF Communicator). Use plastic gloves to protect your hands. Take precautions to prevent spreading contamination especially to another filter OR to yourself. Avoid touching the samples.

(1) Use silver/zeolite filters WHEN the beta field survey indicates GREATER THAN 50 mRad/hr OR WHEN the indicated radioiodine activity on a charcoal filter is GREATER THAN 10^{-8} μci/cc.

(2) IF the designated sampling location corresponds to a fixed sampling location (asterisk Addendum 8.1), the filters shall be removed IMMEDIATELY UPON ARRIVING at the sample point AND counted. This is in addition to taking a sample as just described. New filters shall be placed in the sampling system at the time the used filters are removed.

NOTE:
Unless otherwise directed, use an hp-21ot (tungsten shielded detector) and count the samples where the background gamma reading is less than 1mr/hr. With either the e-140n or the rm-14 background must be less than 4000 cpm to detect an iodine concentration of 1.0e-08 micro ci/cc in an air sample of 10 cubic feet (300 liters).

5.3.3 Using the counting equipment count the particulate AND charcoal/zeolite filters according to procedure Reference 6.2. Approximately 25,000 CPM may be the equivalent of 25 Rem/hr. CDE thyroid. Record on Form 21.

5.3.4 Place the filter in a container, i.e., envelope OR plastic bag to prevent cross contamination of samples. Use a label, tag OR grease pencil to identify the filters (date, time, volume, location), AND save them for later isotopic determination.

5.3.5 Contact the EOF via the radio or cell phone AND report the following:

A. The sample point.

B. Beta/gamma (OW) AND gamma (CW) readings obtained while proceeding to the sample point.

C. Beta/gamma (OW) AND gamma (CW) readings obtained at the sample point.

D. Total filter AND background CPM, sample volume in FT^3 AND background CPM for EACH particulate AND EACH charcoal/silver zeolite filter.

E. There are certain areas, especially in sectors 13, 14, 15, AND 16 where the mountainous terrain interferes WITH the reception from OR transmission to the EOF. Move the vehicle to another area OR use another vehicle to relay messages.

5.3.6 Request further instructions from the Communicator. DO NOT remain in high field areas.

5.4 Site Perimeter Survey

NOTE:
The site perimeter locations for sectors 2 and 3 are not accessible to a vehicle. Annsville circle and Charles point are substituted for sectors 2 and 3, respectively and are assigned to an offsite team. Onsite teams are kept onsite.

5.4.1 Onsite Team - Perimeter sectors 4 THROUGH 13.

A. ORAD OR designee, contacts the Security Supervisor by radio OR phone AND requests a vehicle AND driver to report to the EOF for temporary assignment to perimeter surveys.

B. The ORAD, using the site map (Addendum 8.1) should designate the perimeter segments which are surveyed.

C. The ORAD should consider issuance of KI to EACH team member IF the expected thyroid exposure is GREATER THAN 25 Rem. KI is located at the EOF and its use is authorized by the ED.

D. EACH team member shall have a TLD badge AND dosimeter. The Security Guard shall be issued a TLD badge AND dosimeter at the Command Guard House while the Health Physics Technician shall be issued devices at the EOF.

E. Anti-C clothing shall be issued ONLY WHEN conditions warrant it.

F. Obtain an ion chamber survey instrument from the EOF cabinet AND check its operation. A 5 uCi Cs-137 source on contact with unshielded chamber gives an APPROXIMATE 15 mR/hr indication.

G. Contact the EOF by radio AND report you are proceeding to perimeter sector.

NOTE:
Gamma and beta field readings will normally be highest at the center of the plume.

H. Take beta AND gamma field readings as you proceed to the specified perimeter sector. DO NOT enter areas where the gamma field reading is GREATER THAN 1R/hr without permission of the ORAD. Record on FORM 10.

(1) Beta field readings are determined by taking field readings WITH the survey instrument detection window shielded (Gamma) AND unshielded (Gamma AND Beta). Subtract the shielded reading from the unshielded reading. Multiply the difference by two for true mRad/hr.

NOTE:
IF the radio fails report back to the EOF.

I. Maintain radio contact WITH the EOF AND inform the ORAD of significant readings.

J. Take enough beta AND gamma field readings at the specified perimeter sectors to identify the APPROXIMATE width AND centerline of the plume. Record on FORM 10 AND report the readings to the ORAD via radio.

K. Turn in data form to ORAD at EOF.

5.4.2 Offsite Team - Perimeter sectors 2 THROUGH 13.

A. Substitute Annsville Circle and Charles Point for perimeter sectors 2 AND 3 respectively.

B. Assignment to perform surveys at the site boundary shall be at the discretion of the ORAD. The Offsite Team shall perform their duties as indicated in Reference 6.1.

5.4.3 In-plant Health Physics Technician (HPT) - Perimeter sectors 14, 15, 16 and

A. SM/POM determines, using the site map (Addendum 8.1), that surveys shall be performed at perimeter sectors 14, 15, 16 AND

B. SM/POM should consider authorizing use of KI by the HPT IF the expected thyroid exposure is GREATER THAN 25 Rem. KI is located in the Control Room emergency locker.

C. The HPT shall wear his TLD badge AND 1-2K Rem dosimeter.

D. The HPT shall wear an iodine filter respirator, coveralls, hat, gloves AND shoe covers IF the radiological release is due to a steam generator tube rupture.

E. Use an ion chamber survey instrument with a range AT LEAST to 5 R/hr AND check its operation. The instrument may be obtained from the Operational Support Center OR from the Watch Health Physics Office at the 53' el. N.S.B. entry point. A 5 uCi Cs-137 source on contract WITH unshielded chamber gives an APPROXIMATE 15 mR/hr indication.

F. Take beta AND gamma field readings as you proceed to the specified perimeter sector. Record on FORM 10. DO NOT enter area where the gamma field reading is GREATER THAN 1 R/hr without permission of the SM/POM.

(1) Beta field readings are determined by taking field readings WITH the survey instrument detector window shielded (Gamma) AND unshielded (Gamma AND Beta). Subtract the shielded reading from the unshielded reading AND multiply the difference by two.

(2) Beta readings shall be taken WITH the unshielded chamber looking at the area of interest, i.e., Noble Gas cloud--facing sky, surface contamination--ground.

G. Turn in data form to ORAD or Rad Protection Coordinator.

5.5 Deactivation of Monitoring Teams

5.5.1 UPON return to the EOF parking area, check the survey vehicle for contamination. Refer to procedure IP-1039, Offsite Contamination Checks.

5.5.2 Turn in ALL completed FORMS to the ORAD.

5.5.3 Storage of environmental samples

A. Determine from the ORAD whether the samples (air, water, soil, etc.) are to be stored in the Environmental Building OR the EOF electrical equipment room overnight.

B. Ensure samples are properly labeled and stored in the designated area.

5.5.4 Restore emergency equipment

A. Return all equipment to its proper storage area

B. Ensure documentation of any equipment deficiencies noted during the event.

6.0 REFERENCES

6.1 RS-10.001, "Issuance of Respiratory Protection Device"

7.0 ATTACHMENTS

NONE

8.0 ADDENDUM

8.1 Site Perimeter Survey Map

8.2 Monitoring Team Equipment Inventory (Form IP-1015-1)

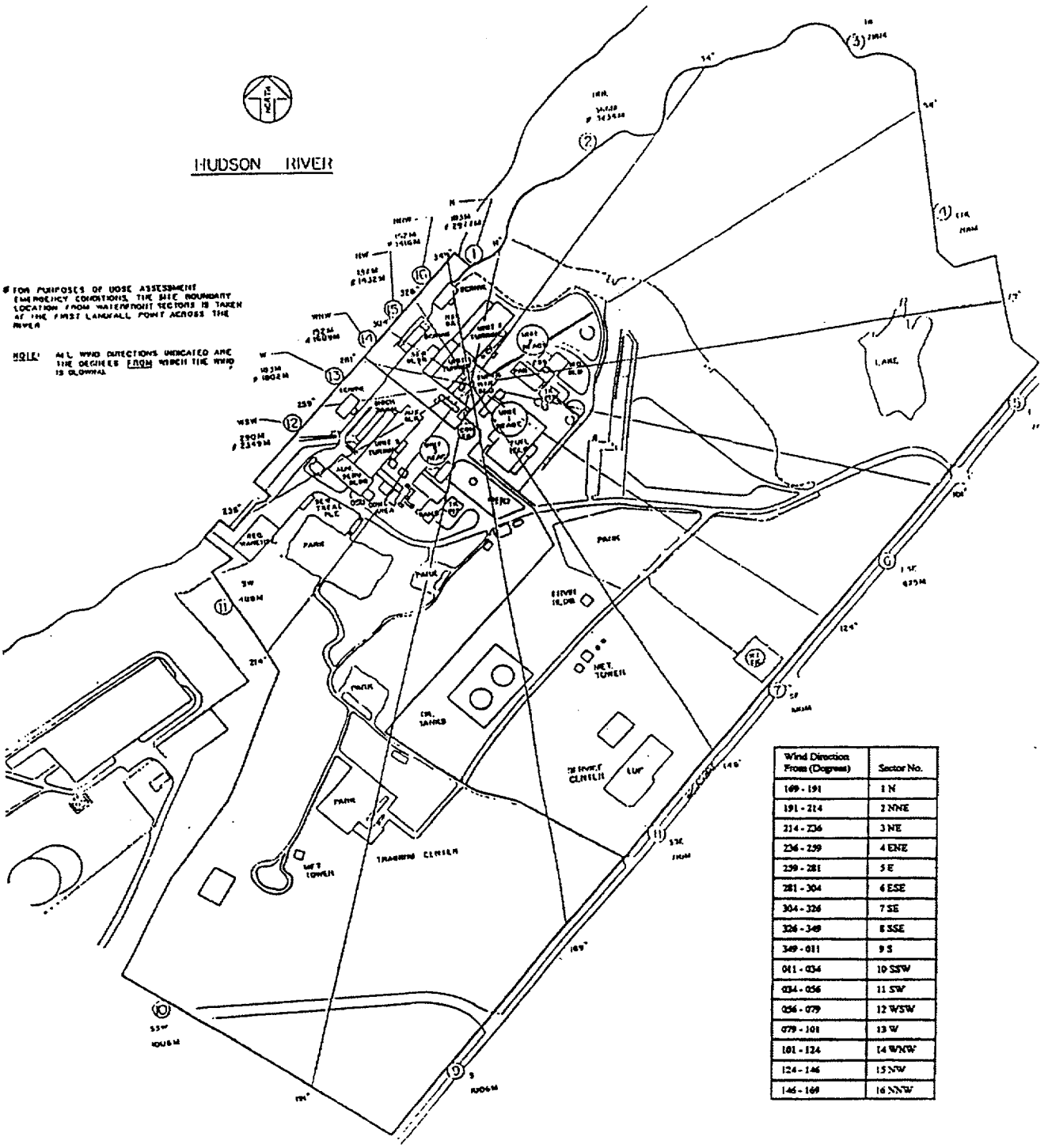
8.3 Field Survey Form (Form IP-1015-2)

8.4 Offsite Emergency Sampling Sites

ADDENDUM1

Site Monitoring Map

Sheet 1 of 1



Wind Direction From (Degrees)	Sector No.
169 - 191	1 N
191 - 214	2 NNE
214 - 236	3 NE
236 - 259	4 ENE
259 - 281	5 E
281 - 304	6 ESE
304 - 326	7 SE
326 - 349	8 SSE
349 - 011	9 S
011 - 034	10 SSW
034 - 056	11 SW
056 - 079	12 WSW
079 - 101	13 W
101 - 124	14 WNW
124 - 146	15 NW
146 - 169	16 NNW

ADDENDUM 2
Monitoring Team Equipment Inventory (Form IP-1015-1)
Sheet 1 of 1

Monitoring Team Equipment Inventory

Amount	Item	Cond. Found	Calib. Due Date	Disposition	Date Corrected
3	Sets Respirators/w/iodine cart.				
1	Face Shield and set of Rubber Electrical Gloves				
1	Site map showing perimeter points		N/A		
2	TLD badges	*			
2	500 mrem dosimeters	*			
2	5000 mrem dosimeters	*			
1 ea.	E-140N/HP-210/SH-4 Counter/Check Source (with spare set of batteries)	*			
1	RO-2 (with spare set of batteries)	*			
1	Air Sampler(DC) with 3 sample heads	*			
1	Environ. Sampl. Kit (IP Veh. only)		N/A		
1	Mobile Radio		N/A		
1	Filter Holder (3 part)		N/A		
50	Particulate Filters		N/A		
10	Charcoal Filters		N/A		
10	Silver Zeolite Filters		N/A		
2	Pencils or Pens		N/A		
1	Dosimeter Charger	*	N/A		
1	NEM Proc Book(Samp Coll)(IP Veh. only)		N/A		
1	5-10 uCi Cs-137 Source		N/A		
10 ea.	Spare Forms (IP-1015-1,2)		N/A		
2	Fuses or flashlight		N/A		
1	Lantern or flashlight	*	N/A		
10 ea.	Sample envelopes & plastic bag		N/A		
1	Set of 4 County Road Maps (Hagstrom)		N/A		
1	10 Mile wind sector map		N/A		
1	Stop Watch		N/A		
1 roll	Tape		N/A		
1 ea.	Package of gauze & wipes paper smears		N/A		
10 pr.	Plastic gloves		N/A		
1 ea.	Field Monitoring Team Position Binder		N/A		

* Dosimeters are to be functionally checked by inserting EACH dosimeter into a charger AND adjusting the hairline up AND down scale. Dosimeters should be left zeroed. Survey meters and sample counters are to be functionally checked by observing response to a check source AND checking the battery indication where appropriate. Air samplers are energized and run for 10 seconds. Lantern and watch to be operated.

NOTE: Response means upscale indication on lowest range of survey instrument and a count rate double background on sample to be operated.

Form IP-1015-1 Rev 0

ADDENDUM 3
Field Survey Form (Form IP-1015-2)
Sheet 1 of 1

FIELD SURVEY FORM

Instrument Model No.: _____ Serial No.:

Name: _____ Date:

SURVEY LOCATION OR SITE (Perimeter Sector Number)	TIME	OW mR/hr	CW mR/hr	(OW-CW)X2 mrad/hr	REMARKS

Form IP-1015-2 Rev 0

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 1 of 9

All Routes Start With Route 287 West to Either Route 9A North or Tappan Zee Bridge to Route 87 North (NYS Thruway)

Sector/ Mile	Map Number (Coordinates)	Location	Directions
1-2	W-1 (B-5)	Roa Hook RD.. & Bear Mountain Bridge Road (Sanitation Garage) Rd..	Rte. 9 north to Annsville Circle Rts 6 & 202 west to 1st left Roa Hook Road to garage
1-7	W-1 (A-3)	Route 9D in front of Retreat House	See sector 1-2. West on Bear Mt. Bridge Rd.. RT on Rte. 9D. North on to entrance of retreat house
1-10	P-2 (C-7)	Route 9D & Derham to Rte. Cross Rd location	Rt. 9 north to Rte. 403 Rd.. 9D. RT on Rte. 9D to past bridge
2-2	W-1 (C-5)	Old Pemart Ave. (TLD Site)	Rte. 9 north to Rte's 202& 6 (Main St.) RT on Main St. to river. RT at bottom of hill along R.R. tracks to location
2-3	W-1 (C-4)	Sprout Brook Rd. & Rte. 9 Highland Ave.	north to Bear Mtn. Exten. north to Highland Ave. (2nd exit) RT on Highland Ave. to SunocoStation
2-6	W-1 (D-4)	Canopus Hollow Rd. & Old Albany Post Rd.	Rte. 9 north to Bear Mtn. Exten. North on Exten. to Division St. Exit LT on Division St. to Oregon Rd. North on Oregon Rd. to Gallows Hill Rd. LT on Gallows Hill Rd. to Canopus Hollow Rd.

*Fixed sampling locations

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 2 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
2-10	P-3 (D-10)	Canopus Hollow Rd. & Bell Hollow Rd.	See 2-6, proceed north on Canopus Hollow Rd. to intersection of Bell Hollow Rd.
3-1	W-2 (C-6)	Louisa St. Off Lower South St. @ R.R. Bridge	Rt. 9 north to Welcher Avenue Exit. LT to South St. RT on South to Louisa St. LT to R.R. Bridge
3-3	W-1 (D-5)	Hillcrest School	Rte. 9 north to Bear Mountain Exten. North to Carhart Ave. RT to Leda Drive. RT to school
3-6	W-1 (E-3)	Oregon Rd. & Peekskill Hollow Rd.	Rte. 9 north to Bear Mountain Ext Extension north on Oregon Rd. to intersection of Oregon Rd. & Peekskill Hollow Rd.
3-10	P-6 (F-8)	Peekskill Hollow Rd. & Tinker Hill Rd.	See 3-6 Continue past 31/2 Miles to location at intersection
4-1	W-2 (C-6)	Lower South St. at Mearl Corp. Entrance	See 3-1 go past A&P Shopping center to entrance of Mearl Corp. on Lower South St.
4-3	W-2 (D-6)	Maple Ave. @ Entrance to Chapel Hill Estates	Rte. 9 north to Welcher Avenue exit. RT to Washing- ton St. LT on Washington St. to Hudson Ave. RT on Hudson Ave. to Maple Ave. RT on Maple Ave. to entrance to development
4-6	W-11 (F-4)	Lexington Ave. & Townsend Rd.	Rt. 9 north to Rte. 6 east to Lexington Ave. RT on Lexington Ave. to intersection

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 3 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
4-10	W-11 (J-3)	Somerston Rd. & Carol Court	Taconic Parkway north to Route 6 exit. RT on Rte. 6 to Curry St. RT on Curry St. to Weskora Rd. LT on Weskora Rd. to Somerston Rd. Left on Somerston Rd. to 3.02Carol CT.
5-2	W-2 (C-7)	McKinley School Welcher Ave.	Rte. 9 north to Welcher Avenue exit. Rt RT on Welcher to school on left opposite Jackson Ave.
5-4	W-2 (E-7)	Maple Ave. & Furnace Woods Rd.	Rte. 9 north to Montrose Exit. Rte. 9A north to Watch Hill Rd. RT on Watch Hill Rd. to Furnace Woods Rd. to Maple Avenue intersection
5-7	W-12 (G-7)	Hunterbrook Rd @ Coaxial Crossing #571	Rte. 9 north to Rte. 129. North on Route 129 to Hunterbrook Rd. LT on Hunterbrook Rd. to Cable Crossing
5-10 Ave.	W-12 (K-7)	Moseman Rd. @ St.	Taconic Pkway north to Underhill
		Patrick's School	North on Underhill Ave. to Hanover St. Route on Hanover St. to intersection of Moseman Avenue
6-1	W-2 (C-7)	Tensolite Corp. Rt. 9A Buchanan	Rte. 9 north to Welcher Avenue Exit. LT to Rte. 9A to Tensolite Corp entrance
6-3	W-2 (D-8)	Watch Hill Rd. & Mountainside Trail	See 5-4 East Furnace Woods Road to Mountainside Trail
6-7	W-12 (F-8)	Rt. 129 @ Hunter-brook Bridge	Rte. 9 north to Route. 129 exit. North on Rte. 129 to bridge
6-10	W-13 (J-10)	Rt. 100 & Rt. 134	Route 9 north to Route 100 RT on Route 100. North to Route 134.

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 4 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
7-1	W-2 (B-7)	Westchester Ave. & on 1st St.	Rte. 9 north to Welcher Ave. exit. LT on Welcher to Rte. 9A south. LT on Rte. 9A to 2nd trafficlight (Tate Ave.) RT on Tate Ave. to Westchester Ave. RT to First St. intersection
7-4	W-2 (D-8)	Watch Hill Rd. & Westminister Dr.	See 5-4 RT on Watch Hill Rd. to intersection of Westminster Drive
7-6	W-3 (E-11)	Cleveland Dr. & Hughes St.	Rte. 9 north to Rte. 129 exit. North 129 to Old Post Rd. RT to Cleveland Dr. Lt to Hughes St.
7-10	W-4 (G-13)	North State Rd. & Ryder Ave.	Rte. 9 north to North State Rd. RT to Ryder Avenue. intersection
8-1	W-2 (B-7)	Westchester Ave. by School Exit Rd.	See 7-1. Continue past First St. to School School Exit Rd.
8-3	W-3 (C-9)	Crugers R.R. Station	Rte. 9 north to Montrose exit. LT to Crugers Station Road. LT to R.R. Station
8-7*	W-3 (E-12)	Croton Pt. by Permanent Air Sampler	Rte. 9 north to Croton Pt. Avenue. LT to Croton Trailer Pt. Park to trailer site
8-10	W-4 (E-15)	Liberty St. & Hudson St. Ossining	Rte. 9 north to revolutionary Road Rockledge Avenue LT at Liberty St. to Hudson St.

* Fixed Sampling locations

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 5 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
9-1	W-2 (B-8)	14th St. between Broadway and West-	See 8-1. Continue past school exit 14th St.. RT at 14th Street. 1/2 way between Westchester Ave. & Broadway
9-3	W-2 (B-8)	Montrose Pt. Road (End)	Rte. 9 north to Montrose exit. LT to Kings Ferry Rd. LT at traffic light to Montrose Pt. Rd. traffic light. Bear left at light to end of road
9-7	R-6 (M-8)	Rt. 9W & South Mountain Rd. Clarks-town (Short Cover Rd)	Tappan Zee Bridge to Rte. 9 W north. Rte 9W north to intersection of So. Mountain Rd. (Short Cove Rd.)
9-10	R-12 (M-17)	Kings Highway & Old Mill Ln.	Tappan Zee Bridge to NYS Thruway. North to Rte. 303 north. LT to New Rockland Rd. to intersection of Casper Hill Rd. & Kings Highway. RT to intersection of Kings Highway & Old Mill Rd.
10-1 *	W-2 (B-8)	11th St. & Highland Ave. Verplanck	Rte. 9 north to Welcher Avenue exit. LT to Rte. 9A South. LT to Bleakley Ave. RT to Broadway. LT to 11th St. RT to intersection of Highland Ave.
10-4	R-6 (L-7)	Beach Road & Grassy Pt. Road	Tappan Zee Bridge to Rte. 9W north to Worth to Rte. 210. RT to intersection of Beach Rd. & Grassy Pt. Rd.
10-7	R-5 (K-8)	Little Tor Road & South Mountain Rd.	Tappan Zee Bridge to Rte. 9W north 9W north. Rte. 9W north to Rte. 202. LT at Rte. 202 to Central Highway. LT at Central Highway to intersection of So. Mountain Rd. & Central Highway & Little Tor Road.

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 6 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
10-10 Parkway	R-8 (J-12)	West Clarkstown Rd.	Tappan Zee Bridge to Palisades
		@ Palisades Parkway Overpass	north to exit 11 (New Hempstead Road) RT at West Clarkstown Rd. to overpass of Parkway
11-1	W-2 (B-8)	White Beach @ 9th St. Verplanck	See Sector 10-1. Take Broadway to 9th St. RT at 9th St. to river. Go past guard house to beach area.
11-3	R-3 (K-5)	Gilmore Dr. & Adams Drive	Tappan Zee Bridge to Route. RT 9W North to Stony Point. LT at Adams Dr. to Gilmore Dr.
11-6 Parkway	R-3 (J-6)	Willow Grove Rd. &	Tappan Zee Bridge to Palisades
		Knapp Road	north to exit 14. RT on Willow Grove Rd. to intersection of Knapp Rd.
11-10 Parkway	R-8 (H-10)	Haverstraw Rd. &	Tappan Zee Bridge to Palisades
		Wilder Rd., Rte. 202	north to exit 11 (New Hempstead Rd.) LT to Gradview Ave. RT to Forshay Rd. which goes into Wilder Rd. to intersection of Rte. 202
12-2	R-3 (K-6)	Gays Hill Rd (South) & Route 9W	Tappan Zee Bridge to Route 9W North. North on Route 9W to Stony Pt. to intersection of Route 9W and Gays Hill Road (south)
12-4 North	R-3 (J-5)	Bulsontown Rd. &	Tappan Zee to Palisades Parkway
		Intersection 1st left Past France Rd.	Parkway north to Exit 15 (Route 210). LT on Route 210 to Cedar Pond Rd. LT on Cedar Pond Rd. to Bulsontown Road LT at Bulsontown Rd to 1st Road on left past Franck Road

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 7 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
12-7 Park-	R-2 (F-6)	Lake Welch Parkway By Sewage Plant	Tappan Zee Bridge to Palisades way north to Exit 16. LT onto Lake Welch Parkway to Sewage Plant (Rd. closed during winter months)
12-10	R-2 (E-7)	Lake Welch Pkwy & 7 Lakes Parkway	See 12-7, continue on Lake Welch Parkway to intersection of Seven Lakes Parkway. (Road closed during winter months)
13-2	R-3 (L-4)	Gays Hill Rd. North & Route 9W	See 12-2, pass south end and continue to north end of Gays Hill Road.
13-3	R-3 (K-4)	Mott Farm Rd @ Entrance to Camp	Tappan Zee Bridge to Route 9W North. Route 9W north Addison Boyce to intersection of Route 9W & Mott Farm Rd. LT on Mott Farm Rd. to Camp Addison Boyce
13-9 Lakes	O-21 (W-16)	Arden Valley Rd. & Arden Road	Palisades Parkway north to Seven Circle. LT on Seven Lakes Parkway to Lake Tiorati Circle. Route at Arden Valley Road to intersection of Arden Road
14-2	R-1 (L-3)	Route 9W @ Reuter Stokes Location #14	Tappan Zee Bridge to Route 9W North. Route 9W north to Stony Point to location
14-6	O-18 (Z-14)	Route 6, 1 mile West of Palisades Pkwy	Tappan Zee Bridge north to Palisades Parkway (7 Lakes Circle) north to seven Lakes Circle and Rte. 6. Take Route 6 West 1 mile.

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 8 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
15-1	R-1 (L-2)	Route 9W (Near Anchor Monument)	Route 9A north to Rte 9 to to 6 & 202 west to Bear Mountain Bridge. West on bridge to Route 9W south to monument directly across from Indian Point
15-4	R-1 (L-1)	At front of Bear Mount Inn	See 15-1. Stop at Bear Mountain Inn 1/2 mile south from bridge (Alter.) Tappan Zee Bridge north to Rte. 9W north to Bear Mountain Inn
15-6	O-18 (BB-13)	Mine Rd. & Weynants Pond Road	See 15-1 & 15-4. Route 9W 9W north to intersection of Old Route 9W. LT at old Rte. 9W to light at Mine Road
15-1 0	O-13 (Y-11)	Mineral Springs Road & County Route 34	See 14-10. Continue on Smith Clove Rd (Cty. Rte. 9) north to intersection of Cty. Route 34 & Mineral Springs Rd.
16-1	R-1 (L-3)	Ayers Rd Jones Pt. or (TLD Site) Reuter	See 11-1 or 15-4, Route 9W south to Ayers Road Stokes Location #16 LT on Ayers Rd. to TLD Site by Reuter Stokes Location #16
16-4	R-1 (K-1)	Bear Mt. Bridge (West End)	See 15-1 & 15-4. Stop at West end of bridge at circle

ADDENDUM 4
Offsite Emergency Sampling Points
Sheet 9 of 9

Sector/ Mile	Map Number (Coordinates)	Location	Directions
16-6	O-18 (BB-13)	0.4 miles West of Junction of Rte's 9W &	See 15-1 & 15-4. North on on Rte. 9W to intersection 9W & section of Rte. 218. LT on Rte. 218 (0.4 miles in)
16-9	O-18 (BB-11)	Route 9W & Route 293	See 15-1 & 15-4. North on Route 9W to intersection of Route 293

Key for County Maps

W- Westchester County Map
R- Rockland County Map
P- Putnam County Map
O- Orange County Map

Map Number and Coordinates based on Hagstrom County Atlases.

Example: W-1 (B-5) refers to the Westchester County Hagstrom map number 1 coordinate B-5

Coordination of Corporate Response

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Biennial Review

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Coordination of Corporate Response

1.0 PURPOSE

1.1 To describe the coordination of corporate support as well as delineating the responsibilities and actions of the Administration and Logistics Manager.

1.2 Provide guidance for obtaining needed support

2.0 DISCUSSION

2.1 ConEd is committed to provide all necessary support to the Indian Point Onsite Emergency Response.

2.2 The Control Room (CR) notifies Central Information Group (CIG) or any declared emergency to place the corporate offices on alert.

2.3 The Administration and Logistics Manager (ALM) coordinates requests for administrative and logistics activities through the normal Con Edison organizations.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 NONE

4.0 EQUIPMENT AND MATERIAL

4.1 Computer with access to Corporate LAN

4.2 Office Space

4.2 Phones

5.0 INSTRUCTIONS

NOTE

The Offices across the hall from the EOF in the Buchanan Service Center will normally be set up to provide logistical support for the Emergency Response Organization. This area will be designated as the Corporate Response Center (CRC).

5.1 At an Alert the Admin and Logistics Manager (ALM) shall:

5.1.1 Report to the Emergency Operations Facility informs the EOF Manager and Emergency Director that they are available to assist in obtaining offsite support

5.1.2 Process request from the ED for any corporate or outside support needed.

5.1.3 **IF** the event is expected to last more than 4 hours **THEN** make arrangements for meals for the ERO.

5.2 At a Site Area or General Emergency the Admin and Logistics Manager (ALM) shall:

5.2.1 Report to the Emergency Operations Facility informs the EOF Manager and Emergency Director that they are available to assist in obtaining offsite support

5.2.2 Call in additional support staff to assist. Personnel from the following Sections of the Nuclear Operations Organization should be called:

A. Material Procurement / Purchasing – To procure any items needed to support the emergency response

B. Facilities – to provide additional office space, furniture and/or sleeping arrangements.

C. Nuclear Licensing – to assist in receiving NRC Site Team

5.2.3 Call in additional support, such as clerical to make phone calls or provide document support.

5.2.4 Contact the Corporate Information Group (CIG) to arrange for any corporate groups needed to support response.

5.3 The following ConEd organizations may be called for listed support:

5.3.1 The Security group provides security coverage for the Site, Emergency Operations Facility, Joint News Center and other areas deemed necessary by the Emergency Director.

5.3.2 The Communications group supplies the engineering and maintenance support for the Con Edison Communications System.

5.3.3 The Building Services/Commissary group provides food service, building maintenance and equipment repair and arranges for general housekeeping services and portable sanitary facilities.

5.3.4 The Office Services group provides general office services such as: typing (machines and personnel), reproduction (photostats and drawings), telephone dictation, office supplies, office furniture, mail delivery, photography services, facility and area maps, audio visual aids, graphics printing, and distribution service as required

5.3.5 The Finance group prepares payroll, controls accounts payable, administers cash disbursements and expense accounts.

5.3.6 The Accommodations group provides lodging if necessary for emergency workers and makes arrangements for rental cars and travel on commercial and charter carriers.

5.3.7 The Human Resources group provides for the human resource needs using existing Con Edison personnel and non Con Edison personnel obtained through the New York Power Pool and the Institute of Nuclear Power Operations.

5.3.8 The Purchasing group, acts as purchasing agent to obtain the materials and services required by the Onsite Emergency Response Organization.

5.3.9 The Transportation group provides for transporting supplies from the Con Edison stores facilities, trash removal from the Indian Point Site and Emergency facilities, transportation of material and personnel in support of the Emergency Director, and the repair and maintenance of the transportation fleet.

5.3.10 The Risk Management group handles personnel and public claims against Con Edison, interfaces with the nuclear liability insurance carrier, AND provides advice on insurance coverage to Purchasing.

5.3.11 The Law group provides advice to the Emergency Director as to actions which may violate federal, state or local statutory and regulatory requirements concerning the operation of the Indian Point Station, OR jeopardize coverage of the insurance policies and indemnity agreements. The group also provides legal counsel to Con Edison employees involved in the emergency

5.3.12 The System And Information Processing group provides assistance to develop AND maintain computerized information processing systems.

5.3.13 The Central Stores group helps provide class/stock material.

6.0 REFERENCE

6.1 Emergency Plan for Indian Point Unit Nos. 1 & 2

6.2 ConEd Corporate Organization Charts

7.0 ATTACHMENTS

NONE

8.0 ADDENDUM

NONE

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AIRBORNE ACTIVITY DETERMINATION

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AIRBORNE ACTIVITY DETERMINATION

1.0 PURPOSE

1.1 To describe the procedure for air monitoring, air sampling and filter counting during a declared emergency at Indian Point Station.

1.2 To describe the process for analysis when counting is performed with other than a multichannel analyzer.

NOTE:
This procedure is primarily used for airborne determination outside the Protected Area. Normal air sampling procedures may be used where possible to perform air sampling.

2.0 DISCUSSION

2.1 The MS-2/SPA-3 system with lead shield is a complete gamma scintillation counting system which may be used as a single channel analyzer or to provide a measurement of gross gamma activity.

2.2 The SPA-3 is a gamma scintillation detector consisting of a 2 x 2 sodium iodide crystal, a 2-inch diameter 10 stage photo multiplier tube and a magnetic shield, all sealed inside an aluminum cylinder, which is mounted inside a lead shield.

2.3 The MS-2 is an instrument consisting of a single-channel pulse height analyzer, a variable high voltage supply, a six decade digital scaler, a four range linear rate meter covering the range of 0-500K CPM and a timer.

2.4 The E-140N or RM-14/HP-210 is used as a beta counter to detect beta particles emitted, with the exception of those having very low energies, from all isotopes contained on the filters.

2.5 Charcoal filter cartridges are designed to efficiently collect radioiodines. However, they also collect noble gases such as xenon and krypton along with the iodine. When counting these filters with the E-140N OR RM-14/HP-210, both the iodines and noble gases contribute to the count rate.

2.6 Silver zeolite filter cartridges are designed to efficiently collect radioiodines as the charcoal filters do, but they are inefficient collectors of noble gases. Manufacturer's literature gives silver zeolite a retention of 1/15,000 that of the charcoal for noble gases.

2.7 The TRITON gas monitor is an ionization chamber instrument that draws the ambient air through a particulate prefilter into an ionization chamber where the beta particles from the radiogas cause ionization within the chamber and cause current to flow. The magnitude of the current is indicative of the radioactivity concentration for the mixture of gases.

2.8 During accident conditions the radiogas concentration may include isotopes of Xenon and Krypton each of which has a different beta energy. Therefore, the instrument indication is not an exact value of the radioactive concentration for the mixture of gases. The flow rate through the monitor does not affect the sensitivity.

2.9 The TRITON monitor is gamma compensated for background radiation up to 5 mR/hr.

2.10 This implementation procedure covers the operation of three models of the TRITON (955, 1055, 111), normally addressed in the following HP procedures:

- HP-9.031, "Operation of the Johnston Laboratories Triton Model III."
- HP-9.032, "Operation of the Johnston Laboratories Triton Model 955B."
- HP-9.033, "Operation of the Johnston Laboratories Triton Model 1055B."

3.0 PRECAUTIONS AND LIMITATIONS

3.1 When counting iodine cartridges, saran wrap or other thin clinging material with a negligible attenuation for gamma radiation shall be used to wrap the cartridges if it is suspected that the sample is contaminated.

3.2 ALWAYS leave the shield door closed when not in use.

3.3 Count samples where background is LESS THAN 300 CPM.

4.0 EQUIPMENT AND MATERIALS

4.1 Eberline SPA-3/MS-2 with lead shield.

4.2 E-140N or RM-14/HP-210 with holders.

4.3 Air sampler and filter holder.

4.4 Form IP-1020-1 - Response Check For Radioactive Airborne Concentration

4.5 Form IP-1020-2 - Determination Of Radioactive Airborne Concentration

5.0 INSTRUCTIONS

5.1 Verify Instrument Operability

5.1.1 Verify instrument has a current calibration sticker valid for the SPA-3 probe (Calibration is performed every 6 months, sticker is located on top of instrument).

5.1.2 Verify the high voltage setting matches value listed on the calibration sticker.

5.1.3 Ensure probe is set up (and shielding if necessary) as shown in Addendums 2 and 3 of this procedure. The sample tray shall be on the middle shelf.

5.1.4 Perform initial background and source check:

> **Note:**
> The calibration sticker gives the acceptable source check range in Counts per Minute (cps).

A. The daily response check using the Ba-133 source should have the threshold set on "3.56 and a window setting of "0.89." WHEN response check is completed, THEN adjust threshold setting to "3.64" (which is the I-131 peak) and the window setting to "0.91."

B. Normally, the daily check consists of a 50-minute background and 10-minute source check. However, an expedited 2-minute background and 2-minute source check is acceptable for the initial check in the interest of determining facility habitability and establishing readiness.

C. IF instrument calibration is beyond 6 months THEN

(1) Determine the source Decay Factor from Addendum 1, Barium-133 Source Decay Curve. Example: If it has been 9 months since last calibration the Decay Factor would be ~.86

(2) Multiply the Decay Factor times the Max and Min CPM reading listed on the calibration sticker to determine appropriate counts per minute range which would still be acceptable.

D. Record results on Response Check For Radioactive Airborne Concentration (Form IP-1020-1) or Daily Air Sample Log.

E. Repeat background and source checks:

(1) If there is a suspected change in radiological conditions near counting station

OR

(2) On a daily basis.

5.2 Air Sampling:

5.2.1 Place particulate filter in the first inlet filter holder.

5.2.2 Place charcoal or silver zeolite cartridge in the second inlet filter holder (closest to the pump), as appropriate:

A. **IF** available **THEN** use silver/zeolite filters when:

- The beta field survey indicates GREATER THAN 50 mRad/hr

OR

- The indicated radioiodine activity on a charcoal filter is GREATER THAN 10^{-8} µCi/cc.

B. Align the arrow on the cartridge in the direction of air flow through the holder.

5.2.3 Record the following on Daily Air Sample Log (or equivalent form):

- Sample ID number
- Sampler type/manufacturer
- Starting air flow indication in LPM
- Date/Time

5.2.4 Run the sampler for a time sufficient to obtain APPROXIMATELY 1000 liters (L) (10 ft^3).

5.2.5 Record the ending air flow indication (in LPM) and the time on Daily Air Sample Log (or equivalent form).

5.2.6 Determine total sample volume AND record results:

A. Add the starting rate and the ending rate.

B. Divide by two.

C. Multiply by sample time in minutes.

D. Record on Daily Air Sample Log (or equivalent form).

5.2.7 **IF** using charcoal filter **THEN** purge cartridges for 30 seconds. Placing cartridge back in an air sampler and running it in a known clean area will purge filter of nobel gases.

5.2.8 Remove the filters from their respective holders:

A. Use gloves when handling samples taken in the radioactive plume.

B. Replace with new filters.

C. WHEN a second sample is required, THEN restart pump.

5.3 Sample Count Using the MS-2/SPA-3:

5.3.1 Enclose the cartridge (e.g., in plastic wrap).

5.3.2 Place the enclosed sample in the detector shield on the shelf closest to the detector.

5.3.3 Set the controls on the MS-2 as follows:

A. POWER switch - "ON"

B. CPM RANGE switch - appropriate multiplier setting to register expected sample count rate.

C. COUNTING TIME IN MINUTES control - set to desired counting time (normally one minute)

D. Window IN/OUT switch - "IN"

E. TEST switch - "OFF"

F. TIMED/STOP/MAN. switch - "TIMED"

G. WINDOW, THRESHOLD AND HV ADJUST dials - set to values posted on the instrument.

5.3.4 Momentarily depress the RESET-START push-button.

5.3.5 WHEN the sample has finished counting, THEN record the digital display value on appropriate HP survey form.

5.3.6 Calculate the sample activity using the appropriate correction factor as per Reference 6.3, using the following formula:

- EFF - Efficiency (as given on the instrument or as directed by ORAD or Health Physics Supervisor).
- CCF - Charcoal Correction Factor (.95 or as directed by ORAD or Health Physics Supervisor).

$$uCi/cc = \frac{(SampleCPM - BkgdCPM)x(1E-9)}{2.2xEFF\,Volume(L)xCCF}$$

$$Volume(L) = 28.32\frac{L}{ft^3}Volume(ft^3)$$

5.3.7 Remove the cartridge from the detector chamber and store or dispose of it properly, as appropriate.

5.3.8 Do a one minute background verification count to verify it has not changed and the counter is not contaminated. IF contaminated, THEN take appropriate measures to decontaminate.

5.3.9 Insert new filter.

5.4 Sample Count Using the E-140N OR RM-14/HP-210:

5.4.1 Connect the HP-210 detector, using the coaxial cable, to the terminal on the instrument marked "detector" or "probe".

5.4.2 IF using the RM-14 on AC, THEN do the following:

A. Connect it to a 120 VAC supply using the power cord which connects at the back of the instrument chassis.

B. Place the rotary switch in the X10 position.

C. Operate the toggle "Test on" switch at the chassis rear AND check that the indication on the meter is APPROXIMATELY 3600 CPM (± 10%).

D. Turn the toggle switch off.

E. Record data on appropriate HP survey form.

5.4.3 IF using the instrument on battery, THEN check battery condition by placing the rotary switch in "Batt" position AND record data on appropriate HP survey form.

5.4.4 Energize the instrument by turning the five position rotary switch from "off" to one of the three counting ranges: X1, X10, or X100.

5.4.5 Check the operability of the counter:

A. Placing the detector in contact with the Ba-133 check source (located in the kit next to the meter).

B. Read source CPM above background AND record result on on appropriate HP survey form.

C. Compare to count rate labeled on the source.

5.4.6 Place the detector on the sample holder (SH-4, -4a or equivalent) and check the background.

A. Record the background CPM on DETERMINATION OF RADIOACTIVE AIRBORNE CONCENTRATION (FORM IP-1020-2).

B. Use lead bricks as shielding to reduce the background CPM to read on the XI scale (if possible).

5.4.7 Place particulate filters to be counted, one at a time, face up in the counting chamber.

5.4.8 Read sample CPM and record results on DETERMINATION OF RADIOACTIVE AIRBORNE CONCENTRATION (FORM IP-1020-2).

5.4.9 Calculate the filter activity as follows:

$$uCi/cc = \frac{(SampleCPM - BkgdCPM)x(1E - 9)}{2.2xEFF\ Volume(L)}$$

EFF-Efficiency = 0.1

NOTE:
Should sample holders be unavailable, the filters may be counted by placing the detectors within half inch of the filter.

5.4.10 To count the iodine filter cartridges in the sample holders, modify the holders as follows:

A. IF using the SH-4, THEN do the following:

(1) Remove the sample holder slide.

(2) Place the charcoal cartridge (lip up) or the silver zeolite cartridge (face up) in the cavity created by removing the sample holder slide.

(3) Place the detector on the cartridge.

(4) Determine the count rate.

B. IF using the SH-4a, THEN pull out the slide.

(1) Remove the insert.

(2) Push the slide back in.

(3) Place the charcoal cartridge (lip up) or the silver zeolite cartridge (face up) in the cavity created by removing the sample holder slide.

(4) Place the detector on the cartridge.

(5) Determine the count rate.

5.4.11 Calculate the cartridge activity as follows:

$$uCi/cc = \frac{(SampleCPM - BkgdCPM)x(1E - 9)}{2.2xEFF\ Volume(L)xCCF}$$

EFF-Efficiency = 0.0015
CCF-Charcoal Correction Factor = 0.95

5.4.12 Perform background and source checks:

A. APPROXIMATELY every hour:

OR

B. As specified by the ORAD (frequency may be adjusted, either more or less often, in consideration of current radiological conditions).

5.5 Label filters:

5.5.1 Use a label, tag or grease pencil.

5.5.2 Identify filters with the following information:

- Date
- Time
- Volume
- Location

5.6 Save filters for later isotopic determination.

5.6.1 Place in an appropriate container in accordance with normal HP practices.

5.6.2 Determine appropriate storage location and save for future analysis.

5.7 Use of the Triton Monitor

5.7.1 Use of Model 955:

A. Set "RANGE" switch to "ZERO".

B. Verify filter holder contains a clean filter element.

C. Connect power cord to 115 VAC.

D. PRESS, THEN release the "POWER" push-button AND verify push-button illuminates.

E. Allow ten minutes for warm up.

F. Set "MODE" switch to "GAMMA" or "TRITIUM".

G. Zero the CRM using the "ZERO ADJUST" control.

H. Set "RANGE" switch to desired position AND allow one minute for stabilization.

I. Turn "ALARM" switch to INTERNAL. IF the alarm sounds, THEN press the "RESET" button. The alarm CANNOT be secured UNTIL activity drops BELOW preset CRM level and the reset button is depressed.

J. Check operation of alarm AND set alarm pointer (on the CRM) to the desired alarm level with the alarm "SET" knob. IF alarm check fails, THEN place unit out of service.

K. Secure alarm system by turning the "ALARM" switch to "OFF".

L. Check gamma background levels and gas background ("Tritium" mode and pump "off"):

(1) IF unit has been in operation, THEN allow 15 – 20 minutes for gases in detection chamber to decay off BEFORE recording background reading.

(2) Record background readings and post near instrument.

M. IF "TRITIUM" mode was selected in Step 5.2.6, THEN start air pump by pressing the "PUMP" push-button. Flow should be set at 8 – 10 Lpm.

N. IF "GAMMA" mode was selected, THEN leave pump "OFF." Once the proper "RANGE" switch setting has been selected, the instrument is ready to operate.

NOTE:
500 $\mu Ci/m^3$ increase above background is equivalent to 1×10^{-4} $\mu Ci/cc$ for noble gases.

O. Read the gamma radiation level directly from the CRM. For noble gases, the CRM readings should ONLY be used as an indication of a change in activity levels.

5.7.2 Use of Model 1055:

A. Set range switch to "ZERO".

B. Verify filter holder contains a clean filter element.

C. Connect power cord to 115 VAC OR operate on the battery. Check battery AND recharge it as necessary.

D. PRESS, THEN release the "POWER" push-button AND verify push-button illuminates.

E. Allow ten minutes for warm up.

F. Set mode switch to "GAMMA" or TRITIUM".

G. Zero CRM using "ZERO ADJUST" control.

H. Set range switch to the desired position AND allow one minute for stabilization.

I. Turn "ALARM" switch to "ON". IF the alarm sounds, THEN PRESS the "RESET" button. The alarm CANNOT be secured UNTIL activity drops BELOW preset CRM level and the reset button is depressed.

J. Check operation of alarm AND set the alarm to desired alarm level with the alarm "SET" knob. IF the alarm check fails, THEN place unit out of service.

K. Secure alarm system by turning the "ALARM" switch to "OFF".

L. Check gamma background levels and gas background ("Tritium" Mode and pump "off"):

(1) **IF** unit has been in operation, **THEN** allow 15 – 20 minutes for gases in detection chamber to decay off BEFORE recording background reading.

(2) Record background readings and post near instrument.

M. IF "TRITIUM" mode selected in Step 5.3.6, THEN start air pump by pressing the "PUMP" push-button.

N. IF "GAMMA" mode selected, THEN leave pump "OFF." Once the proper range setting has been selected, the instrument is ready to operate.

NOTE:
500 $\mu Ci/m^3$ increase above background is equivalent to 1×10^{-4} $\mu Ci/cc$ for noble gases.

O. Read the gamma radiation level directly from the CRM. For noble gases, the CRM readings should ONLY be used as an indication of a change in activity levels.

5.7.3 Use of Model 111:

A. Set the front panel controls, as follows, BEFORE turning instrument "ON" OR plugging instrument into the 115 VAC:

(1) ALARM OFF-ON-RESET switch to "OFF".

(2) FUNCTION switch to "Zero" position.

(3) PUMP switch "OFF" (down).

(4) POWER switch "OFF" (down).

(5) OFFSET control to "OFF" (fully CCW).

(6) ZERO control to fully CCW position.

B. Verify filter holder (located on top) contains a clean filter element.

C. Plug instrument into a 115 VAC outlet. Red light will indicate EITHER "on charge" OR "full charge" for the battery.

D. Move POWER switch to the "ON" position.

E. Verify FUNCTION switch on "ZERO," THEN turn the zero control SLOWLY CW UNTIL the zero bar is indicating on scale at zero.

F. Move FUNCTION switch to the "calibrate" position. The display should indicate 30 (29-31). The zero control affects this value. IF the calibration reading is NOT 30 (29-31) THEN recheck the zero.

G. Move FUNCTION switch to the desired range (use lowest range possible). Scale marking for the selected range will automatically be displayed.

H. Set alarm level to a value HIGHER THAN the background reading for the scale selected as follows:

(1) Move the "OFF-ON-RESET" switch to the "ON" position. A separate black bar will be displayed on the scale and indicates the alarm value.

NOTES:
The audible alarm may be reset by moving the audible reset switch to the right. This is of use when the $\mu ci/m^3$ indication is ABOVE the alarm level.

When the $\mu Ci/m^3$ indication falls BELOW the alarm level, the alarm reset switch will reset the alarm and the instrument will be ready to alarm again it the $\mu Ci/m^3$ indication rises above the alarm level.

(2) To change alarm level, PRESS the ALARM SET switch to the "up" or "down" position AND hold it there UNTIL the black bar reaches the desired value.

I. Start sample pump by moving PUMP switch to the "ON" position.

NOTE:
500 $\mu Ci/m^3$ increase above background is equivalent to 1×10^{-4} $\mu Ci/cc$ for noble gases.

J. For noble gases, the scale readings should ONLY be used as an indication of a change in activity levels.

5.8 Record Retention

Turn in all completed FORMS to the ORAD or Radiation Protection Coordinator, as appropriate.

6.0 REFERENCES

6.1 Instruction Manual for the Eberline Model SPA-3 scintillation probe.

6.2 Instruction Manual for the Eberline Model MS-2 Scaler.

6.3 HP-3.701, "Radiation Protection Count Room Standard Practices."

6.4 HP-SQ-3.012, "Airborne Radioactivity Sampling and Analysis."

6.5 HP-9.031, "Operation of the Johnston Laboratories Triton Model III."

6.6 HP-9.032, "Operation of the Johnston Laboratories Triton Model 955B."

6.7 HP-9.033, "Operation of the Johnston Laboratories Triton Model 1055B."

7.0 ATTACHMENTS

NONE

8.0 ADDENDUM

8.1 Barium-133 Source Decay Curve

8.2 SPA-3 Detector/Sample Holder Setup

8.3 Use of Lead Bricks to Shield Detector

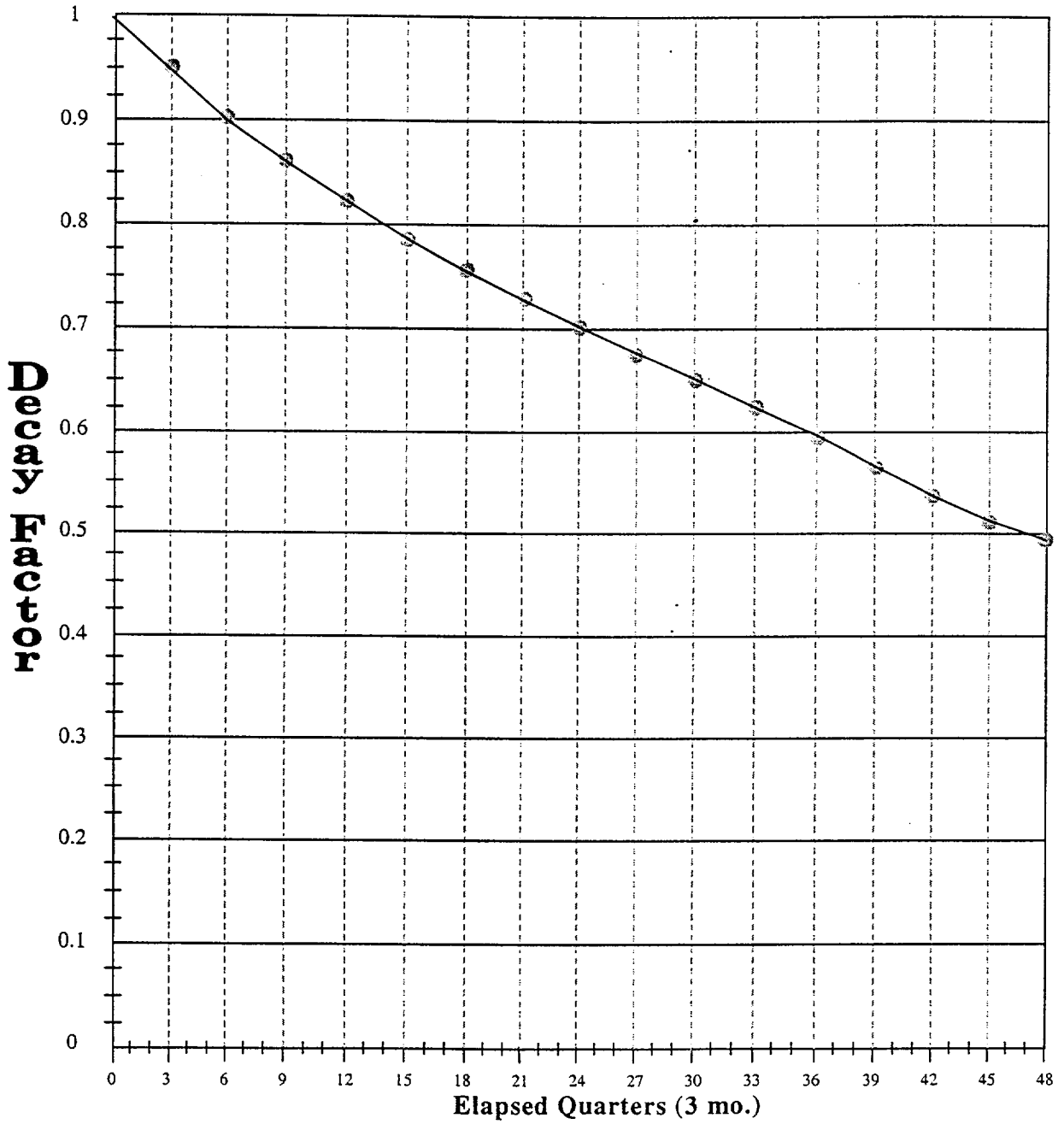
8.4 Form - Response Check For Radioactive Airborne Concentration

8.5 Form - Determination Of Radioactive Airborne Concentration

ADDENDUM 1

Barium-133 Source Decay Curve

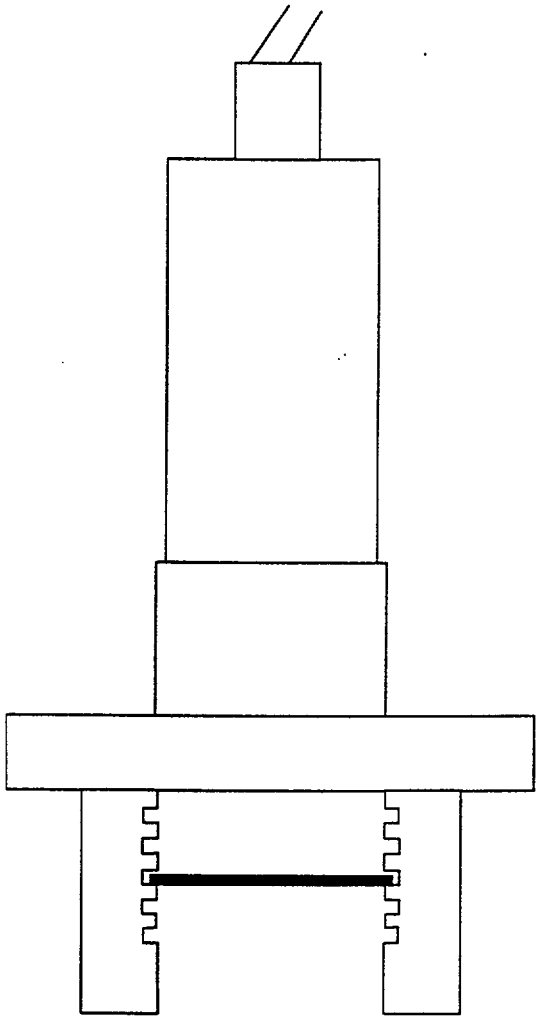
Sheet 1 of 1



ADDENDUM 2

Sheet 1 of 1

SPA-3 DETECTOR/SAMPLE HOLDER SETUP

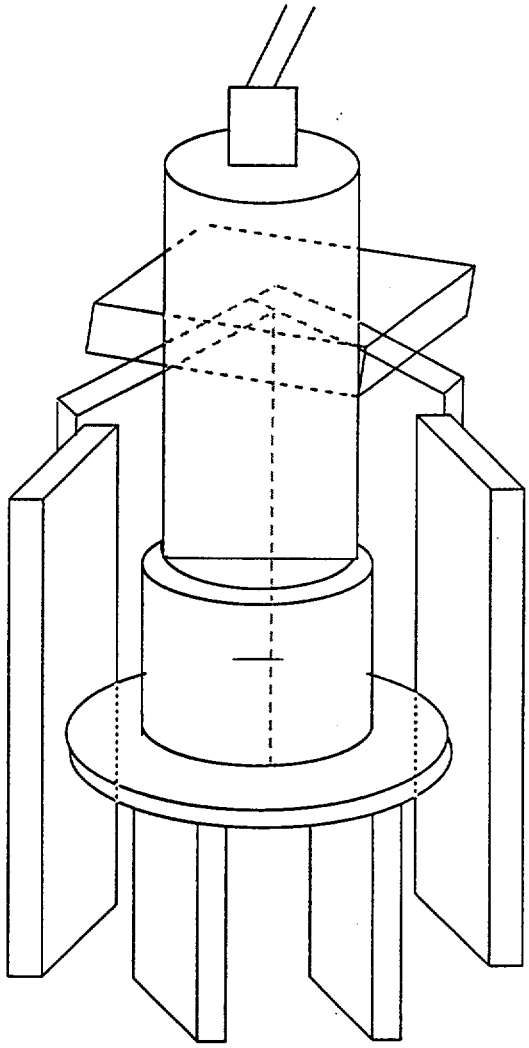


Place Sample Tray in middle position.

ADDENDUM 3
Sheet 1 of 1

USE OF LEAD BRICKS TO SHIELD DETECTOR

NOTE
Detectors are normally placed in lead pig. If lead bricks must be used, bricks must be obtained from radiological personnel within the Protected Area.



Use 6-7 blocks to construct the wall

Use 3-4 blocks to construct the roof

Place Blocks on all side of detector

ADDENDUM 4

Response Check For Radioactive Airborne Concentration (Form IP-1020-1)

Sheet 1 of 1

RESPONSE CHECK FOR RADIOACTIVE AIRBORNE CONCENTRATION

INSTRUMENT TYPE: _____ MODEL NO. _____ SERIAL NO. _____ CAL. DUE DATE: _____

1GAMMA SOURCE: _____ IDENTIFICATION NO.: _____ ACCEPTABLE RANGE: _____

TECH	DATE	TIME	SOURCE	BACKGROUND			TOTAL COUNTS	SOURCE		NET CPM	CIRCUIT CHECK	SOURCE CHECK	REMARKS
				TOTAL COUNTS	COUNT TIME MIN.	COUNTS/MIN.		COUNT TIME MIN.	COUNTS/MIN.				

LOGGED BY: _____ (Technician) DATE: _____

Form IP-1020-1 Rev 0

ADDENDUM 5

Determination Of Radioactive Airborne Concentration (Form IP-1020-2)

Sheet 1 of 1

DETERMINATION OF RADIOACTIVE AIRBORNE CONCENTRATION

SAMPLE LOCATION	SAMPLE TIME		SAMPLE DURATION (MINUTES)	START SAMPLE FLOW RATE (LPM)	END SAMPLE FLOW RATE (LPM)	AVERAGE FLOW RATE (LPM)	SAMPLE VOLUME (L)	TECHNICIAN
	START	STOP						

☐ *Breathing*

☐ *General Area*

COUNTER DATA:

1 BETA COUNTER _____ Serial No _____ MDC _____ Button Source Response _____

2 CHARCOAL MODEL NO MS-2 Serial No _____ MDC _____ Battery Test _____

3 AIR SAMPLER MODEL _____ Serial No _____ 3600 Cycle Test (AC only RM-14) _____

SAMPLE DATE AND NUMBER	TYPE	TIME COUNT STARTED	TOTAL COUNTS	COUNT TIME (MINUTE)	GROSS CPM	BACKGROUND CPM	NET CPM	COUNT EFF.	CORR. FACTOR A	ACTIVITY uCi/cc	DAC		COUNTED BY
	SILVER ZEOLITE												
	BETA PART.												
	GAMMA CHAR.												
	SILVER ZEOLITE												
	BETA PART.												
	GAMMA CHAR.												
	SILVER ZEOLITE												
	BETA PART.												
	GAMMA CHAR.												

Form IP-1020-2 Rev 0

OPERATIONS SUPPORT CENTER

CONTROLLED COPY

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SNSC Review:	Previous SNSC 2706 (Meeting Number)	N/A (Signature Secretary)	—
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Effective Date: 1/12/01

Biennial Review

Reviewer/Date

Reviewer/Date

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OPERATIONS SUPPORT CENTER (OSC)

1.0 PURPOSE

To describe the activation and operation of the Operations Support Center (OSC)

2.0 DISCUSSION

None

3.0 PRECAUTIONS AND LIMITATIONS

None

4.0 EQUIPMENT AND MATERIALS

4.1 The following type of equipment and materials are kept in the emergency lockers located in the stairwell at 53" elevation:

4.1.1 Protective Clothing

4.1.2 Respirators

4.1.3 KI Tablets

4.2 Portable radios and some radiation monitoring equipment is located in the TSC Lockers.

4.3 Keys for TSC Cabinets are contained in the TSC key locker. The key to the key locker is kept in the FSS Office. A backup key is located in a break glass container in the TSC.

5.0 INSTRUCTIONS

5.1 The OSC Manager shall follow the instructions outlined in Attachment 1, OSC Manager Checklist.

5.2 The Radiation Protection Coordinator shall follow the instructions outlined in Attachment 2, RP Coordinator Checklist.

5.3 The Maintenance Coordinator shall follow the instructions outlined in Attachment 3, Maintenance Coordinator Checklist.

5.4 The I&C Coordinator shall follow the instructions outlined in Attachment 4, I&C Coordinator Checklist.

5.5 The Team Coordinator shall follow the instructions outlined in Attachment 5, Team Coordinator Checklist.

5.6 The Operations Coordinator shall follow the instructions outlined in Attachment 6, Operations Coordinator Checklist.

5.7 The Accountability Clerk shall follow the instructions outlined in Attachment 7, Accountability Clerk Checklist.

6.0 REFERENCES

6.1 IP-1027, "Site Personnel Accountability and Evacuation"

6.2 IP-1035, "Technical Support Center"

6.3 IP-1041, "Use of the Triton to Monitor Radiogas"

6.4 IP-1020, "Airborne Iodine-131 Determination"

6.5 System Operating Procedure 11.1, Ventilation System Operation

7.0 ATTACHMENTS

7.1 Attachment 1, OSC Manager Checklist.

7.2 Attachment 2, Rad Protection Coordinator Checklist.

7.3 Attachment 3, Maintenance Coordinator Checklist.

7.4 Attachment 4, I&C Coordinator Checklist.

7.5 Attachment 5, Team Coordinator Checklist.

7.6 Attachment 6, Operations Coordinator Checklist

7.7 Attachment 7, Accountability Clerk Checklist

8.0 ADDENDUM

8.1 Addendum 1, OSC / TSC Complex Layout

8.2 Addendum 2, OSC / TSC Radiological Set Up

8.3 Addendum 3, Task Assignment Log (Form IP-1023-1)

8.4 Addendum 4, Emergency Team Briefing Form (Form IP-1023-2)

8.5 Addendum 5, Individual Exposure Tracking Log (Form IP-1023-3)

8.6 Addendum 6, ERO Log Sheet (Form IP-1023-4)

8.7 Addendum 7, Emergency Radiation Work Permit (Form IP-1023-5)

8.8 Addendum 8, Emergency Exposure Authorization (Form IP-1023-6)

8.9 Addendum 9, Normal OSC Staffing (Form IP-1023-7)

8.10 Addendum 10, Non-Exposure Tracking Form (Form IP-1023-8)

8.11 Addendum 11, ERO Shift Rosters (Form IP-1023-9)

8.12 Addendum 12, OSC Guidelines (Form IP-1023-10)

8.13 Addendum 13, Sample Patient Package Insert for THRO-BLOCK Tablets

Attachment 1
OSC Manager Checklist
Sheet 1 of 8

Initial Responsibility/Activity	Notes
1.0 Assume the duties of OSC Manager **IF** Initial Accountability has not been performed **THEN** perform accountability in accordance with IP-1027, Personnel Accountability and Evacuation	
2.0 Continue the duties of the OSC Manager. 2.1 Sign in on the facility organization chart. 2.2 Review TSC/OSC status boards if available 2.3 **IF** the OSC has not yet been activated **THEN** activate the OSC as follows: A. Receive a briefing from the EPM or the Shift Manager in the CCR on plant conditions and any Repair/Operations personnel currently in the field. B. Verify that the following minimum staffing is available before activating: 1. OSC Manager 2. Team Coordinator 3. Rad Protection Coordinator 4. 1 HP Technician (may be in field at time of activation) C. **IF** the Team Coordinator is not present **THEN** assume the duties of the Team Coordinator per Attachment 5. D. **IF** additional personnel are required **THEN**: 1. **IF** it is during normal working hours **THEN** call or assign someone to call the Assembly Areas for additional personnel 2. **IF** it is **NOT** during normal working hours **THEN** assign someone to call the EOF or AEOF for needed personnel.	

Attachment 1
OSC Manager Checklist
Sheet 2 of 8

Initial Responsibility/Activity (cont.)	Notes
3. **IF** needed individuals are not available onsite **THEN** assign someone to call individuals at home using the Emergency Telephone Directory (Appendix A of Emergency Plan Implementing Procedures, Emergency Roster.)	
E. Determine when the OSC staff is prepared to assume primary functions of OSC (dispatching and accounting of operations, HP, maintenance Teams into the plant).	
F. When ready to activate the OSC, formally relieve the CCR of the responsibilities to track inplant teams as follows:	
1. Call the Shift Manager and request a complete listing of personnel currently performing tasks outside the CCR.	
2. Inform the Shift Manager that you are now activating the OSC and assuming responsibility for accountability of all personnel inside the Protected Area and outside the CCR.	
3. Inform the EPM that the OSC has been activated.	
4. Make an announcement to the OSC, TSC, and inform the EOF that the OSC has been activated.	
G. Augment the OSC staff as necessary:	
1. **IF** OSC staffing is less the that shown on Form IP-1023-7, Normal OSC Staffing **THEN** call for additional personnel per above steps.	
2. Call in as many additional resources (in addition to that called for normal staffing) as needed for the event in progress.	
H. Direct Accountability Clerk to contact warehouse personnel to be available by:	
1. **IF** during normal working hours **THEN** call the Material Control Storekeeper at Indian Point Stores and notify him/her of the emergency and direct him/her to arrange for continuous staffing of the warehouse until the emergency is terminated.	

Attachment 1
OSC Manager Checklist
Sheet 3 of 8

Initial Responsibility/Activity (cont.)	Notes
2. **IF** during off-hours **THEN** call in a Material Control Storekeeper and/or contact the Astoria Warehouse.	
Note: OSC Guidelines (Form IP-1023-10) information should be provided to each OSC Technician.	
I. Conduct, or have the Team Coordinator conduct, a briefing for the OSC technicians:	
1. Provide a brief explanation of the event that caused the emergency.	
2. Inform personnel not to leave the TSC/OSC Complex without checking out with the OSC Team Coordinator.	
3. Inform personnel that they will be briefed by one of the OSC Coordinators prior to being sent into the field to perform a task.	
4. When briefed and dispatched by a Coordinator they **MUST** check out with the OSC Team Coordinator before they leave the TSC/OSC Complex.	
5. When returning from a mission they **MUST** check in with the OSC Team Coordinator and report any radiation exposure received while dispatched.	
2.4 **IF** relieving another OSC Manager **THEN** perform a formal turnover with the current OSC Manager.	
A. Review the OSC Manager's activity log	
B. Obtain a briefing on the emergency and any actions that have been completed or are in progress.	
C. Make a formal announcement to OSC/TSC when the turnover takes place.	
2.5 **IF** relieving another OSC Manager **AND** there has been a shift change of OSC Technicians **THEN** brief the OSC Technicians per step 2.3.I above.	

Attachment 1
OSC Manager Checklist
Sheet 4 of 8

	Continuous Responsibility/Activity	Notes
3.0	**Inform EPM and OSC Coordinators when temporarily leaving the work area.**	
3.1	Direct the TSC Communicator or Clerk to answer your phone while you are away.	
3.2	**IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN**	
	A. Inform the OSC Team Coordinator when you leave, where you are going and when you expect to return. (for accountability purposes)	
	B. Inform the OSC Team Coordinator when you return.	
2.3	Upon return, obtain a briefing from the EPM on any events which have occurred while away.	
4.0	**Use Form IP-1023-4, ERO Log Sheet, to maintain a log**	
4.1	Log when OSC is activated or when there is a manager change.	
4.2	Log major decisions and any important details of actions taken	
5.0	**Supervise the activities of the OSC Coordinators and team personnel.**	
5.1	The EPM is responsible for overall control of the onsite emergency response. Obtain EPM concurrence prior to directing any actions which may affect the operability of a plant system.	
5.2	Coordinate activities of operations personnel in the OSC with the Operations Coordinator and the Central Control Room.	
5.3	Inform the EPM immediately of any operations teams requested to be dispatched from the OSC by the CCR.	
5.4	Maintain adequate personnel and material resources for the onsite response.	
5.5	**IF** any necessary materials or supplies are not available on site **THEN** request assistance in obtaining items from the Material Control Storekeeper and/or the Administrative and Logistics Director at the corporate offices.	

Attachment 1
OSC Manager Checklist
Sheet 5 of 8

Continuous Responsibility/Activity (cont.)	Notes
5.6 Ensure that priorities are consistent with the priorities established by the EPM A. Task fall into the following three general categories: 1. High (H): The task is necessary to protect the immediate health and safety of the public. Plant conditions are allowing the rapid deterioration of safety barriers, or barriers have already been broken such that a release is either occurring or is imminent. 2. Medium (M): Any task that requires action by the OSC and should be worked on at the immediate time period, but does not fit the criteria of a health and safety of the public related mission (for example, there is a leak, or there is a secondary plant problem, and so forth). 3. Low (L): Any task which can be worked on when resources permit (for example, getting meals). B. Within each of the general categories (H, M or L), rank the priority of the tasks with numbers (1, 2 ,3 etc.) when assigning tasks to the OSC Coordinators. 5.7 Assign task to OSC Coordinators. The OSC Manager's Task Assignment Log (Form IP-1023-1) may be used to track task assignments. 5.8 Keep the Coordinators, Team Leaders, and Team Members informed of the overall focus of the emergency, task priorities and existing radiological conditions. 5.9 Remind the Coordinators to maintain an awareness of the activities and concerns of OSC team members and team leaders. 5.10 Verify that the Mission Status Board is updated as new tasks are assigned, old tasks are completed, and as priorities are changed. 5.11 Obtain approval from the EPM prior to deviating from any existing plant procedure or prior to performing an action for which no procedure exists, but would normally require a procedure.	

Attachment 1
OSC Manager Checklist
Sheet 6 of 8

Continuous Responsibility/Activity (cont.)	Notes
6.0 Maintain ongoing accountability for TSC/OSC personnel. **NOTE** Ongoing Accountability is required at the Site Area Emergency level, but may be relaxed by Emergency Plant Manager at the Alert level. 6.1 Direct OSC Staff to maintain accountability of all OSC personnel through the use of status boards, team assignments, Form IP-1023-3, Individual Exposure Tracking Log and Form IP-1023-8, Non-Exposure Tracking Log. 6.2 Inform the EPM immediately of any missing personnel. **NOTE** Security and Operations personnel trained in first aid should be used on search and rescue teams if possible. 6.3 **IF** anyone is unaccounted for **THEN** A. Commence search and rescue operations using OSC task and team assignment procedures. B. Instruct search and rescue teams not to move an incapacitated victim without a Medical Representative or qualified first responder **UNLESS** the potential harm from radiation or other hazards out weights the potential harm of moving the victim.	
7.0 Inform the EPM of changing situations in the plant based on information received from teams out in the field.	
8.0 Participate in periodic briefings of TSC/OSC staff. 8.1 Update the Material Control Storekeeper on briefing items 8.2 Ensure personnel in the field are updated.	
9.0 Assist EPM and TSC Staff in developing ad hoc procedures and defining tasks to mitigate the emergency.	

Attachment 1
OSC Manager Checklist
Sheet 7 of 8

Continuous Responsibility/Activity (cont.)	Notes
10.0 Evaluate the need to evacuate the TSC/OSC and evacuate as necessary. **NOTE:** An organized evacuation of the TSC/OSC Complex should be started when the following radiological conditions occur: • Exposure rates > 80 mRem/Hr TEDE **OR** 500mRem/Hr TODE • Projected Whole Body Dose for a 12 hour period is > 1 Rem TEDE **OR** Thyroid Dose >5 Rem TODE • Airborne concentrations which may result in exceeding occupational limits for inhalation specified in 10CFR20, Appendix B, Table 1. Evacuation may be performed at rates below those listed based on plant conditions and response needs. 10.1 Determine a suitable alternate location should the recommendation to relocate the OSC be made by the RP Coordinator. 10.2 Determine the speed at which the relocation of personnel should occur giving consideration to the following items: A. The impact of immediate relocation vs. projects in progress. B. Current radiological conditions within the TSC/OSC C. Radiological conditions at the proposed relocated TSC/OSC. D. Radiological conditions en route. E. The adequacy of response from the alternate location. 10.3 Coordinate evacuation of the TSC/OSC with the EPM and TSC Manager. 10.4 Request that the EPM announce the decision to evacuate, times and new location over the Station PA system. 10.5 Inform the CCR and Material Control Storekeeper of the change in location of the OSC.	

Attachment 1
OSC Manager Checklist
Sheet 8 of 8

	Continuous Responsibility/Activity (cont.)	
10.6	Notify Security to instruct incoming personnel to report to the alternate TSC/OSC.	
10.7	Direct that all equipment and materials needed for the alternate OSC be packaged and delivered to the new location.	
11.0	**Set up second shift of Emergency Response Organization**	
11.1	Direct the Accountability Clerk to complete an ERO Shift Roster (Form IP-1023-9).	
11.2	Review the completed form with the TSC Manager to ensure all required individuals are identified.	
11.3	Request the EPM to establish a shift turnover time with the ED	
11.4	Direct Accountability Clerk to use the Emergency Telephone Directory to call a 2nd shift and notify them when to report to their assigned facility.	
	Closeout Responsibility/Activity	**Notes**
12.0	**Direct OSC personnel to return all equipment to proper storage locations.**	
13.0	**Review all documentation:**	
13.1	Verify that logs, forms and other documentation are complete	
13.2	Verify that all repairs performed by OSC Teams that deviated from normal station procedures are properly documented so that necessary actions can be taken for continuous plant operations or plant recovery operations.	
14.0	**Provide all logs and records to the Recovery Manager upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 2
Rad Protection Coordinator Checklist
Sheet 1 of 7

Initial Responsibility/Activity	Notes
1.0 Assume the position of Rad Protection Coordinator.	
1.1 Sign in on the facility organization chart.	
1.2 **IF** the OSC has not yet been activated **THEN** perform the following:	
A. Contact the Watch HP and receive a briefing of radiological conditions and status of any ongoing jobs.	
B. Determine if any personnel are currently in the field.	
C. Request the CCR to align the TSC/OSC ventilation system for incident operation per procedure SOP 11.1, Ventilation System Operation.	
D. Direct a TSC/OSC habitability survey and that radiological controls be set up as shown in Addendum 2 if necessary.	
E. Establish contamination controls for the CCR if necessary.	
F. Assign an HP Technician to obtain TLDs and dosimeters from the Control Point for all OSC/TSC personnel.	
G. **IF** individuals have not been previously issued TLDs **THEN** have TLDs issued to them.	
1.3 Report readiness status to the OSC Manager when prepared to assume the Rad Protection Coordinator position.	
1.4 **IF** relieving another Rad Protection Coordinator **THEN**. perform a formal turnover:	
A. Review the RP Coordinator's activity log.	
B. Obtain a briefing on the emergency, radiological conditions and any actions that have been completed or are in progress.	
C. Relieve current Rad Protection Coordinator	
1.5 Inform OSC staff that you are now the Rad Protection Coordinator.	

Attachment 2
Rad Protection Coordinator Checklist
Sheet 2 of 7

Continuous Responsibility/Activity	Notes
2.0 Establish and Maintain radiological habitability.	
2.1 Direct periodic monitoring of Emergency Response Facilities within the Protected Area and other occupied areas as necessary, particularly when a release of radioactive material into plant environments is in progress or suspected.	
A. At a minimum, verify habitability in the Main Control Room, TSC, OSC, and Security Building.	
B. **IF** the following conditions exist in the TSC/OSC or CCR **THEN** inform the EPM to implement restrictions on eating and drinking in the effected areas.	
• Contamination Levels above background	
• Airborne contamination levels above background	
C. Insure TSC/OSC personnel are aware of any restrictions in place.	
D. **IF** any of the following conditions exist **THEN** Inform the OSC Manager immediately to consider a planned evacuation of the TSC/OSC Complex:	
• TSC/OSC (or other occupied area) Dose rates > 80 mRem/Hr TEDE or 500 mRem/hr TODE.	
• Projected doses > 1 Rem TEDE or 5 Rem TODE over a 12 hour period	
• Airborne concentrations which may result in exceeding occupational limits for inhalation specified in 10CFR20, Appendix B, Table 1.	
2.2 **IF** any of the above limits are reached **THEN** Coordinate with the OSC/TSC Managers to survey alternate locations for habitability prior to relocation if possible.	
2.3 **IF** a chemical release is detected **THEN** direct Chemistry Technician or individual qualified in hazardous material response to assist in establishing chemical habitability prior to sending individuals into affected area.	

Attachment 2
Rad Protection Coordinator Checklist
Sheet 3 of 7

Continuous Responsibility/Activity (cont.)	Notes
3.0 Inform another OSC Coordinator and the OSC Manager when temporarily leaving the work area. 3.1 Request another OSC Coordinator to answer your phone while you are away. 3.2 **IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN** A. Inform the OSC Team Coordinator when you leave, where you are going and when you expect to return. (for accountability purposes) B. Inform the OSC Team Coordinator when you return. 3.3 Upon return, obtain a briefing from another coordinator on any events which have occurred while away.	
4.0 Use Form IP-1023-4, ERO Log Sheet, to maintain a log 4.1 Record the time you assume position of Rad Protection Coordinator. 4.2 Record any significant and unusual indications from the Plant RMS. 4.3 Record any significant changes in radiological conditions reported from field teams. 4.4 Record any communications outside the Protected Area Fence or significant communications to facilities outside the OSC	
NOTES: Documentation on ERWPs and Team Briefing Forms may be deferred when immediate action is necessary to mitigate a situation that severely threatens plant or personnel safety. Documentation shall be finished as soon as possible after team dispatch. The HP Technician accompanying the team becomes a "Walking ERWP" and may determine what radiological precautions are appropriate for the situation. **5.0 Suspend normal RWP requirements for performing work in radiological controlled areas if necessary. Emergency Radiation Work Permits (ERWP) will then be used for team dispatch.**	

Attachment 2
Rad Protection Coordinator Checklist
Sheet 4 of 7

Continuous Responsibility/Activity (cont.)		Notes
6.0	**Suspend radiological posting requirements, if necessary, for areas outside the RCA that are affected by the accident until the Recover Phase is entered.**	
7.0	**Document radiological readings taken by HP Technicians or other meter qualified individuals in the field on survey maps.**	
8.0	**Establish and maintain dosimetry, protective clothing, and other protective equipment requirements for onsite ERO personnel.**	
8.1	Use ERWPs (Form IP-1023-5) to control radiological requirements for personnel sent into the plant.	
8.2	Start ERWPs for anticipated activities in various plant areas.	
8.3	If possible, based on your judgement, use normal criteria when establishing requirements for dosimetry, protective clothing, and respiratory protection equipment.	
8.4	Verify the Team Coordinator is tracking individual exposure data on Individual Exposure Tracking Log (Form IP-1023-3)	
8.5	Direct radiological control personnel to read TLDs for personnel whose exposure limits are approached.	
9.0	**Direct Health Physics Personnel in the following activities:**	
9.1	Assign Radiation Control personnel to assist in emergency response support activities.	
9.2	Use Form IP-1023-2, Emergency Team Briefing Form to prepare and document team assignments.	
9.3	Assign personnel to conduct in-plant radiological surveys as required to support ERO activities.	
9.4	Assign HP Technicains to accompany Damage Control Teams requiring radiological support.	

Attachment 2
Rad Protection Coordinator Checklist
Sheet 5 of 7

Continuous Responsibility/Activity (cont.)	Notes
10.0 IF there are contaminated injured personnel THEN perform the following:	
10.1 Provide radiological support for the assessment, treatment, and transportation of contaminated injured personnel.	
10.2 Monitor patients for contamination and decontaminate as appropriate.	
10.3 Make arrangements to pick up RP personnel at the hospital.	
10.4 Follow proper procedures to retrieve radioactive waste from offsite treatment locations.	
10.5 Obtain concurrence from the EPM prior to releasing the hospital's Radiological Emergency Room or the ambulance for uncontrolled use.	
NOTE Team Briefing Forms may be completed after team dispatch if time does not allow. Briefings shall still take place.	
11.0 Ensure emergency team receive proper briefs on radiological conditions and requirements.	
11.1 Depending on conditions the ERWP should state who will give radiological brief to emergency teams	
11.2 Request that the Team Coordinator attend briefings to ensure continuous accountability of dispatched Team personnel.	
11.3 Use the ERWP to discuss dose limits, expected and maximum dose rates, and stay times. Advise team members to immediately contact or return to the OSC when dose rates or stay times approach the established limits.	
11.4 Discuss dosimetry requirements.	
11.5 Discuss protective clothing and respiratory protection requirements.	
11.6 Discuss travel route requirements and if there are any releases in progress.	
11.7 Advise team members on monitoring and decontamination procedures following mission completion.	

Attachment 2
Rad Protection Coordinator Checklist
Sheet 6 of 7

Continuous Responsibility/Activity (cont.)	Notes
NOTE: For events that do involve an increase in plant radiation levels above those found during normal plant operations, normal exposure controls may be used vs. implementation of emergency exposure controls.	
12.0 Maintain onsite emergency exposure controls as follows:	
12.1 **IF** emergency exposure controls are implemented **THEN** Maintain individual emergency exposures as follows: A. Request the EPM to authorize emergency exposures up to 1 Rem TEDE for all OSC and Operations Personnel. B. Track individuals doses to ensure no one receives more than 1 Rem TEDE during the emergency unless further exposure is authorized. C. Request the EPM to authorize additional exposure 1 Rem at a time, up to 5 Rem. D. Notify and ensure the EPM authorizes any emergency radiation exposures expected to exceed 5 Rem TEDE or when entry into areas where exposure rates > 25 Rem/Hr may be encountered. E. With EPM authorization volunteers may receive up to 10 REM TEDE to protect valuable property **OR** 25 REM TEDE to save a life or protect large populations.	
12.2 An HP Technician escort or qualified self-monitor is required for any team to be sent into an area where any of the following conditions present: A. Radiological conditions are unknown. Surveys or ARMs may be used to predict radiological conditions. B. Radiation field in access of 1 R/hr are expected.	
12.3 Clearly state exposure limits on ERWPs	

Attachment 2
Rad Protection Coordinator Checklist
Sheet 7 of 7

Continuous Responsibility/Activity (cont.)	Notes
13.0 IF individuals receive or are expected to receive large Radioiodine Uptakes (~25REM) THEN: 13.1 Control the specified issuance of KI to onsite emergency workers as follows: A. Get approval of the EPM for issuance of KI B. Direct team members to read Patient Package Insert prior to taking KI (see Addendum 13 for sample). C. Administer KI D. Record KI issuance information on Individual Exposure Tracking Log 13.2 Evaluate iodine uptakes for persons issued KI.	
14.0 Direct the decontamination efforts of personnel, equipment, and onsite areas as appropriate.	
15.0 Ensure adequate materials and supplies are available for assigned missions. 15.1 Obtain needed materials from normal station supply locations. 15.2 IF additional supplies are needed THEN request any materials, supplies, or personnel needs from the OSC Manager.	
Closeout Responsibility/Activity	**Notes**
16.0 IF radiological conditions allow THEN Direct HP Technicians: 16.1 To return emergency equipment to proper storage areas and restock supplies as needed. 16.2 Review radiological conditions in the plant and update postings as required. 16.3 Review any open RWPs to ensure conditions have not changed which may effect their use.	
17.0 Provide all logs and records to the OSC Manager upon termination of the emergency.	

Attachment 3

Maintenance Coordinator Checklist

Sheet 1 of 3

Initial Responsibility/Activity	Notes
1.0 Assume the position of Maintenance Coordinator.	
1.1 Sign in on the facility organization chart.	
1.2 Report readiness status to the OSC Manager when prepared to assume the Maintenance Coordinator position.	
1.3 IF relieving another Maintenance Coordinator THEN. perform a formal turnover:	
A. Review the activity log.	
B. Obtain a briefing on the emergency, radiological conditions and any actions that have been completed or are in progress.	
C. Relieve current Maintenance Coordinator	
1.4 Inform OSC staff that you are now the Maintenance Coordinator.	

Attachment 3
Maintenance Coordinator Checklist
Sheet 2 of 3

Continuous Responsibility/Activity	Notes
2.0 Inform another OSC Coordinator and the OSC Manager when temporarily leaving the work area. 2.1 Request another OSC Coordinator to answer your phone while you are away. 2.2 **IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN** A. Inform the OSC Team Coordinator when you leave, where you are going and when you expect to return. (for accountability purposes) B. Inform the OSC Team Coordinator when you return. 2.3 Upon return, obtain a briefing from another coordinator on any events which have occurred while away.	
3.0 Use Form IP-1023-4, ERO Log Sheet, to maintain a log of activities: 3.1 Record the time you assume position of Maintenance Coordinator 3.2 Record Maintenance Team activities undertaken with information on repairs performed and pending actions to ensure repairs are completed. (need not repeat items on team briefing forms) 3.3 Record all communications outside the Protected Area Fence.	
4.0 Assist OSC Manager is planning and preparing for any mechanical and/ or electrical maintenance activities needed to return the plant to a safe condition.	

Attachment 3
Maintenance Coordinator Checklist
Sheet 3 of 3

Continuous Responsibility/Activity (cont.)	Notes
5.0 Participate in Team dispatch and field operations:	
5.1 Choose maintenance personnel who are best qualified to conduct assigned tasks(s).	
5.2 Use Form IP-1023-2, Emergency Team Briefing Form to prepare and document team assignments.	
5.3 Ensure Team is properly equipped to conduct repairs, including procedures, drawings, tools and repair parts.	
5.4 Participate in Team briefings to ensure team members properly understand assigned task.	
5.5 Work with the Team Coordinator while the team is in the field to answer any questions that may arise concerning task.	
NOTE: Ensure any deviations from Quality Control work practices are logged as part of the Team debriefings.	
5.6 Debrief mechanical and electrical maintenance team members when they return and ensure actions are properly documented.	
Closeout Responsibility/Activity	**Notes**
6.0 Assist OSC personnel to return all equipment to proper storage locations.	
7.0 Review all documentation the Maintenance Coordinators maintained during the emergency:	
7.1 Ensure logs, forms and other documentation are complete	
7.2 Ensure all repairs performed by OSC Teams that deviated from normal station procedures are properly documented so that necessary actions can be taken for continuous plant operations and/or plant recovery operations.	
8.0 Provide all logs and records to the OSC Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 4
I&C Coordinator Checklist
Sheet 1 of 3

Initial Responsibility/Activity	Notes
1.0 Assume the position of I&C Coordinator.	
1.1 Sign in on the facility organization chart.	
1.2 Report readiness status to the OSC Manager when prepared to assume the I&C Coordinator position.	
1.3 **IF** relieving another I&C Coordinator **THEN**. perform a formal turnover:	
A. Review the activity log.	
B. Obtain a briefing on the emergency, radiological conditions and any actions that have been completed or are in progress.	
C. Relieve current I&C Coordinator	
1.4 Inform OSC staff that you are now the I&C Coordinator.	

Attachment 4
I&C Coordinator Checklist
Sheet 2 of 3

	Continuous Responsibility/Activity	Notes
2.0	**Inform another OSC Coordinator and the OSC Manager when temporarily leaving the work area.**	
2.1	Request another OSC Coordinator to answer your phone while you are away.	
2.2	**IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN**	
	A. Inform the OSC Team Coordinator when you leave, where you are going and when you expect to return. (for accountability purposes)	
	B. Inform the OSC Team Coordinator when you return.	
2.3	Upon return, obtain a briefing from another coordinator on any events which have occurred while away.	
3.0	**Use Form IP-1023-4, ERO Log Sheet, to maintain a log of activities.**	
3.1	Record the time you assume position of I&C Coordinator	
3.2	Record I&C Team activities undertaken with information on repairs performed and pending actions to ensure repairs are completed. (you need not repeat information on team briefing forms.)	
3.3	Record all communications outside the Protected Area Fence.	
4.0	**Assist OSC Manager in planning and preparing for any I&C maintenance activities needed to return the plant to a safe condition.**	

Attachment 4

I&C Coordinator Checklist

Sheet 3 of 3

Continuous Responsibility/Activity	Notes
5.0 Participate in Team dispatch and field operations:	
5.1 Choose I&C personnel who are best qualified to conduct assigned task(s)	
5.2 Use Form IP-1023-2, Emergency Team Briefing Form to prepare and document team assignments.	
5.3 Ensure Team is properly equipped to conduct repairs, including procedures, drawings, tools and repair parts.	
5.4 Participate in Team briefings to ensure team members properly understand assigned task	
5.5 Work with the Team Coordinator while the team is in the field to answer any questions that may arise concerning task	
NOTE: Ensure any deviations from Quality Control work practices are logged as part of the Team debriefings.	
5.6 Debrief I&C maintenance team members when they return and ensure actions are properly documented.	
Closeout Responsibility/Activity	**Notes**
6.0 Assist OSC personnel to return all equipment to proper storage locations.	
7.0 Review all documentation the I&C Coordinators maintained during the emergency:	
7.1 Ensure logs, forms and other documentation are complete	
7.2 Ensure all repairs performed by OSC Teams that deviated from normal station procedures are properly documented so that necessary actions can be taken for continuous plant operations or recovery operations.	
8.0 Provide all logs and records to the OSC Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 5
Team Coordinator Checklist
Sheet 1 of 4

Initial Responsibility/Activity	Notes
NOTE If there is no OSC Manager present perform the steps in Attachment 1, OSC Manager Checklist in conjunction with this checklist.	
1.0 Assume the position of Team Coordinator.	
1.1 Sign in on the facility organization chart.	
1.2 Review TSC/OSC status boards if available	
1.3 Inform the OSC Manager that you are ready to activate and assist in OSC activation as needed.	
1.4 Obtain a briefing from the OSC Manager on the status of any personnel or teams currently in the field.	
1.5 Coordinate taking control of personnel and/or teams by establishing communications with field personnel and informing them that they are now under the control of the OSC.	
1.6 **IF** relieving another Team Coordinator **THEN** perform a formal turnover with current Team Coordinator.	
A. Review the Team Coordinator activity log.	
B. Obtain a briefing on the emergency and any actions that have been completed or are in progress.	
C. Review field operations and take control of accountability for personnel in the field.	
D. Inform the TSC Manager you are now the Team Coordinator.	
E. Make a formal announcement to OSC Staff when relief takes place.	

Attachment 5
Team Coordinator Checklist
Sheet 2 of 4

Continuous Responsibility/Activity	Notes
2.0 Inform another OSC Coordinator and the OSC Manager when temporarily leaving the work area. 2.1 Request another OSC Coordinator to assume the Team Coordinator duties while you are away. 2.2 **IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN** A. Inform the OSC Team Coordinator when you leave, where you are going and when you expect to return. (for accountability purposes) B. Inform the OSC Team Coordinator when you return. 2.3 Upon return, obtain a briefing from acting Team Coordinator on any events which have occurred while away.	
3.0 Ensure ongoing accountability (unless directed otherwise) for TSC and OSC personnel. **NOTE:** A computer spreadsheet may be used in place of the ERO Tracking Log and Individual Exposure Tracking Log to keep records of teams sent into the field from the OSC **IF** the spreadsheet is used **THEN** printout copies often to maintain hard copy records of team activities. 3.1 Track all individuals leaving TSC/OSC Complex on the ERO Tracking Log (FormIP-1023-8) 3.2 **IF** individuals are going to be receiving emergency radiation exposure **THEN** track radiation exposures on Individual Exposure Tracking Log (Form IP-1023-3). 3.3 Inform the OSC Manager immediately of any missing personnel. 3.4 **IF** anyone is unaccounted for **THEN** assist in search and rescue operations utilizing teams	

Attachment 5
Team Coordinator Checklist
Sheet 3 of 4

Continuous Responsibility/Activity (cont.)	Notes
4.0 Monitor the activities of the team personnel in the field.	
4.1 Keep informed on team mission priorities	
A. The OSC Manager will inform you which task is the number 1 priority and which are numbers 2 & 3.	
B. Place to priority number on the Mission Status board.	
C. Continually remind OSC personnel dispatched to perform task of current priorities and any changes to priorities.	
4.2 **IF** team tracking task allows the time **THEN** participate in team briefings to ensure you are aware of the teams assigned task and expected hazards.	
4.3 Maintain the Mission Status Board. Update as tasks are assigned, old tasks are completed, and as priorities are changed.	
4.4 Maintain communications with teams once they are dispatched from the OSC.	
4.5 Keep track of team radiation exposure while they are in the field using spreadsheet or manual forms (transfer information to Individual Exposure Tracking Log (Form IP-1023-3) when teams return.	
4.6 **IF** team tracking task allows the time **THEN** participate in Team Debriefings when they return to the OSC to keep informed on field conditions.	
4.7 Immediately update teams of any change in emergency classifications or changing conditions which may affect their safety, such as the start of a release.	
4.8 Immediately update RP Coordinator of any changing or unexpected conditions reported by teams in the field.	
5.0 Direct the Accountability Clerk to assist you in maintaining records as necessary.	

Attachment 5

Team Coordinator Checklist

Sheet 4 of 4

Continuous Responsibility/Activity (cont.)	Notes
6.0 Inform the OSC Manager and other OSC Coordinators of changing situations in the plant based on information received from dispatched teams. 6.1 Unexpected radiation levels. 6.2 Unreported hazardous conditions. 6.3 Important equipment status.	
Closeout Responsibility/Activity	**Notes**
7.0 Assist OSC personnel to return all equipment to proper storage locations.	
8.0 Review all documentation the OSC Team Coordinators maintained during the emergency: A. Ensure logs, forms and other documentation are complete B. Work with other OSC Coordinators to ensure all repairs performed by OSC Teams that deviated from normal station procedures are properly documented so that necessary actions can be taken for continuous plant operations or recovery operations.	
9.0 Provide all logs and records to the OSC Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 6
Operations Coordinator Checklist
Sheet 1 of 3

Initial Responsibility/Activity	Notes
1.0 Assume the position of Operations Coordinator.	
1.1 Sign in on the facility organization chart.	
1.2 Report readiness status to the Shift Manager and the OSC Manager when prepared to assume the Operations Coordinator position.	
1.3 **IF** relieving another Operations Coordinator **THEN**. perform a formal turnover:	
A. Review the Operations Coordinator activity log.	
B. Obtain a briefing on the emergency, radiological conditions and any actions that have been completed or are in progress.	
C. Relieve the current Operations Coordinator	
1.4 Inform Shift Manager and OSC staff that you are now the Operations Coordinator.	

Attachment 6
Operations Coordinator Checklist
Sheet 2 of 3

Continuous Responsibility/Activity	Notes
2.0 Inform another OSC Coordinator and the OSC Manager when temporarily leaving the work area. 2.1 Request another OSC Coordinator to answer your phone while you are away. 2.2 **IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN** A Inform the OSC Team Coordinator when you leave, where you are going and when you expect to return. (for accountability purposes) B Inform the OSC Team Coordinator when you return. 2.3 Upon return, obtain a briefing from another coordinator on any events which have occurred while away.	
3.0 Use Form IP-1023-4, ERO Log Sheet, to maintain a log of activities. 3.1 Record the time you assume position of Operations Coordinator. 3.2 Record Operations Team activities undertaken with information on plant operations performed and repairs performed. 3.3 Communications outside the OSC.	
4.0 Assist Control Room and OSC Manager in planning and preparing for any operations maintenance activities needed to return the plant to a safe condition. 4.1 Establish communications with the CCR. Keep the CCR informed of field team activities currently underway or that are planned. 4.2 Coordinate operations and repair activities with the CCR. 4.3 Provide operational guidance to other OSC Staff and inplant teams.	

Attachment 6
Operations Coordinator Checklist
Sheet 3 of 3

Continuous Responsibility/Activity (cont.)	Notes
5.0 Participate in Team dispatch and field operations: 5.1 Choose Operations personnel who are best qualified to conduct assigned task(s). NOTE: For urgent operations requirements – the Emergency Team Briefing Form may be completed after team dispatch. 5.2 **IF** you are the Lead Coordinator for a team **THEN** complete an Emergency Team Briefing Form (Form IP-1023-2) for the team dispatched from the OSC. A Ensure Team is properly equipped to conduct assigned task, including procedures, drawings and tools. B Participate in Team briefings to ensure team members properly understand assigned task. 5.3 Keep the control room staff aware of all teams progress. 5.4 Work with the Team Coordinator while the team is in the field to answer any questions that may arise concerning task(s). NOTE: Ensure any deviations from Quality Control work practices are logged as part of the Team debriefings. 5.5 Debrief operations team members when they return and ensure actions are properly documented.	
Closeout Responsibility/Activity	**Notes**
6.0 Assist OSC personnel in returning all equipment to proper storage locations.	
7.0 Review all documentation the Operations Coordinators maintained during the emergency: A. Ensure logs, forms and other documentation are complete B. Ensure all activities performed by OSC Teams that deviated from normal station procedures are properly documented	
8.0 Provide all logs and records to the OSC Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 7

Accountability Clerk Checklist

Sheet 1 of 2

Initial Responsibility/Activity	Notes
1.0 Assume the position of Accountability Clerk.	
1.1 Sign in on the facility organization chart.	
1.2 Report readiness to assume position to the OSC Manager.	
1.3 **IF** relieving another Accountability Clerk **THEN**. perform a formal turnover:	
A. Review the Team Coordinator's activity log.	
B. Obtain a briefing on the emergency, radiological conditions and current status of personnel accountability.	
C. Relieve the current Accountability Clerk.	
1.4 Inform OSC Manager that you are now the Accountability Clerk.	
Continuous Responsibility/Activity	**Notes**
2.0 Inform an OSC Coordinator when temporarily leaving the work area.	
2.1 Request another OSC Coordinator to answer your phone while you are away.	
2.2 **IF** you are leaving the TSC/OSC Complex (the restroom is within complex) **THEN**	
A Inform the OSC Team Coordinator when you leave, where you are going and when you expect to return. (for accountability purposes).	
B Inform the OSC Team Coordinator when you return.	
2.3 Upon return, obtain a briefing from an coordinator on any events which have occurred while away.	
3.0 When directed by the OSC Manager assist in performance of initial Accountability	
3.1 Follow steps in procedure IP-1027, Site Personnel Accountability and Evacuation.	
3.2 Report completion of accountability and any missing persons to the OSC Manager.	

Addendum 4

Emergency Team Briefing (Form IP-1023-2)

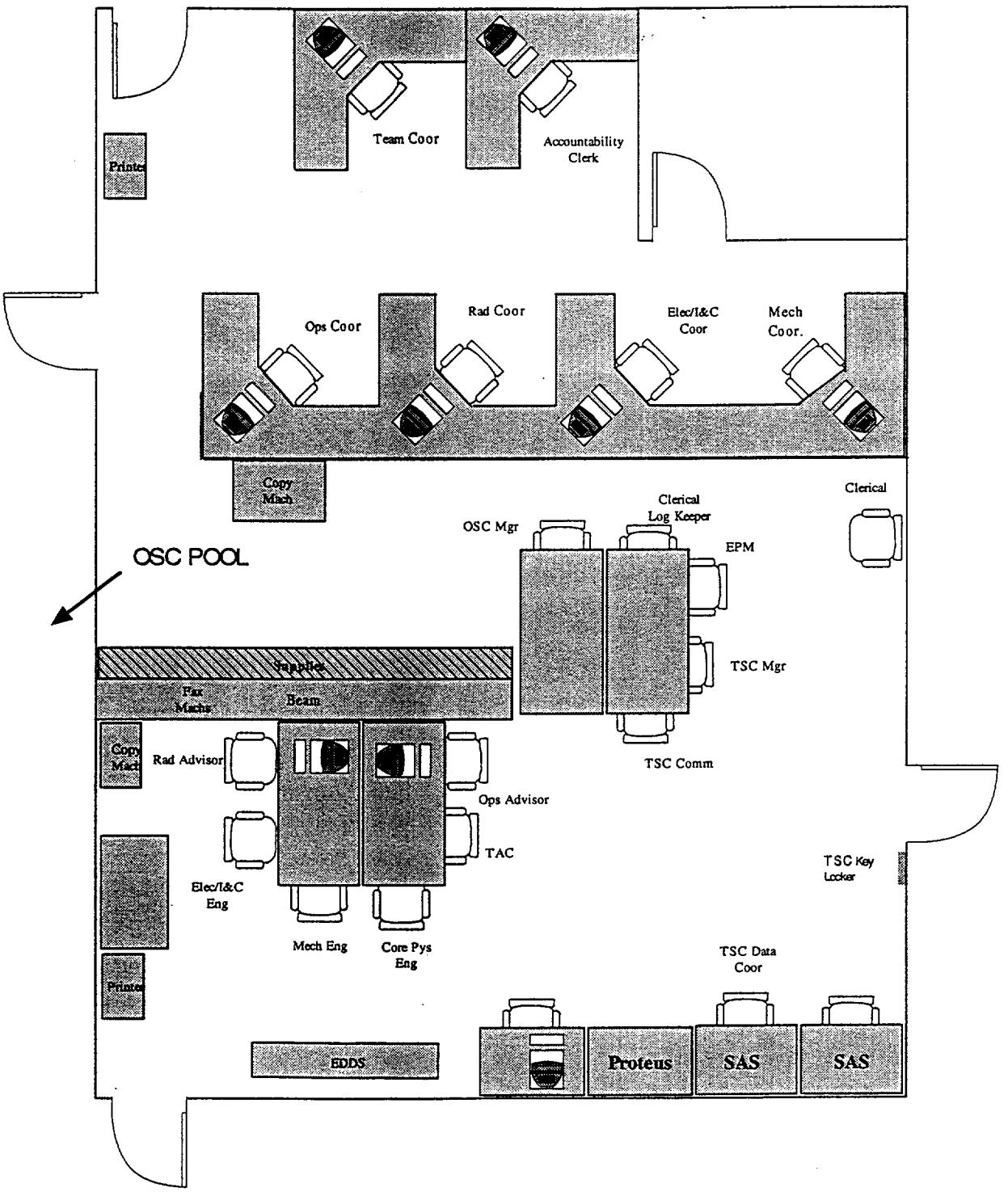
Sheet 2 of 2

Continuous Responsibility/Activity (cont.)	Notes
4.0 Work with the OSC Coordinators to maintain Continuing Accountability 4.1 Assist Team Coordinator in maintaining Individual Exposure Tracking Logs (Form IP-1023-3) and Non-Exposure Tracking Log (Form IP-1023-8). 4.2 Assist Team Coordinators in maintaining OSC Status boards.	
5.0 Develop Second Shift Rosters for ERO and contact second shift 5.1 Use ERO Shift Rosters (Form 1023-9) to list individuals currently on the first shift in the TSC and OSC. 5.2 Request EOF Clerical Staff to identify the current EOF personnel. 5.3 Work with TSC and OSC Managers to identify personnel to fill second shift and ensure all needed positions are identified and establish time second shift is to be called in. 5.4 Use Emergency Telephone Directory to identify and contact individuals to fill positions on second shift. TSC and EOF Clerical Staff may be used to assist in notifications. 5.5 Inform the OSC Manager when notifications are completed and if there are any problems filling required positions.	
Closeout Responsibility/Activity	**Notes**
6.0 Assist OSC personnel to return all equipment to proper storage locations.	

Addendum 1

TSC & OSC Layout

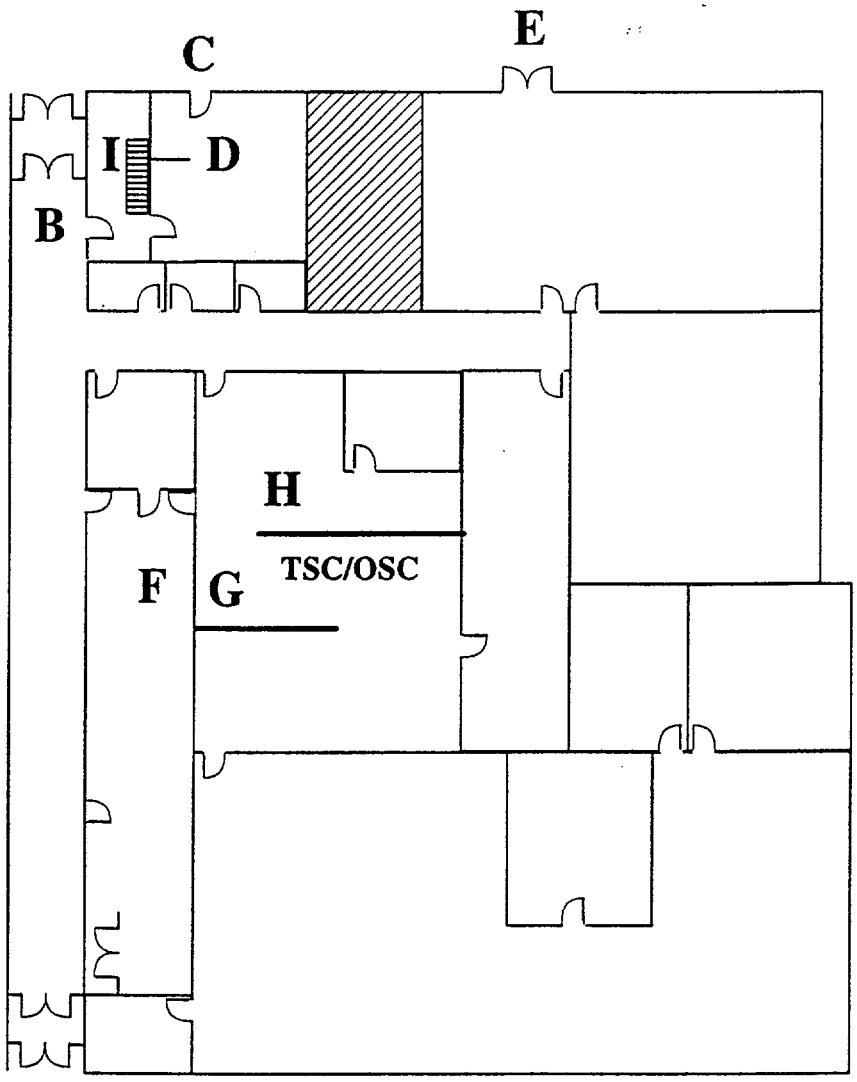
Sheet 1 of 1



Addendum 2

TSC / OSC Complex Radiological Setup

Sheet 1 of 1



If there is no indication of contamination outside the normal RCA the TSC/OSC Complex set up may be only the restricting of access and egress through point A and E.

If hallway contamination < 1000 dpm/100cm^2

A - No Entry / No Exit
B - Exit Only
C - Entry to TSC/OSC, No Exit, White Step Off Pad & Frisk shoes before stepping here sign
D - Nothing is installed here
E - No Entry / No Exit
F - HPT Station
G - Equipment Cabinet
H - OSC Coordinators
I - Place sign at top of the stairway no entry / no exit without permission from RPC

If hallway contamination > 1000 dpm/100cm^2

A - No Entry / No Exit
B - Exit Only
C - Entry to TSC/OSC, No Exit, White Step Off Pad & Frisk shoes before stepping here sign
D -White Step Off Pad & Frisk shoes before stepping here sign
E - No Entry / No Exit
F - HPT Station
G - Equipment Cabinet
H - OSC Coordinators
I - Place sign at top of the stairway no entry / no exit without permission from RPC

Addendum 3

Task Assignment Log (Form IP-1023-1)

Sheet 1 of 1

OSC Manager's Task Assignment Log

Task Description / Lead Coordinator		Date/ Time Assigned	Date/ Time Competed
Priority	Lead Coordinator		
Priority	Lead Coordinator		
Priority	Lead Coordinator		
Priority	Lead Coordinator		
Priority	Lead Coordinator		

Priorities:

High (H): The mission is necessary to protect the immediate health and safety of the public.

Medium (M): Any task that requires action by the OSC and should be worked on at the immediate time period, but does not fit the criteria of a health and safety of the public related mission.

Low (L): Any mission which can be worked on when resources permit.

Form IP-1023-1 Rev 0

Addendum 4

Emergency Team Briefing (Form IP-1023-2)

Sheet 1 of 2

Emergency Team Briefing Form

Team #:

Lead Coordinator: ☐ I&C ☐ Rad ☐ Main ☐ Ops	Date: _____ Time:	Location of Work:

Task: _____

Attach any additional supporting documentation

Tools, Equipment and Supplies: _____

Team Members: * _____ _____

* Designate one member as the Team Leader

Technical Brief: ☐ Complete	Rad. Brief: ☐ Complete ☐ N/A ERWP: ☐ N/A or #_____ Estimated Dose:	Team Number: Assigned by Team Coordinator

Method(s) of Communications: ☐ Radio ☐ Phone ☐ Other:

Recommended Route to Work:

Status / Debrief Items: ☐ Completed _____

Page 1 of 2 Form IP-1023-2 Rev 1

Addendum 4
Emergency Team Briefing (Form IP-1023-2)
Sheet 2 of 2

Emergency Team Briefing Form

Team Dispatch Guidelines: (completed by Team Coordinator)

1. Have they received **Technical Briefing** ☐
2. Have they received **Radiological Briefing** ☐
3. Tell them their **Team Number** ☐
4. Do they know the **Location of Job and Route** ☐
5. Do they know the **Scope of Job & Approximate Duration** ☐
6. Do they have their **Tools** ☐
7. Do they have **HP Coverage** ☐
8. Tell them their **Available Dose** ☐
9. Give them Coordinators **Phone Numbers** ☐
10. Tell them to **Report Back Every 20 - 30 Minutes** ☐
11. Have them perform a **Radio Check** ☐

Team Check-In Guidelines: (completed by Team Coordinator)

1. Ensure **All Team Members Returned** ☐
2. Record **Dose Received** ☐
3. Ask about **Job Status** ☐
4. Have them **Return Radio to Charger** ☐
5. Tell them to **Report to Lead Coordinator for Debriefing** ☐

Team Debriefing Guidelines: (completed by Lead Coordinator) Yes

1. Are there any outstanding safety issues to address? ☐
2. Were any Non-Quality or Non-Standard Parts used? ☐
3. Were any Temporary Facility Changes made? ☐
4. Was any excess torque or force applied to components? ☐
5. Was any valve position or equipment status changed? ☐
6. Was any work performed which would normally require follow-up Testing ☐

Attach further details as needed to ensure outstanding issues can be addressed during Recovery Phase.

Page 2 of 2 Form IP-1023-2 Rev 1

Addendum 4

Individual Exposure Tracking Log (Form IP-1023-3)

Sheet 1 of 1

Individual Exposure Tracking Log

Name:				TLD # _____ Employee #	
Location / Team / Times		Available Exposure (mrem)	Time of Reading	Dosimeter Reading	Emergency Exposure (mrem)
_____					
Team #:					
Time Out:					
Time In:					
_____					
Team #:					
Time Out:					
Time In:					
_____					
Team #:					
Time Out:					
Time In:					
_____					
Team #:					
Time Out:					
Time In:					
_____					
Team #:					
Time Out:					
Time In:					

NOTES:

1. Use this form along with Team Briefing Form to account for ERO members dispatched from OSC/TSC and track individual's exposure
2. Initial Exposure Limit will be 1000 mrem for duration of emergency. EPM may authorized more exposure.
3. If Form is filled transfer Name, TLD # and remaining available exposure to new form and staple this completed form to it.

Form IP-1023-3 Rev 0

Addendum 6

ERO Log Sheet (Form IP-1023-4)

Sheet 1 of 1

ERO Log Sheet

ERO Position: _____ **Name:**	**Date:** _____

Time	Significant Events, Information or Communications

Signature: _____

Form IP-1023-4 Rev 0

Addendum 7

Emergency Radiation Work Permit (Form IP-1023-5)

Sheet 1 of 1

Emergency Radiation Work Permit

ERWP Number: _____ **Date:**	**Written By:** _____ **Approved By:** _____ (RP Coordinator)

Work Area: _____

_____

Radiation Readings: ❑ Based on recent survey (post emergency) **SurveyTime:** _____

❑ Based on Old Surveys & Plant Conditions (update as soon as possible)

High General Area Reading: _____ **mR/Hr** **Updates:** _____ **mR/Hr** _____ **mR/Hr**

High Equipment Contact Readings: _____/_____ **mR/Hr** **On:** _____

Surface Contamination Levels: _____ **DPM/100CM^2** _____ **DPM/100CM^2**

Internal System Contamination Expected: ❑ **Yes** ❑ **No** **Airborne Levels*:** ❑ **Yes** ❑ **No**

* Attach Sample Results -- Consider giving KI prior to dispatching teams IF thyroid dose is expected to be > 25 Rem

Recommended Respirator Protection: _____

To be Worn When:

Dosimetry Required: ❑ **TLD** ❑ **SRD Range(s)** ❑ **Alarming Set At:**

Recommended Protective Clothing: _____

_____

Hold Radiation Limit: _____ **mR/Hr** _____ **mrem**

Turn Back Radiation Limit: _____ **mR/Hr** _____ **mrem**

RP Technician Required: ❑ **No** ❑ **Until on location (survey)**

❑ **Self Monitoring** ❑ **Continuously** ❑ **To Open System**

Other Instructions: _____

_____

Form IP-1023-5 Rev 0

Addendum 8

Emergency Exposure Authorization (Form IP-1023-6)

Sheet 1 of 1

Emergency Exposure Authorization

Emergency Exposure Guidelines:

1. All Emergency Exposures shall be authorized by the Emergency Director or Emergency Plant Manager.
2. All individuals may be authorized up to 5 Rem emergency exposure for a given emergency event. Historical occupational exposure is not totaled into this limit.
3. Procedures allow for the Emergency Plant Manager to give a blanket authorization of up to 5 Rem emergency exposure for Alert or higher classifications.
4. Any emergency exposure greater than 5 Rem Whole Body, 50 Rem Extremities or 50 Rem Skin of Whole Body, shall be authorized on a individual basis for a specific task.
5. All emergency exposures are voluntary. - For higher doses individuals over the age of 45 are preferable. - Fertile women shall not be used, - Individuals should be briefed that these exposures may increase their chances of cancer during their lifetime.
6. Volunteers may be authorized up to 10 Rem to protect valuable property.
7. Volunteers may normally be authorized up to 25 Rem for life saving or the protection of large populations.
8. Individuals may volunteer to receive greater than 25 Rem to save a life.
9. For any expected or actual Thyroid Exposure > 25 Rem CDE, the issuance of KI should be considered.

Task: _____	**Date:** _____
_____	**Time:** _____

The following personnel have volunteered to perform the above task(s)
They are authorized to receive up to _____ Rem

Name	SSN	Received Briefing Signature

Approval Signature: _____
Emergency Director or Emergency Plant Manager

Form IP-1023-6 Rev 0

Addendum 9

Normal OSC Staffing (Form 1023-7)

Sheet 1 of 1

Normal OSC Staffing

At least 2 individuals shall be members of the First Aid Team

No.	Positions	Number Present	Number Needed	Called
1	OSC Manager			
1	Team Coordinator			
2	Accountability Clerks			
1	Rad Protection Coordinator			
1	Operations Coordinator			
1	Maintenance Coordinator			
1	I&C Coordinator			
1	I&C Planner			
1	I&C Supervisor			
2	I&C Technicians			
1	Chemistry Supervisor			
1	Chemistry Technician			
1	Electrical Planner			
1	Electrical Supervisor			
2	Electrical Technicians			
1	Mechanical Supervisor			
1	Mechanical Planner			
2	Mechanical Technicians			
1	HP Supervisor			
4	HP Technicians			
-	Operations Personnel			
-	Other			
27	Total number of individuals assigned to OSC			

OSC Manager should enter number of each positions needed based on event.

Form IP-1023-7 Rev 1

Addendum 10

ERO Tracking Log (Form IP-1023-8)

Sheet 1 of 1

ERO Tracking Log

Team Coordinator: _____ Date: _____

Team #	Location / Task	Time Out	Due Back	Time In	Team Member Name(s)	Avail Exposure	Dose Rec.	Navy Avail Exposure	Job Status
				Lead Coordinator					
				Lead Coordinator					
				Lead Coordinator					
				Lead Coordinator					
				Lead Coordinator					

NOTES:

1. Use this form to track individuals located outside the TSC/OSC Complex, CCR or Security Posts.
2. Individuals emergency exposures should be tracked on Individual Exposure Tracking Logs (IP-1023-3)

Form IP-1023-8 Rev 1

Addendum 11

ERO Shift Rosters (Form IP-1023-9)

Sheet 1 of 3

ERO Shift Rosters

EOF POSITION	Shift 1 Individual(s)		Shift 2 Individual(s)	
Emergency Director				
EOF Manager				
ORAD				
Dose Assessment HP				
ED Technical Advisor				
MIDAS Operator				
Information Liaison				
EOF Communicator #1				
EOF Communicator #2				
Offsite Monitoring Teams (4)				
Onsite Monitoring Team (2 HPs)				
EOF Clerical Staff (3)				
Others				
TSC POSITION	**Shift 1 Individual(s)**		**Shift 2 Individual(s)**	
Emergency Plan Manager				
TSC Manager				
Technical Assessment Coordinator				
Operations Advisor				
Radiological Advisor				
Core Physics Engineer				
Mechanical Engineer				
Elec / I&C Engineer				
TSC Data Coordinator				
TSC Communicator				
TSC Communicator CCR				
Data Processor CCR				
Document Controller				
TSC Clerical Staff (2)				
Others				

Page 1 of 3 Form IP-1023-9 Rev 1

Addendum 11

ERO Shift Rosters (Form IP-1023-9)

Sheet 2 of 3

ERO Shift Rosters

OSC POSITION	Shift 1 Individual(s)		Shift 2 Individual(s)	
OSC Manager				
Team Coordinator				
Operations Coordinator				
RP Coordinator				
Maintenance Coordinator				
I&C Coordinator				
Accountability Clerk				
HP Supervisor				
HP Technicians				
Chemistry Supervisor				
Chemistry Technicians				
I&C Supervisor				
I&C Planner				
I&C Technicians				
Mechanical Supervisor				
Mechanical Planner				
Electrical Planner				
Mechanical / Electrical Technicians				
Material Storekeeper				
Others				

Addendum 11

ERO Shift Rosters (Form IP-1023-9)

Sheet 3 of 3

ERO Rosters

Misc POSITION	Shift 1 Individual(s)		Shift 2 Individual(s)	
Logistics Manager				
Eng & Construction Support				
Recovery Manager				
Schedule & Planning Coordinator				
Project Management Specialist				

Notes:

1. Call the EOF Clerical Staff to get names of individuals filling EOF positions on the first shift
2. Call individuals filling Misc. positions outside the EOF,TSC or OSC
3. Use Emergency Telephone Book to call in individuals to fill second shift.

Addendum 12
OSC Guidelines (Form IP-1023-10)
Sheet 1 of 1

OSC Guidelines

General Guidelines	***BE CAREFUL***
1. Always ensure your name appears on an Accountability Roster when you arrive at the Operations Support Center.	
2. Maintain a quiet professional manner throughout the event.	
3. Pay attention to the facility briefings and maintain awareness of conditions and events.	
4. **DO NOT** leave the TSC/OSC Complex without checking out with the Team Coordinator. or the Accountability Clerk **NOTE:** The restrooms at the top of the stairs are still within the TSC/OSC Complex, but you should inform a coworker when going there.	
• **Team Dispatch**	***WORK SAFE***
1. When selected to perform a task in the field, receive job briefing from the Lead Coordinator (Operations, Maintenance, I&C or Radiation Protection) for your assigned task. **IF** the job involves possible radiological exposures **THEN** the Radiation Protection Coordinator or an HP Supervisor will provide a you with a radiological briefing. *These briefs should be conducted in one of the briefing rooms.* The Lead Coordinator will give you the Team Briefing Form when you are being dispatched after completion of briefing.	
2. **ALWAYS** check out with the Team Coordinator prior to leaving TSC/OSC Complex to perform a task – Always take a radio and test it before going out into the field unless directed otherwise by the Team Coordinator. Give the Team Coordinator the Team Briefing Form when you are checking out.	
3. Maintain communications with the Team Coordinator while in the field. Report any unexpected conditions or events immediately.	
4. **ALWAYS** check in with the Team Coordinator and report any exposure you received IMMEDIATELY upon your return to the TSC/OSC Complex after performing a task. **REPORT** any safety concerns which may be important for future work or to teams currently in the field The Team Coordinator will return the Team Briefing Form to you after you have checked in with him/her.	
5. Report to the Lead Coordinator (Operations, Maintenance, I&C or Radiation Protection) for a de-briefing after you have completed checking in with the Team Coordinator. Report: Status of the assigned task Any deviations taken from normal work practices or quality control processes Any follow-up task(s) you feel are needed to ensure assignment goal is completed	
6. After the team de-briefing return to the pool area and await further assignment. Brief other Technicians in the pool on tasks you performed and conditions in the field.	

Form IP-1023-10 Rev 0

Addendum 13

Sample Patient Package Insert for THYRO-BLOCK Tablets

Sheet 1 of 1

Patient Package Insert For

THYRO-BLOCK®
TABLETS
(POTASSIUM IODIDE TABLETS, USP)
(pronounced poe-TASS-e-um EYE-on-dyed)
(abbreviated: KI)

TAKE POTASSIUM IODIDE ONLY WHEN PUBLIC HEALTH OFFICIALS TELL YOU. IN A RADIATION EMERGENCY, RADIOACTIVE IODINE COULD BE RELEASED INTO THE AIR. POTASSIUM IODIDE (A FORM OF IODINE) CAN HELP PROTECT YOU.

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO NOT TAKE IT MORE OFTEN. MORE WILL NOT HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. *DO NOT TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC TO IODIDE.* (SEE SIDE EFFECTS BELOW.)

INDICATIONS

THYROID BLOCKING IN A RADIATION EMERGENCY ONLY.

DIRECTIONS FOR USE

Use only as directed by State or local public health authorities in the event of a radiation emergency.

DOSE

Tablets: ADULTS AND CHILDREN 1 YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children.
BABIES UNDER 1 YEAR OF AGE: One-half (1/2) tablet once a day. Crush first.

Take for 10 days unless directed otherwise by State or local public health authorities.

Store at controlled room temperature between 15° and 30°C (59° to 86°F). Keep container tightly closed and protect from light.

WARNING

Potassium iodide should not be used by people allergic to iodide. Keep out of the reach of children. In case of overdose or allergic reaction, contact a physician or the public health authority.

DESCRIPTION

Each white, round, scored, monogrammed THYRO-BLOCK® TABLET contains 130 mg of potassium iodide. Other ingredients: magnesium stearate, microcrystalline cellulose, silica gel, and sodium thiosulfate.

HOW POTASSIUM IODIDE WORKS

Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods, like iodized salt or fish. The thyroid can "store" or hold only a certain amount of iodine.

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.

If you take potassium iodide, it will fill up your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

WHO SHOULD NOT TAKE POTASSIUM IODIDE

The only people who should not take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or antithyroid drug). Pregnant and nursing women and babies and children may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE

Potassium iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

SIDE EFFECTS

Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will be taking the drug.

Possible side effects include skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED

THYRO-BLOCK® TABLETS (Potassium Iodide Tablets, USP) are white, round tablets, one side scored, other side debossed 472 WALLACE, each containing 130 mg potassium iodide. Available in bottles of 14 tablets (NDC 0037-0472-20).

WALLACE LABORATORIES
Division of
CARTER-WALLACE, INC.
Cranbury, New Jersey 08512

IN-0472-03 Rev. 5/94

CON EDISON
INDIAN POINT STATION
EMERGENCY PLANNING

IP-1024
Rev. 8

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EMERGENCY CLASSIFICATION

	Print Name	Signature	Date
Prepared by:	C. Kelly Walker	C. Kelly	9/29/00
Technical Reviewer:	Richard Burns	R Burns	1/9/1
Reviewer:	Ed Goetchius	Ed Goetch	1/9/01
Reviewer:			
Reviewer:			

	Meeting Number	Signature Secretary	Date
SNSC Review:	PREVIOUS SNSC #2627	N/A	1/9/01

	Print Name	Signature	Date
Approval:	Frank Inzirillo	Frank Inzirillo	1/11/01

Effective Date: 01/12/01

Biennial Review

Reviewer/Date _____ Reviewer/Date _____

EMERGENCY CLASSIFICATION

1.0 PURPOSE

To describe the method for classification of emergencies as a Notification of Unusual Event (NUE), Alert, Site Area Emergency (SAE) or General Emergency (GE).

2.0 DISCUSSION

2.1 The symptom, event or barrier base classification may be made for NUE, Alert, Site Area or General Emergency, using Attachment 2.

2.2 **IF** a symptom, event or barrier base classification has been declared in a category followed by the same classification in another category **THEN** the classification continues to apply but an update should be made to offsite authorities in accordance with Reference 6.2.

2.3 **IF** a symptom, event or barrier based classification has been declared in a category followed by an increased classification **THEN** the higher classification shall be declared **AND** offsite authorities shall be notified in accordance with Reference 6.2.

2.4 Many of the classifications derived from the Reference 6.3 methodology are fission product barrier based. That is, a condition based upon loss or potential loss of one or more of the three fission product barriers. (Fuel cladding, RCS and Containment). Refer to Attachment 1.

2.5 The following criteria serves as bases for event classification related to fission product barrier loss:

2.5.1 Unusual Event - any loss **OR** potential loss of containment.

2.5.2 Alert - Any loss **OR** potential loss of fuel clad or RCS.

2.5.3 Site Area Emergency - Any loss of both fuel clad **AND** RCS **OR** any potential loss of **EITHER** fuel clad **OR** RCS with a loss of any addition barrier.

2.5.4 General Emergency - Loss of any two barriers with loss **OR** potential loss of a third.

2.6 Event based classifications refer to occurrences with potential safety significance such as failure of Safety Injection pumps, safety valve failures, or electric power failures.

2.7 The symptom based classifications refer to those indicators that are measurable over a continuous spectrum, such as, core temperature, coolant levels and containment pressure.

2.8 The Technical Bases Document provides an explanation and rational for each of the Emergency Action Levels (EALs). This document is also used by individuals who are responsible for the implementation of this procedure as a technical reference and aid in EAL interpretation.

2.9 The EALs are grouped into nine categories to simplify their presentation and promote a rapid understanding by their users. These categories are:

Category 1 CSFST Status

Category 2 Reactor Fuel

Category 3 Reactor Coolant System

Category 4 Containment

Category 5 Radioactivity Release/Area Radiation

Category 6 Electrical Failures

Category 7 Equipment Failures

Category 8 Hazards

Category 9 Other

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

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

2.12 Category nine provides the Emergency Director (Shift Manager) the latitude to classify and declare emergencies based on plant symptoms or events which in his judgment warrant classification. This judgment includes evaluation of loss or potential loss of one or more fission product barriers warranting emergency classification consistent with the barrier loss criteria as specified in section 2.5.

2.13 Categories are further divided into one or more subcategories depending on the types and number of plant conditions that dictate emergency classifications. For example, the Electrical Failures category has two subcategories whose values can be indicative of losses of electrical power sources. Loss of AC power sources and loss of DC power sources. An EAL may or may not exist for each subcategory at all four classification levels. Similarly, more than one EAL may exist for a subcategory in a given emergency classification when appropriate (i.e. no EAL at the General Emergency level but three EALs at the Unusual Event Level).

2.14 The operating modes of operation are defined as follows:

2.14.1 Power Operations -When the reactor is critical and the neutron flux power range instrumentation indicates greater than2% of rated power.

2.14.2 Hot Shutdown -When the reactor is sub-critical by an amount greater than or equal to the margin as specified in Technical Specification 3.10 and T_{avg} is greater than 200°F and less than or equal to 555°F.

2.14.3 Cold Shutdown -When the reactor is sub-critical by at least 1% $\Delta k/k$ and T_{avg} is less than or equal to 200°F.

2.14.4 Refuel -Any operation involving movement of core components when vessel head is completely unbolted.

2.15.5 Defueled - Reactor vessel contains no irradiated fuel.

2.15 Plant Emergency Operating Procedures (EOPs) are designed to maintain or restore a set of critical safety functions that are prioritized for restoration efforts during accident conditions. By monitoring the critical safety functions status, the impact of multiple events can be inherently addressed.

2.16 The critical safety functions are monitored through the use of Critical Safety Function Status Trees (CSFSTs). When certain plant parameters exceed threshold values specified by the CSFST, the plant operator is directed to one or more functional restoration procedure in an attempt to restore those parameters to within acceptable limits. The following CSFSTs are utilized to be indicative of failures or potential failures of one or more fission product barriers:

2.16.1 Subcriticality - Orange or Red paths in this CSFST indicate losses of reactivity control which may pose a threat to fuel clad and RCS integrity.

2.16.2 Core Cooling - Orange <u>OR</u> Red paths in this CSFST indicate losses of core subcooling <u>AND</u> thus pose a direct threat to the integrity of the reactor fuel clad.

2.16.3 Heat Sink - The Red path of this CSFST is indicative of a loss of ability to remove decay heat from the core and thus poses a direct threat to fuel clad integrity.

2.16.4 Integrity - The Red path of this CSFST is indicative of a direct threat to RCS barrier integrity.

2.16.5 Containment - Red path of this CSFST is indicative to a loss of RCS barrier <u>AND</u> direct threat to the containment barrier integrity.

3.0 PRECAUTIONS AND LIMITATIONS

NONE

4.0 EQUIPMENT AND MATERIALS

NONE

5.0 INSTRUCTIONS

5.1 The Operator is alerted by initial event recognition or Control Room alarms.

5.2 The Operator shall notify the Shift Manager **AND** Watch Engineer.

5.3 The Operator may enter the Emergency Operating Procedures (EOPs) or Abnormal Operating Instructions (AOIs) while the Watch Engineer monitors the Critical Safety Function Status Trees (CSFST), if appropriate.

5.4 The Shift Manager shall evaluate Attachment 2 to determine **IF** a GE, SAE, ALERT or NUE classification applies **THEN** determine the highest classification and declare it, if applicable.

5.5 The Shift Manager shall assume the role of Emergency Director and initiate County, State AND NRC notifications in accordance with Reference 6.2.

5.6 The Emergency Director (Shift Manager) continues to evaluate future events and potential challenges from information supported by the Operator and Watch Engineer. As conditions warrant, the Emergency Director (Shift Manager) shall re-enter Section 5.4.

5.7 If necessary the Emergency Director (Shift Manager) shall upgrade the emergency classification.

5.8 If no classification applies, the Shift Manager evaluates whether Technical Specifications Limits on LCO reportable under Reference 6.1 applies and performs the applicable notification as per Reference 6.1.

6.0 REFERENCES

6.1 SAO-124, Oral Reporting of Non-Emergency Items and Items of Interest and Significant Occurrence Reporting

6.2 IP-1002, Emergency Notification and Communication

6.3 NUMARC/NESP-007, Revision 2, Methodology for Development of Emergency Action Levels

7.0 ATTACHMENTS

7.1 Attachment 1 - Fission Product Barrier Loss & Potential Loss Indicators

7.2 Attachment 2 – Emergency Action Levels

8.0 ADDENDUM

None

ATTACHMENT 1
Sheet 1 of 2

Fission Product Barrier Loss/Potential Loss Matrix

(Those thresholds for which loss or potential loss is determined to be imminent, classify as though the threshold(s) has been exceeded)

Fuel Cladding

Potential Loss	Loss
• ORANGE path in F-0.2, CORE COOLING • RED path in F-0.3, HEAT SINK • Core Exit Thermocouple Readings **>700°F** • RVLIS **≤39%** w/no RCPs running • Emergency Director Judgment	• RED path in F-0.2, CORE COOLING • Coolant activity **>300 µCi/cc** I-131 equivalent • Core Exit Thermocouple Readings **>1200°F** • Containment radiation monitor R-25 or R-26 **>17R/hr** • Emergency Director Judgment

RCS

Potential Loss	Loss
• RED path on F-0.4, INTEGRITY • RED path on F-0.3, HEAT SINK • Primary system leakage exceeding capacity (**>75GPM**) of single charging pump • Emergency Director Judgment	• RCS subcooling < SI initiation setpoint due to RCS leakage • Unisolated faulted (outside VC) ruptured steam generator • **>0.17µCi/cc** on R-42 OR **>66 µCi/cc** on R-41 due to RCS leakage • Emergency Director Judgment

ATTACHMENT 1
Sheet 2 of 2

Fission Product Barrier Loss/Potential Loss Matrix

(Those thresholds for which loss or potential loss is determined to be imminent, classify as though the threshold(s) has been exceeded)

Containment

Potential Loss

- RED path F-0.5, CONTAINMENT
- **Either**:
  Core exit thermocouples **>1200°F**
  OR
  Core exit thermocouples **>700°F** with RVLIS **<39%** w/no RCPs
  AND
  Restoration procedures not effective within 15 minutes
- Confirmed phase "B" isolation signal following confirmed LOCA with less than minimum containment cooling safeguards equipment operating

Fan Cooler Units Oper.	Spray Pumps Req'd
<3	2
3	1
5	0

- Containment Pressure **47 psig** and increasing
- ≥4% hyrdogen concentration in containment
- Containment radiation monitor R-25/26 reading **>68 R/hr**
- Emergency Director Judgment

Loss

- Rapid uncontrolled decrease in containment pressure following initial increase due to RCS failure
- **Either**:
  Any Phase "A" or Phase "B" or containment ventilation isolation valve(s) not closed when required following confirmed LOCA
  OR
  Inability to isolate any primary system discharging outside containment
  AND
  Radiological release to the environment exists as a result
- Both doors open on a VC airlock for >4 hrs.
  OR
  Inability to close containment pressure relief or purge valves which results in a radiological release pathway to the environment for >4 hrs.
  OR
  Any Phase "A" or Phase "B" or containment ventilation isolation valve(s) not closed when required which results in a radiological release pathway to the environment
- Unisolable release of secondary side to atmosphere from the affected steam generator(s) with primary to secondary leakage **>0.3 gpm** in any steam generator
- Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions
- Emergency Director Judgment

Attachment 2 - Emergency Action Levels

CATEGORY 1.0 CSFST STATUS

Category	General	Site Area	Alert	Unusual Event
1.1 Subcriticality	**[SG2]** **1.1.3 {1,2}** RED path in F-0.1, Subcriticality **AND** Actual or imminent entry into either: RED Path in F-0.2, Core Cooling **OR** Red Path in F-0.3, Heat Sink	**[SS2,SS4]** **1.1.2 {1,2}** RED path in F-0.1 Subcriticality **AND** Emergency boration is required	**[SA2]** **1.1.1 {1,2}** Any Failure of an automatic trip signal to reduce power range < 5% **AND** Manual trip is successful	
1.2 Core Cooling	**[fl,rl,cpl] [FC1,PC6,PC6]** **1.2.2 {1,2}** RED path in F-0.2,Core Cooling **AND** Functional restoration actions taken and procedures not effective within **15 minutes**.	**[fpl/fl,rl] [SS4,FC3,FC4]** **1.2.1 {1,2}** ORANGE or RED path in F-0.2, Core Cooling		
1.3 Heat Sink		**[fpl,rpl] [SS4,RCS1,FC1]** **1.3.1 {1,2}** RED path in F-0.3, HEAT SINK **AND** Heat sink is required		
1.4 Integrity			**[rpl] [RCS1]** **1.4.1 {1,2}** RED Path on F-0.4, Integrity	
1.5 Containment	**[fl,rl,cpl] [PC1]** **1.5.1 {1,2}** RED Path F-0.5, Containment resulting from loss of coolant.			

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 2.0 REACTOR FUEL

Category	General	Site Area	Alert	Unusual Event
2.1 Coolant Activity		**[fl.rpl/rl]** **[FC2,RCS1,RCS2,RCS4]** **2.1.3 {1,2}** Coolant activity > **300 µCi/cc** I-131 equivalent and any of the following: • RED path on F-0.4, Integrity • Primary system leakage exceeding capacity (> 75 gpm) of single charging pump • RCS subcooling < SI initiation setpoint due to RCS leakage • Rise in R-41 offscale or R-42 >0.17 µCi/cc due to RCS leakage	**[fl] [FC2]** **2.1.2 {1,2}** Coolant Activity > **300 µCi/cc** I-131 equivalent	**[SU4]** **2.1.1 {1,2,3,4,5}** Coolant sample activity: **≥ 60/(E bar) µCi/cc**
2.2 Containment Radiation	**[fl,rl,cpl] [PC5]** **2.2.3 {1,2}** Containment Radiation monitor R-25 or R-26 > **68 R/HR**	**[fl,rl] [FC5]** **2.2.2 {1,2}** Containment Radiation monitor R-25 or R-26 > **17 R/HR**	**[rl] [RCS4]** **2.2.1 {1,2}** Rise in R-41 offscale or R-42 > **0.17µCi/cc** due to RCS leakage	
2.3 Refueling Accidents or Other Radiation Monitors			**[AA2]** **2.3.2 {1,2,3,4,5}** Confirmed sustained alarm on ANY of the following radiation monitors resulting from fuel damage caused by an uncontrolled fuel handling process: • R-2/R-7 Vapor Containment Area Monitors • R-5 Fuel Storage Building Area Monitor • R-25 or 26 Vapor Containment High Radiation Area Monitors **[AA2]** **2.3.3 {1,2,3,4,5}** Report of visual observation of irradiated fuel uncovered	**[AU2]** **2.3.1 {1,2,3,4,5}** Spent fuel pool (reactor cavity during refueling) water level cannot be restored and maintained above Technical Specification minimum water level

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels CATEGORY 3.0 REACTOR COOLANT SYSTEM				
Category	**General**	**Site Area**	**Alert**	**Unusual Event**
3.1 RCS Leakage		**[fpl,rl][SS5, SS4,FC4]** **3.1.3 {1,2,3,4}** RVLIS cannot be maintained **> 39% with no RCP's running** **OR** With the reactor vessel head removed, it is reported that water level in the reactor vessel is dropping in an uncontrolled manner and core uncovery is likely	**[rpl] [RCS2]** **3.1.2 {1,2}** Primary system leakage exceeding capacity (**> 75 gpm**) of single charging pump	**[SU5]** **3.1.1 {1,2}** Unidentified or pressure boundary leakage **> 10 gpm** **OR** Identified leakage **> 25 gpm**
3.2 Primary to Secondary Leakage		**[rpl,cl] [PC4,RCS2]** **3.2.2 {1,2}** Unisolable release of secondary side to atmosphere from the affected steam generator(s) with primary to secondary leakage exceeding capacity (**> 75 gpm**) of a single charging pump **[fl,cl] [PC4,FC2]** **3.2.3 {1,2}** Unisolable release of secondary side to atmosphere from the affected steam generator(s) with primary to secondary leakage **> 0.3 gpm** in any steam generator **AND** Coolant activity **> 300 µCi/cc** of I-131 equivalent		**[cl] [PC4]** **3.2.1 {1,2}** Unisolable release of secondary side to atmosphere from the affected steam generator(s) with primary to secondary leakage **> 0.3 gpm** in any Steam Generator
3.3 RCS Subcooling			**[rl] [RCS2]** **3.3.1 {1,2}** RCS subcooling <SI initiation setpoint due to RCS leakage	

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 4.0 CONTAINMENT

Category	General	Site Area	Alert	Unusual Event
4.1 Containment Integrity Status	**[fl,rl,cpl] [PC2,FC2,FC5]** **4.1.4 {1,2}** Confirmed **Phase "B"** isolation signal following confirmed LOCA with less than minimum containment cooling safeguards equipment operating, Table 4.3 **AND** Any indicators of fuel clad loss, Table 4.1 **[fpl/fl,rl,cl] [PC2,FC1,FC2,FC3,FC4,FC5]** **4.1.5 {1,2}** **EITHER:** Rapid uncontrolled decrease in containment pressure following initial increase due to RCS failure **OR** Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions **AND** Any indications of fuel clad damage, Table 4.2 **[fpl/fl,rl,cl] [PC3,FC1,FC2,FC3,FC4,FC5]** **4.1.6 {1,2}** **EITHER:** Any **Phase "A"** or **Phase "B"** or CVI valve(s) not closed when required following confirmed LOCA **OR** Inability to isolate any primary system discharging outside containment **AND** Radiological release to the environment exists as a result **AND** Any indicators of fuel clad damage, Table 4.2	**[rl,cl] [PC2]** **4.1.2 {1,2}** Rapid uncontrolled decrease in containment pressure following initial increase due to RCS failure **OR** Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions **[rl,cl] [PC3]** **4.1.3 {1,2}** **EITHER:** Any **Phase "A"** or **Phase "B"** or CVI valve(s) not closed when required following confirmed LOCA **OR** Inability to isolate any primary system discharging outside containment **AND** Radiological release to the environment exists as a result		**[cl] [PC7]** **4.1.1 {1,2}** Both doors open on a VC airlock for > **4 hrs.** **OR** Inability to close containment pressure relief or purge valves which results in a radiological release pathway to the environment for > **4 hrs.** **OR** Any **Phase "A"** or **Phase "B"** or containment ventilation isolation valve(s) not closed when required which results in a radiological release pathway to the environment

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 4.0 CONTAINMENT

Category	General	Site Area	Alert	Unusual Event
4.2 SG Tube Rupture w/Secondary Release	**[fpl/fl,rl,cl] [RCS3,FC1,FC2,FC3,FC4,FC5]** **4.2.2 {1,2}** Unisolable faulted (outside VC) ruptured steam generator **AND** Any indicators of fuel clad damage, Table 4.2	**[rl,cl] [RCS3]** **4.2.1 {1,2}** Unisolable faulted (outside VC) ruptured steam generator		
4.3 Combustible Gas Concentrations	**[fl,rl,cpl] [PC2]** **4.3.1 {1,2}** ≥4% Hydrogen concentration in containment			

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 4.0 CONTAINMENT

Table 4.1 Fuel Clad Loss Indicators
1. Coolant activity > **300 µCi/cc** of I-131 equivalent
2. Containment radiation monitor R-25/R-26 reading > **17 R/hr**
3. RED path in F-0.2, CORE COOLING

Table 4.2 Fuel Clad Damage Indicators
1. ORANGE or RED path in F-0.2, CORE COOLING
2. RED path in F-0.3, HEAT SINK **AND** Heat sink is required
3. Coolant activity > **300 µCi/cc** of I-131 equivalent
4. Containment radiation monitor R-25/R-26 reading > **17 R/hr**

Table 4.3 Minimum Containment Cooling Safeguards Equipment

Fan Cooler Units Operating	Spray Pumps Required
< 3	2
3	1
5	0

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 5.0 RADIOACTIVITY RELEASE

Category	General	Site Area	Alert	Unusual Event
5.1 Effluent Monitors	**[AG1]** **5.1.4 {1,2,3,4,5}** A valid reading on any monitors Table 5.1 column "GE" for > **15 minutes** unless dose assessment can confirm releases are below Table 5.2 column "GE" within this time period.	**[AS1]** **5.1.3 {1,2,3,4,5}** A valid reading on any monitors Table 5.1 column "SAE" for > **15 minutes** unless dose assessment can confirm releases are below Table 5.2 column "SAE" within this time period.	**[AA1]** **5.1.2{1,2,3,4,5}** A valid reading on any monitors Table 5.1 column "Alert for > **15 minutes** unless dose assessment can confirm releases are below Table 5.2 column "Alert" within this time period.	**[AU1]** **5.1.1{1,2,3,4,5}** A valid reading on any monitors Table 5.1 column "NUE" for > **60 minutes** unless sample analysis can confirm release rates < **2 x technical specifications** within this time period.
5.2 Dose Projections/ Environmental Measurements/ Release Rates	**[AG1]** **5.2.5 {1,2,3,4,5}** Dose projections or field surveys resulting from an actual imminent release which indicate doses/dose rates > Table 5.2 column "GE" at the site boundary or beyond.	**[AS1]** **5.2.4 {1,2,3,4,5}** Dose projections or field surveys resulting from an actual imminent release which indicate doses/dose rates > Table 5.2 column "SAE" at the site boundary or beyond.	**[AA1]** **5.2.2{1,2,3,4,5}** Confirmed sample analysis for gaseous or liquid release rates > **200 x technical specifications** limits for > **15 minutes** **[AA1]** **5.2.3{1,2,3,4,5}** Dose projections or field surveys resulting from an actual imminent which indicate doses/dose rates > Table 5.2 column "Alert" at the site boundary or beyond.	**[AU1]** **5.2.1{1,2,3,4,5}** Confirmed sample analysis for gaseous or liquid release rates > **2 x technical specifications** limits for > **60 minutes.**

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 5.0 RADIOACTIVITY RELEASE

Category	General	Site Area	Alert	Unusual Event
5.3 Area Radiation Levels			**[AA3]** **5.3.2{1,2,3,4,5}** Sustained area radiation levels > **15 mRem/hr** in **EITHER:** Control Room **OR** Central Alarm Station and Secondary Alarm Station **[AA3]** **5.3.3{1,2,3,4,5}** Sustained abnormal area radiation levels > **8 R/hr** within any areas, Table 5.3 **AND** Access is required for safe operation or shutdown	**[AU2]** **5.3.1{1,2,3,4,5}** Any sustained direct ARM readings > **100 x alarm or** offscale high resulting from an uncontrolled process

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 5.0 RADIOACTIVITY RELEASE

Table 5.1
Effluent Monitor Classification Thresholds

GE	SAE	Alert	UE
53 µCi/cc	5.3 µCi/cc	5.3 E-1 µCi/cc	2.3 E-3 µCi/cc
53 µCi/cc	5.3 µCi/cc	5.3 E-1 µCi/cc	2.3 E-3 µCi/cc
N/A	N/A	2.5 E-1 µCi/cc	2.5 E-3 µCi/cc
N/A	N/A	2.7 E-2 µCi/cc	2.7 E-4 µCi/cc

Table 5.2
Dose Projection/Env. Measurement Classification Thresholds

	GE	SAE	Alert
TEDE	1000 mRem	100 mRem	10 mRem
CDE Thyroid	5000 mRem	500 mRem	N/A
External Exposure Rate	1000 mRem/hr	100 mRem/hr	10 mRem/hr
Thyroid exposure rate (for 1 hr. of inhalation)	5000 mRem/hr	500 mRem/hr	N/A

Attachment 2 - Emergency Action Levels
CATEGORY 5.0 RADIOACTIVITY RELEASE

Table 5.3 Plant Areas
• Condensate Storage Tank • RWST • Service Water Pump Structure • Service Water Valve Pit East • Fuel Storage Building • Primary Auxiliary Building/Fan House • 480 Volt Switchgear Room (Control Building) • Cable Spreading Room/Electrical Tunnel • Diesel Generator Building/Fuel Tank Area • Auxiliary Feedwater Pump Building • Battery Room (Control Building 33'0" ele.)

Attachment 2 - Emergency Action Levels

CATEGORY 6.0 ELECTRICAL FAILURES

Category	General	Site Area	Alert	Unusual Event
6.1 Loss of AC Power Sources	**[SG1]** **6.1.5 {1,2}** Loss of all emergency AC power . **AND EITHER:** Power restoration to required core cooling systems is not likely in ≤ **1 hr.** **OR** Actual or imminent entry into ORANGE or RED path on F-0.2, "Core Cooling"	**[SS1]** **6.1.4 {1,2}** Loss of AC power to all 480 volt busses (5A,2A/3A,6A) for **> 15 minutes.** **AND** Inability to power required core cooling systems with alternate power sources for **> 15 minutes**.	**[SA1]** **6.1.2 {3,4,5}** Loss of AC power to all 480 volt busses (5A, 2A/3A, 6A) for > **15 minutes.** **AND** Inability to power required core cooling/ spent fuel cooling systems with alternate power sources for > 15 minutes. **[SA5]** **6.1.3 {1,2}** AC power capability to 480 volt busses (5A,2A/3A,6A) reduced to only one of the following sources for **> 15 minutes.**: • 480V EDG 21 • 480V EDG 22 • 480V EDG 23 • Unit Auxiliary Transformer* • Station Auxiliary Transformer* • 13.8 KV gas turbine auto transformer* * with 86P or 86BU tripped, all offsite power supplies must be considered as one power supply	**[SU1]** **6.1.1 {1,2,3,4,5}** Unplanned loss of offsite power to all 480V busses(5A,2A/3A,6A) for > **15 minutes.**
6.2 Loss of DC Power Sources		**[SS3]** **6.2.2 {1,2}** Loss of bus voltage **(< 105 vdc)** for **> 15 minutes** on all of the DC Busses.		**[SU7]** **6.2.1 {3,4}** Unplanned loss of bus voltage **(< 105 vdc)** for **> 15 minutes** on any DC bus resulting in the loss of decay heat removal capability.

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 7.0 EQUIPMENT FAILURES

Category	General	Site Area	Alert	Unusual Event
7.1 Technical Specifications/ Requirements				**[SU2]** **7.1.1 {1,2}** Plant is not brought to required operating mode within Technical Specifications LCO Action Statement Time.
7.2 System Failures or Control Room Evacuation		**[HS2]** **7.2.5 {1,2,3,4,5}** Control Room Evacuation **AND** Plant control cannot be established per AOI27.1.9, "Control Room Inaccessibility/ Safe Shutdown" in ≤ **15 minutes**	**[HA1]** **7.2.2 {1,2}** Turbine failure generated missiles which causes or potentially causes any required safety related system or structure to become inoperable. **[HA5]** **7.2.3 {1,2,3,4,5}** Entry into AOI-27.1.9, "Control Room Inaccessibility/ Safe Shutdown Control" **[SA3]** **7.2.4 {3,4}** Reactor coolant temperature cannot be maintained < **200°F**	**[HU1]** **7.2.1 {1,2}** Report of main turbine failure requiring turbine trip resulting in: Damage to turbine generator seals causing release of lubricating oil or hydrogen **OR** Casing penetration

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 7.0 EQUIPMENT FAILURES

Category	General	Site Area	Alert	Unusual Event
7.3 Loss of Indications/ Alarms/Communication Capability		**[SS6]** **7.3.4 {1,2}** Loss of most (approx. 75%) safety system annunciators or indications on Control Room Panels **AND** Loss of ability to monitor critical safety function status **AND** A significant plant transient in progress	**[SA4]** **7.3.3 {1,2}** Unplanned loss of most (approx. 75%) safety system annunciators or indications on Control Room Panels for > **15 minutes** **AND** Increased surveillance is required for safe plant operation **AND EITHER:** A significant plant transient in progress **OR** Proteus and SAS are unavailable	**[SU3]** **7.3.1 {1,2}** Unplanned loss of most (approx. 75%) safety system annunciators or indications on Control Room Panels for > **15 minutes** **AND** Increased surveillance is required for safe plant operation **[SU6]** **7.3.2 {1,2,3,4,5}** Loss of all communications capability affecting the ability to EITHER: Perform routine operations **OR** Notify offsite agencies or personnel

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 8.0 HAZARDS

Category	General	Site Area	Alert	Unusual Event
8.1 Security Threats	**[HG1]** **8.1.4 {1,2,3,4,5}** Security Event which results in: Loss of plant control from the Control Room **AND** Loss of remote shutdown capability	**[HS1]** **8.1.3 {1,2,3,4,5}** Intrusion into a plant security vital area by an adversary **OR** Any security event which represents actual or likely failures of plant systems needed to protect the public.	**[HA4]** **8.1.2 {1,2,3,4,5}** Intrusion into plant Protected Area by an adversary **OR** Any security event which represents an actual substantial degradation of the level of safety of the plant.	**[HU4]** **8.1.1 {1,2,3,4,5}** Bomb Device or other indication of attempted sabotage discovered within plant Protected Area but outside Plant Vital Areas, Table 8.2 **OR** Any security event which represents a potential degradation in the level of safety of the plant
8.2 Fire or Explosion			**[HA2]** **8.2.3 {1,2,3,4,5}** Fire or explosion in any plant area, Table 8.2, which causes or potentially causes any required safety related system or structure to become inoperable	**[HU2]** **8.2.1 {1,2,3,4,5}** Confirmed fire in or contiguous to any plant area, Table 8.2 not extinguished in ≤ **15 minutes** of Control Room notification. **[HU1]** **8.2.2 {1,2,3,4,5}** Report by plant personnel of an explosion within Protected Area boundary which impacts plant safety related systems or structures.
8.3 Man-Made Events			**[HA1]** **8.3.3 {1,2,3,4,5}** Vehicle crash or projectile impact which causes or potentially causes any required safety related system or structure to become inoperable, Table 8.2 **[HA3]** **8.3.4 {1,2,3,4,5}** Report or detection of toxic or flammable gases within a plant area, Table 8.2, in concentrations that will be life threatening to plant personnel or preclude access to equipment (even when using personal protective equipment) needed for safe plant	**[HU1]** **8.3.1 {1,2,3,4,5}** Vehicle crash into or projectile which impacts plant safety related structures or systems within Protected Area boundary **[HU3]** **8.3.2 {1,2,3,4,5}** Report or detection of toxic or flammable gases that could enter or have entered within the Protected Area boundary in amounts that could affect the health of plant personnel or safe plant operation **OR** Report by local, county or state officials, or Unit 3, for potential evacuation of site personnel based on offsite event

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

Attachment 2 - Emergency Action Levels

CATEGORY 8.0 HAZARDS

Category	General	Site Area	Alert	Unusual Event
			operation	
8.4 Natural Events			**[HA1]** **8.4.4 {1,2,3,4,5}** Earthquake felt in- plant based upon consensus of Control Room Operators on duty **AND** Notification from Unit 3 that an earthquake of a magnitude ≥ **0.15g** horizontal or ≥ **0.10g** vertical has occurred. **[HA1]** **8.4.5 {1.2.3.4.5}** Sustained winds **> 100 mph** **OR** Tornado strikes a plant vital area, Table 8.2 **[HA1]** **8.4.6 {1,2,3,4,5}** Assessment by the Control Room personnel that a natural event has occurred which causes or potentially causes any required safety system or structure to become inoperable, Table 8.2 **[HA1]** **8.4.7 {1,2,3,4,5}** River level ≥**15' (OSML)** **OR** Low service water bay level resulting in a loss of service water flow	**[HU1]** **8.4.1 {1,2,3,4,5}** Earthquake felt in plant based upon a consensus of Control Room Operators on duty **AND** Notification received from Unit 3 that an earthquake has been detected on their instrumentation. **[HU1]** **8.4.2 {1,2,3,4,5}** Report by plant personnel of tornado within plant Protected Area boundary **[HU1]** **8.4.3 {1,2,3,4,5}** River level ≥ **14.5' (OMSL)** **OR** Service water bay level < **-4.5' (OMSL)**

Attachment 2 - Emergency Action Levels

CATEGORY 8.0 HAZARDS

Table 8.2 Plant Vital Areas
• Condensate Storage Tank
• RWST
• Service Water Pump Structure
• Service Water Valve Pit East
• Fuel Storage Building
• Primary Auxiliary Building/Fan House
• Vapor containment Building
• 480 Volt Switchgear Room (Control Building)
• Cable Spreading Room/Electrical Tunnel
• Central Control Room
• Diesel Generator Building/Fuel Tank Area
• Auxiliary Feedwater Pump Building
• Battery Room (Control Building 33'0" ele)
• Central Alarm Station

Attachment 2 - Emergency Action Levels

CATEGORY 9.0

Category	General	Site Area	Alert	Unusual Event
9.1 Other	**[HG2]** **9.1.7 {1,2,3,4,5}** As determined by the Shift Manager or Emergency Director, events are in progress which indicate actual, or imminent core damage and the potential for a large release of radioactive material in excess of EPA PAGs outside the site boundary. **[FC7,RCS6,PC8]** **9.1.8 {1,2}** Any event, as determined by the Shift Manager or Emergency Director, that could lead or has led to a loss of any two fission product barriers and loss or potential loss of the third, Attachment 1.	**[HS3]** **9.1.5 {1,2,3,4,5}** As determined by the Shift Manager or Emergency Director, events are in progress which indicate actual or likely failures of plant systems needed to protect the public. Any releases are not expected to result in exposures which exceed EPA PAGs. **[FC7,RCS6,PC8]** **9.1.6 {1,2}** Any event, as determined by the Shift Manager or Emergency Director, that could lead or has led to **EITHER:** Loss or potential loss of both fuel clad and RCS barrier, Attachment A. **OR** Loss or potential loss of either fuel clad or RCS barrier in conjunction with a loss of containment, Attachment 1.	**[HA6]** **9.1.3 {1,2,3,4,5}** Any event, as determined by the Shift Manager or Emergency Director, that could cause or has caused actual substantial degradation of the level of safety of the plant. **[FC7,RCS6]** **9.1.4 {1,2}** Any event, as determined by the Shift Manager or Emergency Director, that could lead or has led to a loss or potential loss of either fuel clad or RCS barrier, Attachment 1.	**[HU5]** **9.1.1 {1,2,3,4,5}** Any event, as determined by the Shift Manager or Emergency Director, that could lead to or has led to a potential degradation of the level of safety of the plant. **[PC8]** **9.1.2 {1,2}** Any event, as determined by the Shift Manager or Emergency Director, that could lead to or has led to a loss or potential loss of containment, Attachment 1.

[1]= Power Operations [2]= Hot Shutdown [3]= Cold Shutdown [4]= Refuel [5]= Defuel

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Emergency Data Acquisition

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Biennial Review

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Emergency Data Acquisition

1.0 PURPOSE

The purpose of this procedure is to provide instruction on operation of the Emergency Data Display System (EDDS) and Emergency Response Data System (ERDS) sub-function of EDDS.

2.0 DISCUSSION

2.1 The Emergency Data and Display System (EDDS) at Indian Point-2 is implemented as a local website (an Intranet). Within this website are data files containing the current and historical data, a WEB server, a manual overlay-input capability, an Emergency Response Data System (ERDS) link to the NRC, and a set of interconnected WEB pages that are available on the Indian Point Computer Network (LAN). Attachment 1, EDDS Block Diagram illustrates the system.

2.2 There are two EDDS websites at IP-2: (1) the plant EDDS (named "EPCCR"), and (2) the simulator EDDS (named "EPSIM"). Each EDDS website includes a WEB server (Microsoft Windows NT Server), a manual overlay workstation in the control room (or simulator control room), and a software program to process data from the SAS computer into HTML-formatted "pages". Multiple viewing stations, located in the TSC and EOF, are connected to both the NT-based WEB servers through the IP-2 LAN.

2.3 Loss of the IP-2 LAN in an emergency only affects the viewing stations located in the TSC and EOF. The SAS data transfer function uses a dedicated RS232 link which is not affected by the IP-2 LAN. The manual input station function can be executed at the EDDS NT Server. If the loss of the IP-2 LAN should occur, hardcopies can be made from the NT Server and faxed or delivered by messenger to the other locations.

2.4 Approximately 50% of the data needed for the EDDS functions are not available in the SAS (or Proteus) computers. All of this data must be input manually during an emergency or emergency drill. A manual input station with Web browser software is located in the Central Control Room / Simulator Control Room that provides an HTML-forms input screen for the manual overlay data. All of the overlay data is validated before being sent to the NT-server. Each analog parameter is limit checked against high and low limits. Each digital parameter is presented with a set of valid responses from which to select a value.

2.5 EDDS displays plant data on three (3) monitors:

2.5.1 Plant Parameters (Form 42a) – contains values for vital plant systems, such as RCS temperatures and pressures, S/G Levels and Pressures, Containment Temperature and pressure.

2.5.2 Equipment Status (Form 42b)– contains information on the condition (Stand-by, Operating or Out of Service) of vital plant equipment.

2.5.3 Radiological Data (Form 42c)– contains values of various plant radiological monitoring systems.

2.6 The Emergency Response Data System (ERDS) provides continuous critical plant data to the NRC during emergency conditions once activated. The primary ERDS function is a sub-function of the EDDS. Activating ERDS is simply a matter of having EDDS make a dial-up connection to the NRC and transmitting the predefined set of ERDS data every 15 seconds using a special ERDS protocol.

2.7 Once the TSC is activated, the TSC Data Coordinator shall activate the ERDS link to the NRC over special telephone lines. The TSC Data Coordinator is responsible for establishing and maintaining the ERDS data link as part of TSC activation and operation.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 The system may be aligned to receive data from the Simulator for drill purposes. Ensure actual plant data is displayed during real events.

4.0 EQUIPMENT AND MATERIALS

NONE

5.0 INSTRUCTIONS

5.1 EDDS System Administrator Instructions (TSC Data Coordinator)

NOTE

The EDDS system is normally on at all times, unless program maintenance is in progress. This allows users to access data without System Administrator input.

5.1.1 Starting the EDDS Program

A. At the NT Server (**CCR** located in TSC or **Simulator** located in simulator) EITHER:

(1) Click on the START button on the lower left side of the screen and selecting EDDS, OR

(2) Double click on the "START EDDS" icon on the desktop.

A window will appear on the screen in which the current time values are updated every 2 seconds. As soon as the first dataset from SAS or the SimSAS is processed, the event times will be shown in the window. The window also displays the status of datalinks and Manual Input File status.

B. Verify System is Operational

(1) Display and review data as outlined in Section 5.4 of this procedure.

5.1.2 Stopping the EDDS Program

> **NOTE**
> Do not stop the EDDS Program unless, maintenance is being performed on systems.

(1) Click on the "X" in the upper right corner of the window, **OR**

(2) Choose Close from the FILE pull-down menu.

5.1.3 The FILE, VIEW, and HELP Menus

A. The FILE menu, when selected, shows an "Exit" choice. Choosing "Exit" will close (stop) the EDDS program (see Stopping the EDDS Program above).

B. The VIEW menu, when selected, shows a Status Bar choice. When the Status Bar is checked, the status bar on the bottom of the window shows informational messages related to the menu selections. When unchecked, the status bar is not shown. Choosing the Status Bar selection changes the checked/unchecked status.

C. The HELP menu, when selected, shows an "About EDDS" selection. Choosing About EDDS brings up a separate window with information about the EDDS configuration.

5.1.4 The SAS CONTROLS Menu

A. Of the choices shown on the top-level menu bar (File, SAS Controls, ERDS Controls, View, and Help), the SAS CONTROLS menu is only used by the system administrator for troubleshooting and should not be used during normal operation of EDDS

B. All of the options available under the SAS CONTROLS menu are described in Table 1. If an item is "grayed-out", it cannot be selected in the current operating state.

Table 1 EDDS CONTROLS Menu Items

Option	Description
Start Datalink	Begins processing the SAS datablocks
Stop Datalink	Stops processing the SAS datablocks without exiting the program. This option is for troubleshooting only and is rarely used.

5.1.5 Monitoring the Program Log File

A. The EDDS program maintains a log file of significant events that occur during its operation. The program appends new messages to the end of the file, so the system administrator can start a new log file by deleting the existing file. If the file does not exist when EDDS is started, a new file is created. The file is written as an HTML/text file, so it can be viewed with any browser at:

http://epsim/edds/eddslog.htm (for the simulator EDDS)
http://epccr/edds/eddslog.htm (for the plant EDDS)

5.1.6 Controlling the Website

A. The Web server is Microsoft's NT Server. The built-in Microsoft administrator functions for the workstation handle the file access controls. See the Microsoft NT documentation for specific information on configuring and maintaining the NT Server.

B. Access to the IP-2 LAN is controlled by the corporate Information Technology group. Anyone with the proper access to the IP-2 LAN will be able to access the EDDS. The NT Servers have been assigned the node names "EPSIM" and "EPCCR" which are the host names that can be used in any URL on the IP-2 LAN.

5.2 ERDS System Administrator Instructions (TSC Data Coordinator)

NOTES:

During any declared emergency at the IP-2 site in which the TSC is activated ERDS shall be activated as soon as possible after activation of the TSC.

The ERDS data is part of the SAS datablock processed by EDDS so it is always available in the EDDS computer. Activating ERDS is simply a matter of having EDDS make a dial-up connection to the NRC and transmitting the predefined set of ERDS data every 15 seconds using a special ERDS protocol.

5.2.1 The ERDS CONTROLS Menu

A. All of the controls associated with the ERDS function are available under the ERDS CONTROLS menu.

B. The ERDS administrator shall use the menu selections to configure and control the dial-up modem connection to the NRC. The menu options are described in Table 2.

Table 2 ERDS CONTROLS Menu Items

Option	Description
Select Modem Port	Brings up a sub-menu to choose a COM port on the PC that is connected to the modem (COM3 is the default). The EDDS PC is configured with an internal modem connected to COM3 and an external modem connected to COM7. Remember: Whichever COM-port is selected must also have a phone line connection in order to complete the connection to the NRC
Select Modem Baud Rate	Brings up a sub-menu to choose a baud rate for the selected modem port. Choose 1200, 2400, or 9600 (2400 is the default)
Choose phone number to NRC...	Brings up a new window in which the phone number to be dialed can be changed
CONNECT to NRC	Brings up a new ERDS window in the bottom portion of the EDDS window. The ERDS window shows the status of the ERDS link to the NRC. Choose the DIAL button on the ERDS window to start the

Option	Description
	process to connect to the NRC.
RECONNECT to NRC	If a previous connection was already made to the NRC and the link was terminated by IP-2 or the program was stopped, this option is used to reconnect to the NRC. When selected, a new ERDS window is shown in the bottom portion of the EDDS window. The ERDS window shows the status of the ERDS link to the NRC. Choose the DIAL button on the ERDS window to start the process to connect to the NRC.
DISCONNECT from NRC	This is the same as the CANCEL button in the ERDS window to properly shut down the phone line to the NRC and then close the ERDS window.

5.2.2 Starting ERDS Transmissions

A. The ERDS window appears in the bottom portion of the EDDS window when the "CONNECT TO NRC" selection is chosen from the ERDS Control menu.

B. Click DIAL and the program will automatically proceed through the sequence of steps to initialize the modem and dial the configured phone number. After a series of whistling sounds, if the modems are "talking" to each other, the message "CONNECTED" will appear in the modem status line on the ERDS window display.

C. **IF** there are problems with the connection **THEN** Verify the phone number, modem port, and baud rate before re-attempting the connection. If the configuration options are not correct, close the ERDS window (or click on the CANCEL button) and change the configuration settings using the ERDS Control menu. When the configuration options are correct repeat step B above.

D. After the modems are connected, the program then proceeds through the series of steps to connect to the NRC ERDS software using the NRC-defined protocol. The progress of that sequence of steps is shown on the NRC status line on the ERDS window display using the terms defined in the NRC protocol. When all of the steps are successful, the EDDS and NRC computers are connected and data is being transmitted every 15 seconds.

E. Inform the NRC Data Center (phone number listed in Emergency Telephone Directory) that you have activated ERDS.

5.2.3 Stopping ERDS Transmissions

A. When directed by the TSC Manager terminate the ERDS link, click on the CANCEL button and the link is properly shut down and the ERDS window disappears.

5.2.4 Reviewing the ERDS Log File

A. Whenever ERDS is activated and the connection to the NRC is successful, all of the data sent to the NRC is recorded in a "log file" in the Web page directory. The ERDS log file name includes the date and time the connection was made in the following format: ERDS_<dd-MMM-yyyy_hhmmss>.txt. For example, if the ERDS connection was made at 3:04 p.m. on 11/05/99, the ERDS log file name and location would be:

C:\InetPub\wwwroot\edds\ERDS_05-NOV-1999_150400.txt

B. An ERDS log file is not required by the NRC or even by IP-2 procedures. It is available for information and troubleshooting, if needed.

5.2.5 Reviewing ERDS Web Pages

A. There are no requirements for ERDS displays when the ERDS link is active. However, an ERDS trend page is available for information. The trend page format is the same as the EDDS Displays showing the last hour's data in four 15 minute snapshots. The URL for the ERDS page is:

http://epsim/edds/erds.htm	(for the simulator EDDS)
http://epccr/edds/erds.htm	(for the plant EDDS)

5.3 Manual Inputs (CCR Data Logger)

NOTE

The manual input stations are located in the control room (CCR) for real plant data and in the simulator CCR for the simulator.

5.3.1 Activating the Manual Overlay Functions

A. Double click on the desktop icon labeled "EDDS Manual Overlays". If the icon cannot be found, THEN:

(1) Start up the Netscape browser (click on the Netscape icon)

(2) Type in the URL:

(a) http://epccr/edds/F42in.htm.(for REAL emergency)

(b) http://epsim/edds/F42in.htm (for Drills)

5.3.2 Entering Manual Overlay Data

The operator must now fill in certain data from plant instrumentation in the control room. To eliminate data entry errors, predefined options or validation checks are included in the form.

Data that requires manual entry includes all data on Form IP-1026-2, Equipment Status and those parameters marked with double asterisks (**) on Form IP-1026-3, Radiological Data.

Table 3 lists all of the data entry choices and checks applied to manual data entry.

Table 3 Data Entry Validation and Checks

Input Type	Validation or Check	Choices
Plant equipment status	Valid responses are given in a pull-down menu.	**S** = Standby (OFF but available) **O** = ON **OS** = Out-of-service (not available) **<blank>** = no data
Plant equipment monitored by SAS (i.e., Service Water Pumps.)	Valid responses are given in a pull-down menu. The choices are:	**OS** = Out-of-service (not available) **<blank>** = no data
Containment Isolation status	Valid responses are given in a pull-down menu.	**Y** = Yes **N** = No **<blank>** = no data
Exceptions	Up to 33 characters can be typed into the Exception box. Generally, this box contains short, coded messages used in the drills.	< 33 characters>
Fields with no input box	The data is provided by SAS and is included in the form for information only to show that no action is required by the manual overlay operator for that data	No data required
Field with input text boxes	The operator is expected to enter a numerical value. Limit checks are made on each parameter and if a value is out-of-limits, an alert box will appear that shows the valid range for the parameter. The limit check is performed when the cursor is moved to another location on the form (using the mouse or the TAB key)	Enter numerical data or **"BAD"** if the data source is offscale or out-of-service
The Pasquill category	Choose the appropriate category from the pull-down menu.	**A-G**

5.3.3 Submitting the Data

A. When all of the new data has been entered, the operator must click on the **"Submit All Values"** button at the bottom of the page. This action sends all of the data shown on the screen to the Web server where it is written to a file.

B. Use the **BACK** button on the browser to return to the input data screen, then choose **RELOAD** to update all the values to the most recent set of overlay values. Remember: **SUBMIT/BACK/RELOAD**.

C. There is no synchronization of the manual overlay SUBMIT function with the SAS computer, however, each time a SAS dataset is processed, any manual overlays are also processed.

D. If data entry errors are made entering the data or there is any uncertainty regarding the newly entered values, clicking on the "**Undo All Changes**" button will reset all of the data values to the ones that were included when the page was originally loaded.

NOTE:
It is not necessary to fill in all values before using the **SUBMIT** button. Each time the form is loaded, the most recent set of data from the Web server is used to initialize the form. This allows the manual overlay station to be shutdown and restarted during an emergency without having to reenter all the overlay data. To clear the form to all blanks, the system administrator can delete the file "**overlays.js**" in the Website directory.

E. If the **<no data>** field is chosen and submitted to the EDDS server, the value shown on the FORMS42 screen will contain a "**??**" in yellow. Manual input data that has not been updated in the last 24 hours is also displayed as a yellow "**??**". These **??** are a reminder that the data shown on the screen needs to be updated from the CCR (or simulator CCR).

F. After data has been submitted, review data displays to verify the data was correctly posted. The submitted data can be reviewed by recalling the top level trend displays per Steps 5.4.4 and 5.4.5.

5.4 EDDS Viewing Station Use (TSC and EOF EDDS Users)

The EDDS viewing stations are loaded with Internet Explorer, which is pre-configured to bring up the top-level display. All the displays available at the viewing stations are described in the following sections.

NOTE:
Displays accessed from the simulator server (EPSIM) will show "**THIS IS A DRILL**" in green near the top of the display.

5.4.1 Color Conventions for the EDDS Data

Table 4 shows the color conventions and output strings related to the EDDS data.

Table 4 EDDS Color Conventions

Color	Output String	Meaning
White	**<value>**	Good data (i.e., no errors)
Yellow	**BAD**	Bad data (some data error, either from SAS or manual input)
Light Blue	**<value>**	Manual overlay data
Yellow	**??**	Unknown (manual overlay data has not been entered yet)
Beige	**<value>**	Data has changed from the previous 15 minute value by a fixed percentage or amount (typically 5%)

5.4.2 Top-Level Display – Historical Values

A. The top-level display is brought up automatically when the browser is first started. Alternatively this display can be accessed by typing the following URL into the location field near the top of the browser:

http://epccr/edds/!main.htm (for the plant EDDS)

http://epsim/edds/!main.htm (for the simulator EDDS)

B. Instructions are provided on the screen to display the data from a specific hour, or to change the display to current values or trend values.

C. The top-level display contains a navigation window at the top of the screen with a table of hours and 4 gray buttons. Selecting any of these buttons or links causes new data or a new display to be loaded. Table 5 lists all of the actions that result when any button is selected (clicked).

Table 5 - Historical Values Top-Level Display Select Actions

Select Item	Action
<Hour>	Selecting one of the twenty-four hours loads the data from that hour into the browser. The hours contain the data from the previous 24-hour period. For example, if the current time is 2:00 PM, then the data in 3:00 PM is from the day before, and the data in 1:00 PM is from the hour before.
FORMS42A	The display of pressures/temperatures data for the selected hour
FORMS42B	The display of plant equipment status data for the selected hour
FORMS42C	The display of radiological data for the selected hour
Go To Trend Pages	Changes the displays to point to trend value data (last 45 minutes plus current values) instead of historical data

5.4.3 FORMS42 Displays - Historical Values

When one of the FORMS42A, FORMS42B, or FORMS42C buttons is selected from the top-level menu, the bottom portion of the screen shows the selected display containing the dataset corresponding to the selected hour.

A. Use the mouse to "pull up" the bottom window over the navigation window so that all of the data fits on the plasma display without scrolling.

B. Use the mouse to "pull-down" the navigation window to choose a different hour, a different FORM, or to go to the trend displays.

C. Use the **PRINT** button near the top of the browser window to make a hardcopy (assuming a printer is configured and available).

D. Use the hour buttons to change the data to the hour selected.

E. Use the FORMS42A, FORMS42B, or FORMS42C buttons to select a different display.

5.4.4 Top-Level Display – Trend Values

A. The top-level display is brought up automatically when the browser is first started. Alternatively this display can be accessed by typing the following URL into the location field near the top of the browser:

http://epccr/edds/!main.htm (for the plant EDDS)

http://epsim/edds/!main.htm (for the simulator EDDS)

The Trend Values top-level display is brought up by clicking on the "Go To Trend Pages" button in the navigation window at the top of the historical values top-level screen.

B. This top-level display contains a small navigation window at the top of the screen with 4 gray buttons. Selecting any of these buttons causes a new display to be loaded. Table 6 lists all of the actions that result when any of the buttons are selected (clicked).

Table 6 – Trend Pages Top-Level Display Actions

Select Item	Action
FORMS42A	The display of pressures/temperatures data
FORMS42B	The display of plant equipment status
FORMS42C	The display of radiological data
Go To Historical Pages	Changes the displays to point to the of historical (hourly) data instead of the current value data

5.4.5 FORMS42 Displays, Trend Values

When one of the FORMS42A, FORMS42B, or FORMS42C buttons is selected from the top-level menu, the bottom portion of the screen shows the selected display containing the last 45 minutes of historical data and the current values dataset in the right-most column.

A. Use the mouse to "pull up" the bottom window over the navigation window so that all of the data fits on the plasma display without scrolling.

NOTE:
Although the SAS computer is updating current values approximately every 5 seconds, the FORMS42 displays are only updated every minute to avoid screen "flashing".

B. Use the mouse to "pull-down" the navigation window to choose a different FORM or to go to the historical displays.

C. Use the **PRINT** button near the top of the browser window to make a hardcopy (assuming a printer is configured and available).

6.0 REFERENCES

6.1 EDDS-UG, Emergency Data Display System Users Guide for the IP2 Nuclear Plant, Capri Technology, Inc.

7.0 ATTACHMENTS

7.1 Attachment 1, EDDS/ERDS Block Diagram

7.2 Attachment 2, EDDS/ERDS Dataset Display Data

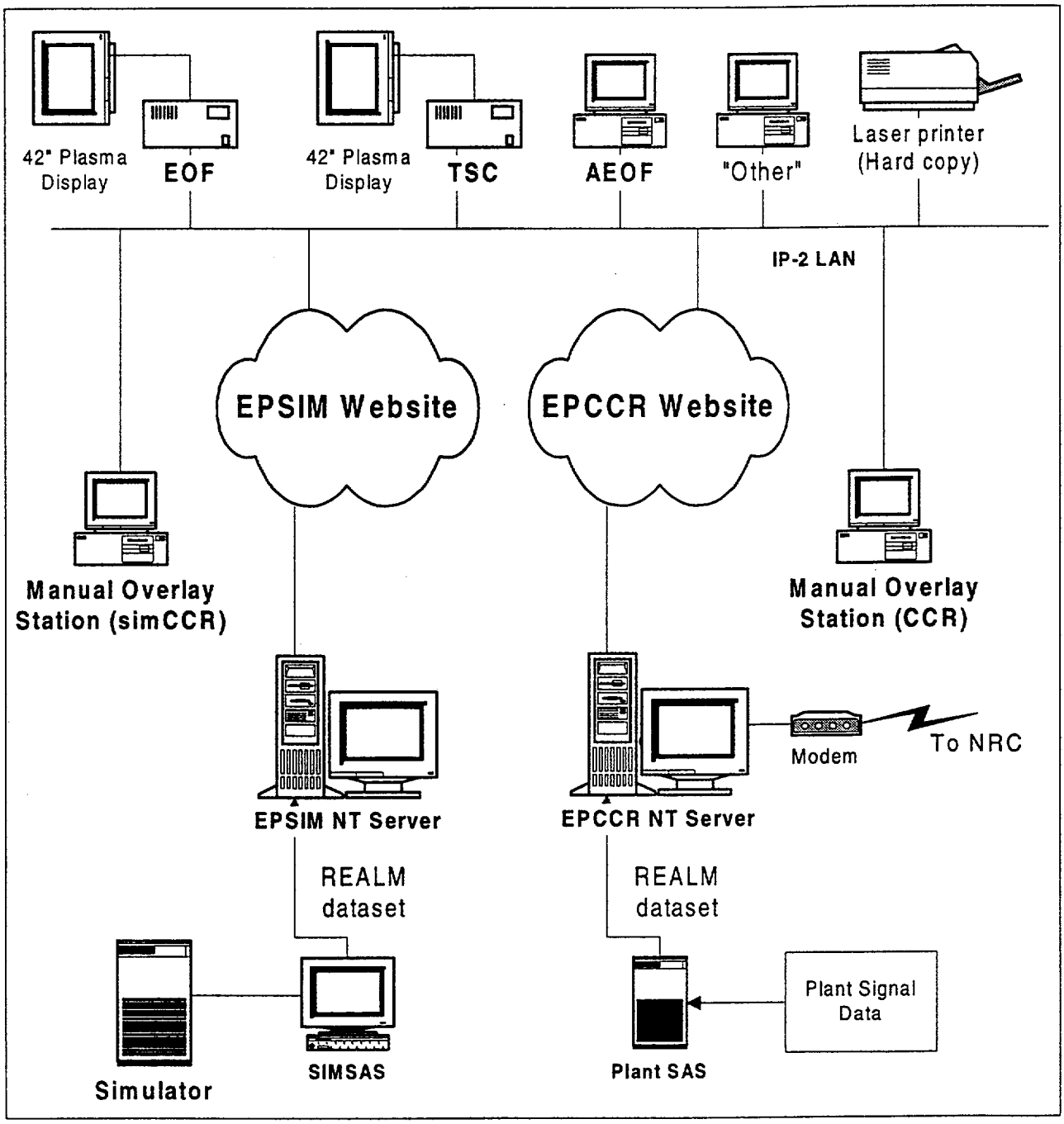
8.0 ADDENDUM

8.1 Plant Parameters-42A (Form IP-1026-1)

8.2 Equipment Status-42B (Form IP-1026-2)

8.3 Radiological Data-42C (Form IP-1026-3)

Attachment 1
EDDS/ERDS Block Diagram
Sheet 1 of 1



Attachment 2
EDDS Dataset Display Data
Sheet 1 of 4

SAS Form 42(A) Display

Description	Units	ERDS	Point ID	Range
Reactor Shutdown	Y/N		RXTRIP	Y/N
NIS Power Range	%	*	UA073	0 → 100%
NIS Interim RGE 35	Amps	*	UA035	1E-11 → 1E+3
NIS Interim RGE 36	Amps	*	UA036	1E-11 → 1E+3
NIS Source RGE 31	cps	*	UA030	1E0 → 1E+6
NIS Source RGE 32	cps	*	UA031	1E0 → 1E+6
RCS Incore T/C Center (T0016)	Deg F		UA132	32 → 2300
RCS Incore T/C 5th Highest	Deg F	*	UA017	32 → 2300
RCS Press	Psig	*	UA020	1700 → 2500
RCS Avg Temp	Deg F		UA093	541 → 565
RCS Cold Leg Temp	Deg F		UA079	0 → 700
Sat Meter Margin	Deg F	*	UA121	-488 → +696
All RCPs In Service	Y/N		NRRCPS	Y/N
Pressurizer Level	%		UA004	0 → 100
Reactor Vessel Level	%	*	UA021	0 → 120
S/G Levels #21	%		UA013	0 → 100
S/G Levels #22	%		UA014	0 → 100
S/G Levels #23	%		UA015	0 → 100
S/G Levels #24	%		UA016	0 → 100
S/G Press #21	Psig	*	UA005	0 → 1400
S/G Press #22	Psig	*	UA006	0 → 1400
S/G Press #23	Psig	*	UA007	0 → 1400
S/G Press #24	Psig	*	UA008	0 → 1400
VC Press	Psig	*	UA046	-5 → +75
VC Temp	Deg F	*	UA060	50 → 120
VC Sump Level Elev.	Ft		UA045	38.7 → 56.75
VC Hydrogen	%	*	UA058	0 → 10
Aux FW Flow SG 21	Gpm	*	UA041	0 → 450
Aux FW Flow SG 22	Gpm	*	UA042	0 → 450
Aux FW Flow SG 23	Gpm	*	UA043	0 → 450
Aux FW Flow SG 24	Gpm	*	UA044	0 → 450
RWST Level	Ft	*	UA063	0 → 40
Cond Stor TK Level	Ft		UA064	0 → 45

Attachment 2
EDDS Dataset Display Data
Sheet 2 of 4

SAS Form 42(B) Display

Description	Units	Point ID
Offsite Pwr Avail -- 138KV	O/S/OS	ED001
Offsite Pwr Avail -- 13.8KV	O/S/OS	ED002
6900 Volt -- Bus No. 1	O/S/OS	ED003
6900 Volt -- Bus No. 2	O/S/OS	ED004
6900 Volt -- Bus No. 3	O/S/OS	ED005
6900 Volt -- Bus No. 4	O/S/OS	ED006
6900 Volt -- Bus No. 5	O/S/OS	ED007
6900 Volt -- Bus No. 6	O/S/OS	ED008
480 Volt -- Bus 2A	O/S/OS	OD8081
480 Volt -- Bus 3A	O/S/OS	OD8082
480 Volt -- Bus 5A	O/S/OS	OD8083
480 Volt -- Bus 6A	O/S/OS	OD8084
Emergency Diesels -- DG21	O/S/OS	OD8001
Emergency Diesels -- DG22	O/S/OS	OD8002
Emergency Diesels -- DG23	O/S/OS	OD8003
Gas Turbines -- GT1	O/S/OS	ED009
Gas Turbines -- GT2	O/S/OS	ED010
Gas Turbines -- GT3	O/S/OS	ED011
SIS Pumps -- No. 21	O/S/OS	ED012
SIS Pumps -- No. 22	O/S/OS	ED013
SIS Pumps -- No. 23	O/S/OS	ED014
RHR Pumps -- No. 21	O/S/OS	ED015
RHR Pumps -- No. 22	O/S/OS	ED016
Charging Pumps -- No. 21	O/S/OS	ED017
Charging Pumps -- No. 22	O/S/OS	ED018
Charging Pumps -- No. 23	O/S/OS	ED019
RX Cool Pumps -- No. 21	O/S/OS	ED020
RX Cool Pumps -- No. 22	O/S/OS	ED021
RX Cool Pumps -- No. 23	O/S/OS	ED022
RX Cool Pumps -- No. 24	O/S/OS	ED023
Comp Cool Pumps -- No. 21	O/S/OS	ED024
Comp Cool Pumps -- No. 22	O/S/OS	ED025
Comp Cool Pumps -- No. 23	O/S/OS	ED026
Aux Comp Cool Pumps -- No. 21	O/S/OS	ED027
Aux Comp Cool Pumps -- No. 22	O/S/OS	ED028
Aux Feedwater Pumps -- No. 21	O/S/OS	ED029
Aux Feedwater Pumps -- No. 22	O/S/OS	ED030
Aux Feedwater Pumps -- No. 23	O/S/OS	ED031
Cont Spray Pumps -- No. 21	O/S/OS	ED032
Cont Spray Pumps -- No. 22	O/S/OS	ED033
Recirc Pumps -- No. 21	O/S/OS	ED034

Attachment 2
EDDS Dataset Display Data
Sheet 3 of 4

SAS Form 42(B) Display (continued)

Description	Units	Point ID
Recirc Pumps -- No. 22	O/S/OS	ED035
Serv Water Pumps -- No. 21	O/S/OS	FD8041
Serv Water Pumps -- No. 22	O/S/OS	FD8042
Serv Water Pumps -- No. 23	O/S/OS	FD8043
Serv Water Pumps -- No. 24	O/S/OS	FD8044
Serv Water Pumps -- No. 25	O/S/OS	FD8045
Serv Water Pumps -- No. 26	O/S/OS	FD8046
Circ Water Pumps -- No. 21	O/S/OS	ED036
Circ Water Pumps -- No. 22	O/S/OS	ED037
Circ Water Pumps -- No. 23	O/S/OS	ED038
Circ Water Pumps -- No. 24	O/S/OS	ED039
Circ Water Pumps -- No. 25	O/S/OS	ED040
Circ Water Pumps -- No. 26	O/S/OS	ED041
Condensate Pumps -- No. 21	O/S/OS	ED042
Condensate Pumps -- No. 22	O/S/OS	ED043
Condensate Pumps -- No. 23	O/S/OS	ED044
Comp Cool Ht Exch -- No. 21	O/S/OS	ED045
Comp Cool Ht Exch -- No. 22	O/S/OS	ED046
RHR Ht Exch -- No. 21	O/S/OS	ED047
RHR Ht Exch -- No. 22	O/S/OS	ED048
Fan Cooler Units -- No. 21	O/S/OS	ED049
Fan Cooler Units -- No. 22	O/S/OS	ED050
Fan Cooler Units -- No. 23	O/S/OS	ED051
Fan Cooler Units -- No. 24	O/S/OS	ED052
Fan Cooler Units -- No. 25	O/S/OS	ED053
VC Isol Phase A	Y/N	ED054
VC Isol Phase B	Y/N	ED055
VC Isol Vent	Y/N	ED056
Exceptions	text <33 chars	EXCEP
Hi Hd SIS Flo -- No. 21 (2)	Gpm	F8001
Hi Hd SIS Flo -- No. 22 (2)	Gpm	F8002
Hi Hd SIS Flo -- No. 23 (2)	Gpm	F8003
Hi Hd SIS Flo -- No. 24 (2)	Gpm	F8004
Lo Hd SIS Flo -- No. 21	Gpm	F6096
Lo Hd SIS Flo -- No. 22	Gpm	F6097
Lo Hd SIS Flo -- No. 23	Gpm	F6098
Lo Hd SIS Flo -- No. 24	Gpm	F6099
Accum Level -- No. 21	%	X0001
Accum Level -- No. 22	%	X0002
Accum Level -- No. 23	%	X0003
Accum Level -- No. 24	%	X0004

Attachment 2
EDDS Dataset Display Data
Sheet 4 of 4

SAS Form 42(C) Display

Description	Units	ERDS (1)	Point ID	Range
R5987 Brk Svc Acc Area Mon	Mr/Hr		R5987	1E-1 → 1E2
R-1 CCR	Mr/Hr		R0001	1E-1 → 1E+4
R-2 VC 80'	Mr/Hr		R0002	1E-1 → 1E+4
R-4 Chrg Pump	Mr/Hr		R0004	1E-1 → 1E+4
R-5 F.S.B.	Mr/Hr		R0005	1E-1 → 1E+4
R-6 Sample Rm	Mr/Hr		R0006	1E-1 → 1E+4
R-7 Vc Seal Table	Mr/Hr		R0007	1E-1 → 1E+4
R-41 Cont Air Monitor (Par)	uci/cc		R0041	1E-12 → 1E-6
R-42 Cont Air Monitor (Gas)	uci/cc		R0042	1E-7 → 1E-2
R-43 Plant Vent Air Mon (Par)	uci/cc		R0043	1E-12 → 1E-2
R-44 Plant Vent Air Mon (Gas)	uci/cc		R0044	1E-8 → 1E-2
R-44 Vent Iodine	uci/cc		X0005	Manual Entry
R-45 Air Ejector	uci/cc	UA094	R0045	1E-6 → 1.4E-3
R-46 F.C. Water	uci/cc		R0046	1E-7 → 5E-5
R-47 Comp. Cool	uci/cc		R0047	1E-7 → 1E-4
R-48 Liq. Waste	uci/cc	UA199	R0048	1E-7 → 2.1E-4
R-49 S/G B.D.	uci/cc	UA095	R0049	1E-7 → 3.3E-4
R-53 F.C. Water	uci/cc		R0053	1E-7 → 5E-4
R-25 VC Hi-Rge	R/Hr	UA047	R0025	1 → 1E+7
R-26 VC Hi-Rge	R/Hr	UA048	R0026	1 → 1E+7
R-27 Vent Monitor	uci/cc		KR028	Manual Entry
R-27 Vent Flow Rate	Cfm		KR027	Manual Entry
R-27 Vent Disch. Rate	uci/sec	UA200	R0027	1E+1 → 1E+13
Main Stm #21 Rad Mon	Cpm	UA115	R0028	1E+1 → 1E+6
Main Stm #22 Rad Mon	Cpm	UA116	R0029	1E+1 → 1E+6
Main Stm #23 Rad Mon	Cpm	UA117	R0030	1E+1 → 1E+6
Main Stm #24 Rad Mon	Cpm	UA118	R0031	1E+1 → 1E+6
Vent Flow Rate	Cfm		KF001	Manual Entry
Main Stm Exh	Lbs/Hr		KF002	Manual Entry
Air Ejector	Cfm		KF003	Manual Entry
Wind Speed – ground	M/sec	M8002	M8002	0 → 44.7
Wind Direction (0-360) - ground	Deg	M8012	M8012	0 → 360
Pasquil Category	A->G		X0006	Manual Entry

Notes: (1) If the name in this column is different from the Point ID name, then the value sent to ERDS comes from a different location in the data block.

Addendum 1
Plant Parameters-42A (Form IP-1026-1)
Sheet 1 of 1

Plant Parameters – 42A

Parameter		Time	Time	Time	Time	Time	Time	Time
Reactor Shutdown	Y/N							
NIS Power Range	%							
NIS Interm. Rg. 35	Amps							
NIS Interm. Rg. 36	Amps							
NIS Source Rg. 31	CPS							
NIS Source Rg. 32	CPS							
RCS Incore T/C Center	°F							
RCS Incore T/C 5th Highest	°F							
RCS Press	PSIG							
RCS Avg. Temp.	°F							
RCS Cold Leg Temp.	°F							
SAT. Meter Margin	°F							
All RCPs in Service	Y/N							
Pressurizer Level	%							
Reactor Vessel Level	%							
S/G Levels (NR) #21	%							
#22	%							
#23	%							
#24	%							
S/G Press #21	PSIG							
#22	PSIG							
#23	PSIG							
#24	PSIG							
VC Press	PSIG							
*VC Temp.	°F							
VC Sump Level Elev.	FT.							
VC Hydrogen	%							
Aux. FW Flow SG 21	GPM							
Aux. FW Flow SG 22	GPM							
Aux. FW Flow SG 23	GPM							
Aux. FW Flow SG 24	GPM							
R.W.S.T. Level	FT.							
Cond. Stor. Tk. Level	FT.							

*Manual entry in Proteus

Form IP-1026-1 Rev 0

Addendum 2
Equipment Status-42B (Form IP-1026-2)
Sheet 1 of 1

Equipment Status – 42B

Parameter		Time				Parameter		Time			
Offsite Pwr. Avail	138KV					Service Water Pumps	#21				
	13.8KV						#22				
6900 Volt	BUS NO. 1						#23				
	BUS NO. 2						#24				
	BUS NO. 3						#25				
	BUS NO. 4						#26				
	BUS NO. 5					Circ Water Pumps	#21				
	BUS NO. 6						#22				
480 Volt	BUS NO. 2A						#23				
	BUS NO. 3A						#24				
	BUS NO. 5A						#25				
	BUS NO. 6A						#26				
Emergency D/Gs	#21					Condensate Pumps	#21				
	#22						#22				
	#23						#23				
Gas Turbines	GT-1					Comp Cool Heat Exch	#21				
	GT-2						#22				
	GT-3					RHR Heat Exch.	#21				
SIS Pumps	#21						#22				
	#22					Fan Cooler Units	#21				
	#23						#22				
RHR Pumps	#21						#23				
	#22						#24				
Charging Pumps	#21						#25				
	#22										
	#23					VC Isol. Phase A	(Y/N)				
Rx Coolant Pumps	#21					VC Isol. Phase B	(Y/N)				
	#22					VC Isol. Vent.	(Y/N)				
	#23										
	#24					Exceptions					
Component Cool Pumps	#21										
	#22										
	#23					HI Hd SIS Flow	#21 (GPM)				
Aux Comp Cool Pumps	#21						#22 (GPM)				
	#22						#23 (GPM)				
Aux Feed Water Pumps	#21						#24 (GPM)				
	#22					Lo Hd SIS Flow	#21 (GPM)				
	#23						#22 (GPM)				
Cont Spray Pumps	#21						#23 (GPM)				
	#22						#24 (GPM)				
Recir Pumps	#21					Accumulator Level	#21 (%)				
	#22						#22 (%)				
							#23 (%)				
							#24 (%)				

S = Stand By O = Operating OS = Out of Service

Form IP-1026-2 Rev 0

Addendum 3
Radiological Data-42C (Form IP-1026-3)
Sheet 1 of 1

Radiological Data 42C

Parameter		Time	Time	Time	Time	Time	Time	Time
R-5987 MCC 98'	mR/hr							
R-1 CCR	mR/hr							
R-2 VC 80'	mR/hr							
R-4 Charging Pump	mR/hr							
R-5 F.S.B.	mR/hr							
R-6 Sample Room	mR/hr							
R-7 VC Seal Table	mR/hr							
R-41 VC Part.	µCi/cc							
R-42 VC Gas	µCi/cc							
R-43 Vent Part.	µCi/cc							
R-44 Vent Gas	µCi/cc							
**R-44 VENT I-131	µCi/cc							
R-45 Air Ejector	µCi/cc							
R-46 F.C. Water	µCi/cc							
R-47 Comp. Cool.	µCi/cc							
R-48 Liq. Waste	µCi/cc							
R-49 S/G B.D.	µCi/cc							
R-53 F.C. Water	µCi/cc							
R-25 VC Hi-Rge.	R/hr							
R-26 VC Hi-Rge.	R/hr							
**R-27 Vent Monitor	µCi/cc							
**R-27 Vent Flow Rate	CFM							
R-27 Vent Disch. Rate	µCi/sec							
R-28 Main Steam Rad Mon.	CPM							
R-29 Main Steam Rad Mon.	CPM							
R-30 Main Steam Rad Mon.	CPM							
R-31 Main Steam Rad Mon.	CPM							
**Vent Flow Rate	CFM							
**Main Steam Exh.	Lbs/hr							
**Air Ejector (meas. Value)	CFM							

** Manual entry in EDDS & Proteus

Form IP-1026-3 Rev 0

CONTROLLED COPY

Personnel Accountability and Evacuation

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Reviewer/Date

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Site Personnel Accountability and Evacuation

1.0 PURPOSE

1.1 To describe the method and procedures used to initially account for individuals within the Protected Area whenever the Site Assembly Alarm is sounded and/or accountability is called for.

1.2 To describe the method of handling continuing accountability during the emergency.

1.3 To describe method of conducting Site Evacuation.

2.0 DISCUSSION

2.1 Accountability Philosophy

2.1.1 Accountability is defined as accounting for (knowing the location of) all personnel within the Protected Area OR knowing they are within the Protected area but missing.

2.1.2 For the purpose of this procedure the following groups of personnel are defined:

A. Essential Personnel individuals assigned to the Emergency Response Organization (ERO) and NRC. This includes:

(1) All members of the onshift watch (SROs, ROs, NPOs, Watch Engineer, Watch HP and Chemist)

(2) All members of the Security Force.

(3) All TSC/OSC ERO staff members,

(4) Non-Shift Operators within the Protected Area

(5) All ConEd Mechanics, Electricians, I&C Technicians, Chemistry Technicians and HP Technicians within the Protected Area.

B. Non-essential personnel all other personnel who are not assigned responsibilities in the ERO. This also includes all contractors and visitors.

2.1.3 Accountability is accomplished by evacuation of all non-essential personnel from the Protected Area and physically accounting for all individuals who remain within the Protected Area.

2.1.4 During plant shutdowns, when there may be large numbers of workers onsite and within the radiological control areas, a Health Physics computer printout may be used to assist in locating missing personnel within the radiological control area after accountability is completed.

2.1.5 After non-essential personnel have been evacuated from the Protected Area, Security will provide an access report to the OSC Manager (or individual designated to complete accountability), which will be compared with Assembly Area Rosters to confirm all individuals have been accounted for.

2.1.6 Accountability is complete when the Shift Manager (or Emergency Plant Manager if he/she is in place) are informed that all personnel are accounted for or the names of missing people are identified.

2.1.7 Search and Rescue missions shall be undertaken immediately to locate any missing personnel.

2.1.8 Initial Accountability shall be accomplished for events classified at the Alert, Site Area or General Emergency

2.1.9 Accountability may be suspended or delayed by the Shift Manager, Emergency Plant Manager or Emergency Director if the movement of large numbers of personnel to an Assembly Area potentially places them in more danger than leaving them in place: Examples:

- Severe weather conditions onsite
- Toxic gases in Protected Area egress areas
- Armed intruders within the Protected Area or at the Command Guard House.

2.2 Assembly Area Locations

2.2.1 Within the Protected Area all personnel will assemble in one of three (3) pre-designated Assembly Areas: TSC/OSC Complex, the Central Control Room (CCR), and Command Guard House.

2.2.2 Non-essential personnel who evacuate the Protected Area will assemble in the Energy Education Center (auditorium and large area outside auditorium).

2.2.3 All personnel shall remain assembled onsite until released by the Emergency Director.

2.3 Release of Non-Essential Personnel from Site

Once accountability has been completed, provided personnel can be released offsite without concern for radiological contamination or personnel safety, the Emergency Director shall release offsite all unneeded personnel assembled in the Energy Education Center.

2.4 Continuing Accountability

After initial accountability is complete, continuing accountability within the Protected Area shall be maintained for events classified as Site Area Emergencies or General Emergencies. For events classified as an Alert the Emergency Plant Manager (EPM) may suspend accountability requirements based on plant conditions. The EPM may also suspend accountability during the later stages of higher classifications after plant conditions have stabilized and surveys have been completed in all habitable areas within the Protected Area verifying normal radiation levels.

2.5 Site Evacuation

2.5.1 Evacuation of all non-essential personnel from the site shall be at the direction of the Emergency Director at a Site Area Emergency or General Emergency. He/she may call for Site Evacuation prior to these emergency levels if deemed necessary.

2.5.2 Personnel may evacuate using either their own vehicles or by company vehicles obtained for that purpose if personal vehicles are contaminated.

2.5.3 Evacuation and/or relocation of essential personnel will be at the direction of the Emergency Plant Manager for individuals within the Protected Area or the Emergency Director for onsite individuals outside the Protected Area.

3.0 PRECAUTIONS AND LIMITATIONS

DO NOT direct movement of large groups of individuals IF the movement places them in more danger than keeping them in place

4.0 EQUIPMENT AND MATERIALS

None

5.0 INSTRUCTIONS

5.1 Decision to Perform Accountability

5.1.1 IF any of the following conditions are met:

- Severe weather conditions are present onsite
- A large amount of Toxic Gas has been released within or near the Protected Area
- A radiological release which would place non-essential personnel in danger in route to OR while at the Energy Education Center.
- Armed intruders are present within the Protected Area, near the Command Guard House or in or near the Energy Education Center.
- Any other condition which in the opinion of the Shift Manager, Control Room Supervisor, Emergency Plant Manager or Emergency Director would be a threat to the movement of personnel to the Energy Education Center.

THEN perform the following steps:

A. Suspend Initial Accountability AND Inform the Control Room Communicator NOT to sound the Assembly Alarm or make an announcement for non-essential personnel to report to the Energy Education Center.

B. IF there is a condition in addition to the condition identified above that places onsite personnel in danger THEN take immediate actions to warn and protect personnel. Such as:

(1) Send Security, Operations and/or HP personnel to evacuate areas of most risk

(2) Call for outside rescue assistance (Fire, Hazmat Teams etc.)

(3) Choose an Assembly Area within the Protected Area and have non-essential personnel assemble at chosen location. PA announcement and teams dispatched to alert personnel to assemble can be used to notify personnel.

C. Exit this procedure until conditions allow full accountability to be performed.

5.1.2 IF none of the above conditions exist THEN continue on with this procedure.

5.2 Initial Accountability

5.2.1 The Shift Manager or Control Room Supervisor

IF an event has been classified as an Alert, Site Area or General Emergency **AND** Accountability has **NOT** been established **THEN** the Shift Manager or the Control Room Supervisor shall direct the following:

> NOTE:
> Steps A and B, emergency notifications are performed in accordance with a checklist provided in IP-1002, Emergency Notification and Communication

A. Sound the Site Assembly Alarm for at least 30 seconds.

B. Make a Public Address system announcement for activation of the ERO and evacuation of non-essential personnel from the Protected Area.

C. Account for CCR Personnel (or assigning someone to account for)

(1) Use an Accountability Roster (Form IP-1027-1) and develop a list of all watch individuals (CCR Staff, NPOs, Watch Clerk, Watch HP and Chemistry Technicians) and non-watch Operations personnel assembled in the CCR or assigned to tasks in the field.

(2) Have the Accountability Roster delivered to the OSC Manager or Accountability Clerk.

D. Send an individual to or call the TSC/OSC Complex to verify there is an OSC Manager or Accountability Clerk present. **IF** one of these individuals is not present **THEN** direct an on-shift individual to perform step 5.2.3 of this procedure until their arrival.

E. **IF** the OSC has not been activated **AND** personnel have been determined to be missing **THEN** coordinate search and rescue missions to locate missing persons within the Protected Area, until the OSC is activated and assumes this responsibility.

F. **IF** the OSC has not been activated **THEN** authorize any required ERO members to enter the Protected Area and report to the TSC/OSC Complex.

> NOTE:
> Senior Management who are not assigned to the ERO but who are within the Protected Area at the time accountability is called for may report to the CCR or TSC/OSC Complex to be accounted for and then assist in emergency response.

5.2.2 All personnel within the Protected Area

WHEN the Site Assembly Alarm sounds and an announcement is made for activation of the ERO and relocation of the non-essential personnel **THEN** all personnel within the Protected Area shall:

NOTES:
Personnel within the Radiological Control Areas shall follow normal procedures to leave the area as quickly as possible and report to Assembly Area.

A. **IF** you are a member of the onshift watch (SROs, ROs, NPOs, Watch Engineer, Watch HP, Watch Clerk or Chemist) **THEN** report to the CCR for accountability.

B. **IF** you are a member of the ERO (TSC, OSC) **THEN** report to the TSC/OSC Complex and sign the accountability rosters.

C. **IF** you are a member of the EOF ERO **THEN** identify yourself as a member of the EOF Staff and move to the front of the line to expedite egress from the Protected Area and report to the EOF

D. **IF** you are with the NRC **THEN** report to either the CCR or TSC/OSC Complex and sign the accountability roster.

E. **IF** you are a ConEd employee but non-essential to the ERO **THEN** exit the Protected Area as quickly as possible and report to the Energy Education Center and stand by for further instructions.

NOTE
Non-ConEd personnel (such as HP Technicians & Security) may be designated to remain onsite

F. **IF** you are not a ConEd employee **THEN** exit the Protected Area and leave the site.

5.2.3 The OSC Manager (or Accountability Clerk) shall:

> NOTE:
> Initial Accountability shall be completed within approximately 30 minutes from the time the Site Accountability Alarm is sounded.

A. Direct the OSC Coordinators to choose technicians to remain for emergency response and release other individuals to the Energy Education Center.

B. Direct all ERO members remaining in the TSC/OSC Complex to sign an Accountability Roster (Form IP-1027-1)

C. Obtain the completed Accountability Rosters from the CCR

D. **WHEN** security delivers the Protected Area Security Access Report **THEN**:

(1) Verify that names of Security personnel have been checked off Access Report **OR** cross off names of individuals listed as working for Wackenhut

> NOTE:
> If a roll-call method is used to account for personnel, someone must review CCR accountability rosters and any other list of personnel accounted for such as individuals assembled in the Radiological Control Areas or remaining at other sites for safety reasons.

(2) Perform a roll-call using the Access Report. Check off names of individuals who are present **OR** cross off individuals who's names appear on TSC/OSC and CCR Accountability Rosters.

E. **WHEN** you have completed comparing the Security Access Report, (all individuals within Protected Area) to the Accountability Rosters (personnel accounted for) **THEN:**

(1) Report to the Shift Manager and/or Emergency Plant Manager that accountability is complete and the number of names not checked off Security Access Report as missing.

(2) Log initial accountability as completed.

F. **IF** there are individuals who are **NOT** accounted for **THEN**:

(1) Contact the Security Guard House for Accountability Rosters or computer report of individuals who may have left the Protected Area since Security Access Report was printed and printout of individuals within the Protected Area sorted by location.

(2) Send an HP to obtain the Health Physics Computer Printout of individuals within the Radiological Control Area.

(3) Check off names of possible missing individuals who have left Protected Area to narrow the list of actually missing persons and review HP Computer Printout for any missing individuals within the Radiological Control Area.

> NOTE:
> Search and Rescue missions should attempt to locate anyone thought to be within the Radiological Control Areas first.

(4) Assemble and dispatch search and rescue teams using guidance provided in IP-1023, Operations Support Center, procedure for team dispatch.

G. **IF** there has been a release of radioactive materials **THEN** direct the RP Coordinator to dispatch an HP Technician to the Energy Education Center to verify habitability.

H. Inform the Emergency Plant Manager or Shift Manger of any habitability concerns in the Energy Education Center.

I. Designate an individual to report to the Energy Education Center and act as Assembly Area Coordinator. Direct them to:

(1) Call the OSC Manager or Accountability Clerk and establish a communications path between OSC and Assembly Area. Another individual at the Assembly Area should be selected to act as a communicator.

(2) Have personnel stand-bye in the Assembly Area until directed to leave site or return to work.

(3) Coordinate movement of personnel to the Buchanan Service Center if required.

5.2.4 The Security Shift Supervisor shall direct the Security Force to perform the following:

A. Stop all ingress to the Protected Area, with the exception of Emergency Response Organization personnel.

B. Expedite the egress of non-essential personnel from the Protected Area by ensuring all Command Gate House (Old and New) turnstiles are used.

C. Direct Protected Area patrol vehicles to perform route alerting using instructions in Addendum #3, Security Vehicle Route Alerting.

D. Direct all Emergency Response Personnel reporting within the Protected Area to report to the TSC/OSC.

NOTE:
The Security Access Report should be run as soon as possible (or when most individuals have exited) but no later than 20 minutes after the Site Accountability Alarm is sounded.

E. **WHEN** the majority of non-essential personnel have departed **THEN** have the LO2 Security Access Report printed.

F. Check off all Security Force personnel from the Security Access Report.

G. Add to the list any individuals that have been manually given access (not carded in).

H. Have the Security Access Report (with security force names checked off) delivered immediately to the OSC Manager or Accountability Clerk in the TSC/OSC complex.

I. Maintain a list of all personnel who leave the Protected Area after the report is printed. This list will be used to identify the location of personnel once initial accountability is complete.

J. Maintain Continuing Accountability until directed otherwise as follows:

(1) **ONLY** allow Emergency Response Organization personnel access to the Protected Area unless authorized by the OSC Manager, Emergency Plant Manager or Shift Manager.

(2) **WHEN** individuals are authorized to enter Protected Area **THEN** instruct them to report to either the CCR or TSC/OSC Complex.

5.2.5 **WHEN** the on-call Emergency Plant Manager has assumed duties **THEN** he/she shall:

A. **IF** there is any habitability concerns with the Energy Education Center, **THEN** inform the Emergency Director at once and recommend a site evacuation in accordance with section 5.3.

B. Request any additional personnel who have relocated to the Energy Education Center augment the ERO within the Protected Area before personnel are evacuated or released from Assembly Area.

C. Recommend to the Emergency Director that non-essential personnel assembled at the Energy Education Center be released from the site.

D. **IF** the Emergency Plant Manager elects to suspend continuing accountability **THEN** the Emergency Plant Manager shall:

(1) Consider if plant conditions could degrade to the point accountability is again required.

(2) Make a formal announcement that accountability is no longer required. Log time decision is made in his/her position log.

(3) **IF** conditions again require accountability (such as declaration of higher classification) **THEN** direct initial accountability be performed in accordance with step 5.1 of this procedure.

5.3 Continuing Accountability

5.3.1 Unless otherwise directed by the Emergency Plant Manager, continuing accountability shall be maintained once initial accountability is completed.

5.3.2 Continuing Accountability shall be maintained by facility managers as directed in procedures IP-1023, Operations Support Center and IP-1035, Technical Support Center.

5.4 Site Evacuation

5.4.1 The Emergency Plant Manager shall:

A. Review the current and second shift staffing requirements for ERO positions stationed within the Protected Area.

B. Determine if additional personnel should be added to the ERO **BEFORE** personnel are dismissed or evacuated from the site.

5.4.2 The Emergency Director shall:

A. Review the current and second shift staffing requirements for ERO positions stationed outside the Protected Area.

B. Determine if additional personnel should be added to the ERO **BEFORE** personnel are dismissed or evacuated from the site.

C. **IF** a radiological release of a magnitude requiring declaration of a General Emergency is or may potentially occur **THEN** evacuate the site by calling the Energy Education Center and informing personnel to evacuate. Direct security to do a sweep of all site areas outside the Protected Area.

D. **IF** there has been a radiological release of a magnitude that requires declaration of a Site Area Emergency **THEN** after conferring with the Emergency Plant Manager:

(1) Direct the ORAD to have a random survey of personal vehicles onsite performed to determine if they are contaminated.

(2) **IF** vehicles are found to be contaminated **THEN** make arrangements for other vehicles to evacuate personnel from the site.

(3) Direct Security to do a sweep of site areas outside the Protected Area and inform personnel to report to the Buchanan Service Center.

(4) Relocate personnel from Energy Education Center to the Buchanan Service Center to be checked for contamination prior to release.

E. **IF** there has been **NO** radiological release of a magnitude that requires declaration of a Site Area Emergency **THEN** after conferring with the Emergency Plant Manager:

(1) Direct non-essential personnel be dismissed from the Energy Education Center without any contamination checks.

(2) Direct Security to do a sweep of site areas outside the Protected Area and inform personnel to leave the site.

5.4.3 Security shall:

A. As directed by the Emergency Director perform sweeps of site areas outside the Protected Area informing personnel to relocate or leave site.

B. **IF** Site Evacuation has been called for **THEN** restrict site access, allowing only personnel authorized by the Emergency Director or the Emergency Plant Manager to enter the site.

6.0 REFERENCES

6.1 IP-1002, "Emergency Notification and Communication"

6.2 IP-1023, "Operations Support Center"

6.3 IP-1035, "Technical Support Center"

7.0 ATTACHMENTS

None

8.0 ADDENDUM

8.1 Addendum 1, Accountability Rosters (Form IP-1027-1)

8.2 Addendum 2, Site Map with Assembly Areas (Form IP-1027-2)

8.3 Addendum 3, Security Vehicle Route Alerting

Addendum 1

Accountability Roster (Form IP-1027-1)

Sheet 1 of 1

Accountability Roster

Location: ❑ TSC/OSC Complex ❑ Central Control Room ❑ Command Guard House

✔		Clearly Print Last / First Name	✔		Clearly Print Last / First Name
	1			21	
	2			22	
	3			23	
	4			24	
	5			25	
	6			26	
	7			27	
	8			28	
	9			29	
	10			30	
	11			31	
	12			32	
	13			33	
	14			34	
	15			35	
	16			36	
	17			37	
	18			38	
	19			39	
	20			40	

Total Individuals on this Roster: _____

Accountability checked by _____ on _____ at _____
(Signature) (Date) (Time)

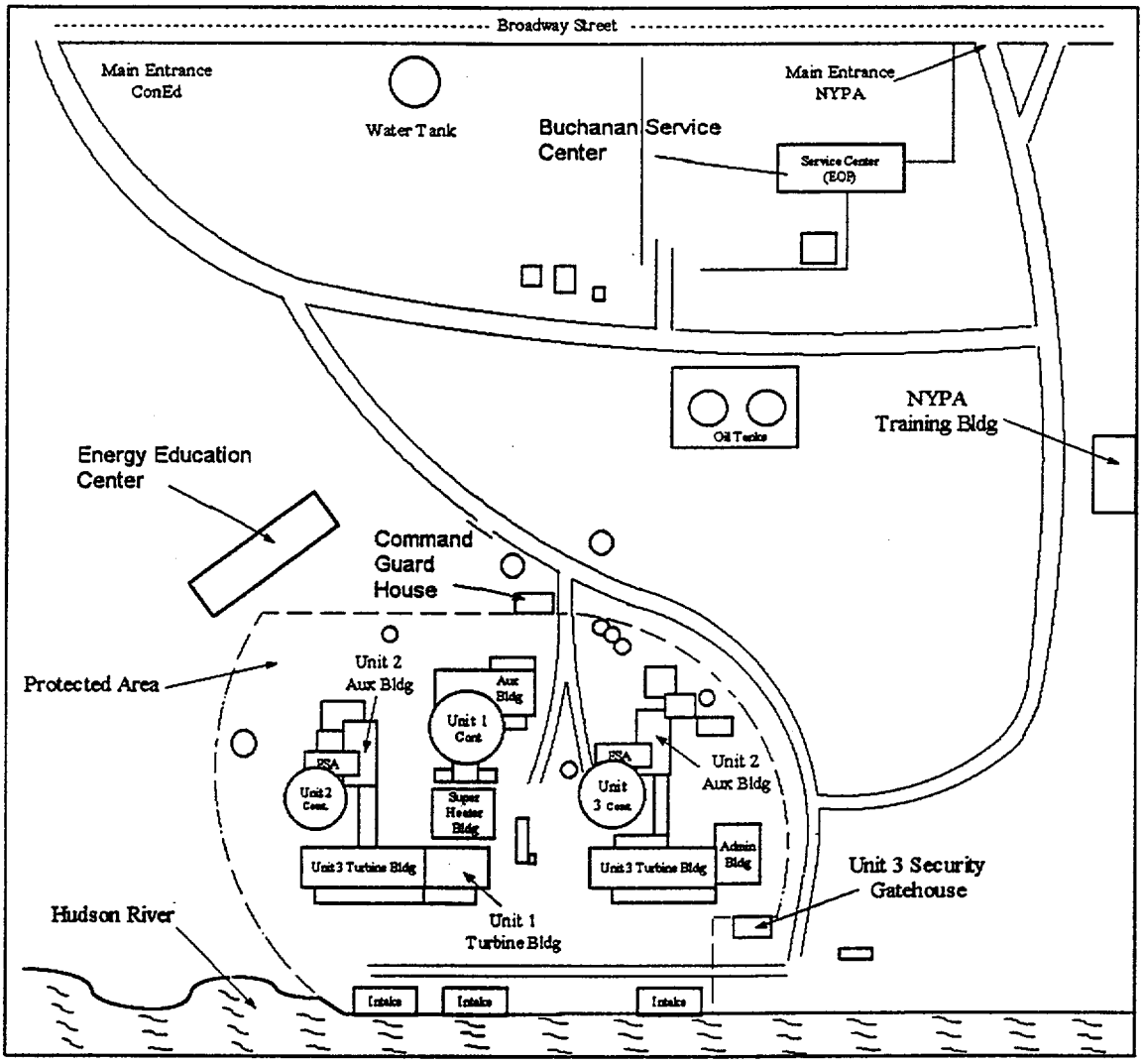
Form IP-1027-1 Rev 0

Addendum 2

Site Map with Assembly Areas (Form 1027-2)

Sheet 1 of 1

Site Map with Assembly Areas



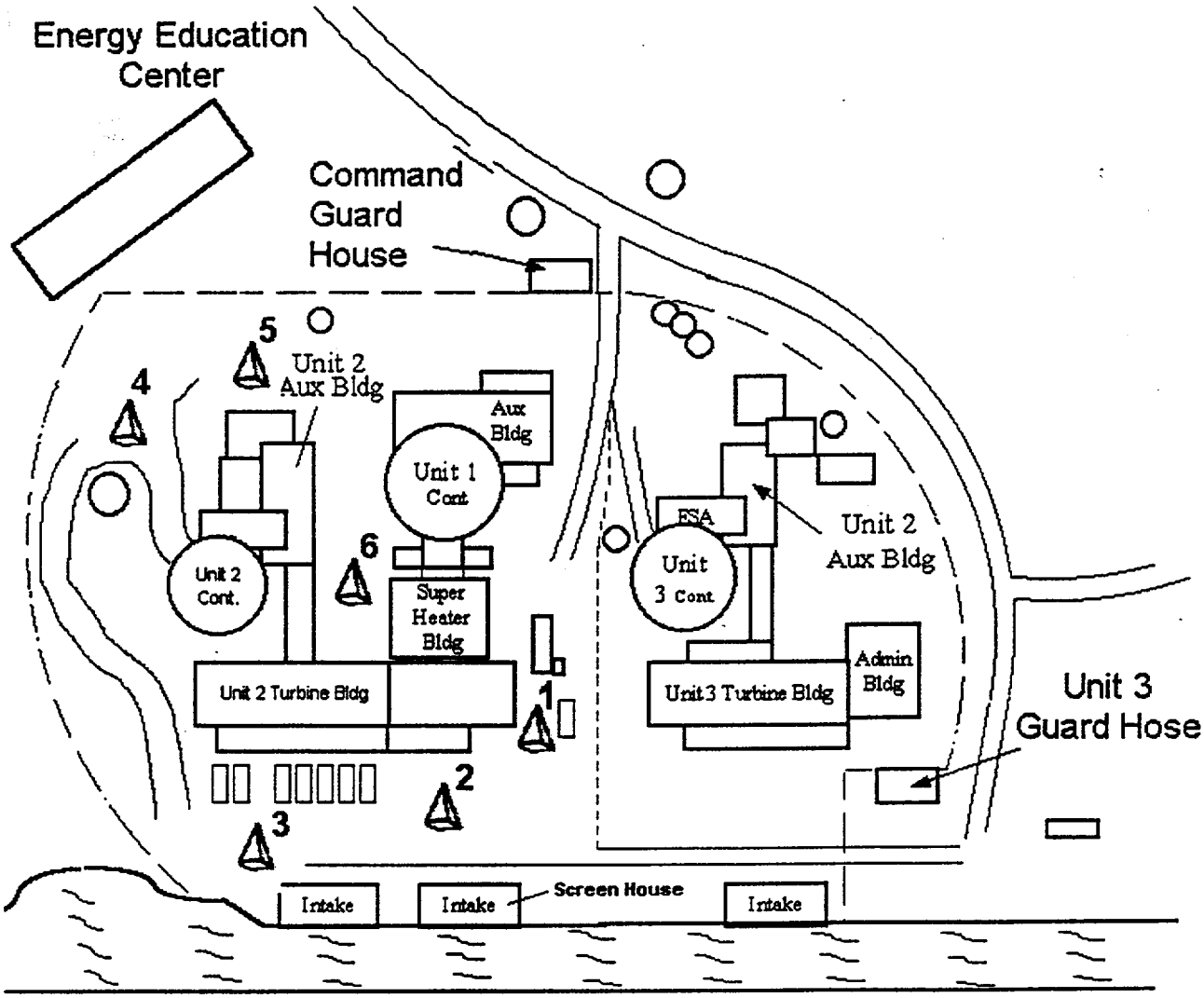
Form IP-1027-2 Rev 0

Addendum 3
Security Vehicle Route Alerting
Sheet 1 of 1

Security Patrol Vehicle should go to each marked Location and make the following announcement , twice:

"Attention all personnel, Attention all personnel, an emergency has been declared"
"All essential personnel report to your emergency facility"
"All other personnel report to the Energy Education Center"

Then proceed to next location and repeat the announcement, until all six locations have been notified.



Emergency Operations Facility

CONTROLLED COPY

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Biennial Review

Reviewer/Date _____ Reviewer/Date _____

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1.0 PURPOSE

To describe the activation and operation of the Emergency Operations Facility (EOF)

2.0 DISCUSSION

None

3.0 PRECAUTIONS AND LIMITATIONS

EOF habitability checks are necessary to ensure long-term manning of the EOF. Should conditions exist which may result in a loss of long-term habitability of the EOF, evaluate the need for relocation of emergency response functions to the Alternate EOF in accordance with IP-1045 "Activation of Alternate Emergency Operations Facility."

4.0 EQUIPMENT AND MATERIALS

4.1 The following types of equipment and materials are available for use in the EOF

4.1.1 Plant information systems:

- EDDS
- SAS
- Proteus
- Meteorological Displays

4.1.2 Radiological equipment needed to perform offsite monitoring:

- Field Monitoring kits
- Survey equipment for performance of facility habitability checks

4.1.3 Dose Assessment and plume tracking equipment:

- MIDAS
- MEANS
- Map table

4.1.4 Communication systems needed to transfer important data to offsite authorities:

- V-Band communications consoles
- Telephones
- Fax Machines

4.1.5 Procedures and forms:

- IP2 Emergency Plan
- IP2 Emergency Plan Implementing Procedures
- Position Binders
- Forms

4.1.6 Office Supplies

4.2 The key to the EOF is located in a break glass container in the EOF entry way.

5.0 INSTRUCTIONS

5.1 The Emergency Director (ED) shall follow the instructions outlined in Attachment 1, Emergency Director Checklist.

5.2 The EOF Manager shall follow the instructions outlined in Attachment 2, EOF Manager Checklist.

5.3 The Offsite Radiological Assessment Director (ORAD) shall follow the instructions outlined Attachment 3, Offsite Radiological Assessment Director (ORAD) Checklist

5.4 The Dose Assessment Health Physicist (DAHP) shall follow the instructions outlined in Attachment 4, Dose Assessment Health Physicist Checklist.

5.5 The Midas Operator shall follow the instructions outlined Attachment 5, Midas Operator Checklist.

5.6 The Survey Team Health Physicist (STHP) shall follow the instructions outlined in Attachment 6, Survey Team Health Physicist Checklist.

5.7 The Technical Advisor to Emergency Director shall follow the instructions outlined in Attachment 7, Technical Advisor (TA) Checklist

5.8 The EOF Communicator #1 shall follow the instructions outlined in Attachment 8, EOF Communicator #1. Checklist

5.9 The EOF Communicator #2 shall follow the instructions outlined in Attachment 9, EOF Communicator #2. Checklist

5.10 The EOF Clerical Staff shall follow the instructions outlined in Attachment 10, EOF Clerks. Checklist

5.11 The EOF SAS Proteus Operator shall follow the instructions outlined in Attachment 11, EOF SAS Proteus Operator Checklist

5.12 The State and County Technical Advisor shall follow the instructions outlined in Attachment 12, State and County Technical Advisor Checklist

6.0 REFERENCES

6.1 IP-1021, "Manual Update and Readout of Proteus Plant Parameter Data"

6.2 IP-1024, "Emergency Classification"

6.3 IP-1027, "Site Personnel Accountability and Evacuation"

6.4 IP-1048, "Termination & Recovery"

7.0 ATTACHMENTS

7.1 Attachment 1, Emergency Director Checklist

7.2 Attachment 2, EOF Manager Checklist

7.3 Attachment 3, Offsite Radiological Assessment Director (ORAD) Checklist

7.4 Attachment 4, Dose Assessment Health Physicist (DAHP) Checklist

7.5 Attachment 5, MIDAS Operator Checklist

7.6 Attachment 6, Survey Team Health Physicist (STHP)Checklist

7.7 Attachment 7, ED Technical Advisor Checklist

7.8 Attachment 8, EOF Communicator #1 Checklist

7.9 Attachment 9, EOF Communicator #2 Checklist

7.10 Attachment 10, EOF Clerical Staff Checklist

7.11 Attachment 11, EOF SAS / Proteus Operator

7.12 Attachment 12, State and County Technical Advisor

8.0 ADDENDUM

8.1 Addendum 1, EOF Layout

8.2 Addendum 2, NYS Radiological Data Form (Part I & II) (Form IP-1030-1)

8.3 Addendum 3, Sample Form - Normal EOF Staffing (Form IP-1030-2)

8.4 Addendum 4, Sample Form - EOF Radiological Survey Map (Form IP-1030-3)

8.5 Addendum 5, Directions to NYS EOC

8.6 Addendum 6., EPA 302.4 Nuclide Table (Form IP-1030-4)

8.7 Addendum 7, Sample Form - Offsite Survey Team Data Sheet (Form IP-1030-5)

8.8 Addendum 8, Directions to AEOF

Attachment 1
Emergency Director Checklist
Sheet 1 of 8

Initial Responsibility/Activity	Notes
1.0 Assume the position of Emergency Director.	
1.1 Upon arrival at the EOF review facility status boards, EDDS and any other available sources to become familiar with current plant status.	
1.2 Obtain a briefing from the acting ED. (if the EOF has not been activated, either the SM or EPM will be the acting ED in the Central Control Room and they can be contacted via the direct EOF-CCR ring-down on the V-Band console)	
A. Use an Essential Information Checklist (Form IP-1035-2) to document the briefing.	
B. Request additional information on current status of emergency classification, response activities and offsite notifications.	
1.3 **IF** the EOF has **NOT** been activated **THEN**:	
A. Request the CCR to fax copies of all NYS Radiological Emergency Data Forms used to make offsite notifications to the EOF for your review.	
B. **IF** an EOF Manager is **NOT** yet present **THEN** assign individuals to the following positions as they become available:	
1. ED Technical Advisor	
2. Offsite Radiological Assessment Director (ORAD)	
3. Dose Assessment Health Physicist (DAHP)	
4. MIDAS Operator	
5. EOF Communicator #1	
6. EOF Communicator #2	
7. EOF Clerical Staff	
C. **IF** additional personnel are needed **THEN** call or direct someone to call additional individuals using the Emergency Telephone Directory.	

Attachment 1
Emergency Director Checklist
Sheet 2 of 8

Initial Responsibility/Activity(cont.)	Notes
D. **WHEN** there is sufficient EOF staff present to assume the following emergency responsibilities: • Assess plant conditions and classify emergencies. • Perform dose assessment and make protective action recommendations (PARs) • Make notifications to offsite authorities **THEN** declare the EOF activated, announce facility activation within the facility and record activation time in the ED ERO Log. E. **WHEN** ready to assume the role of ED, perform a formal turnover with the acting ED (SM or EPM in the Central Control Room): • Review the latest transmitted NYS Radiological Emergency Data Form (Part I & II). Determine the time that the next follow-up notifications will be required. • Coordinate the official time of turnover to ensure it will not interfere with or delay required emergency classification, offsite notifications, briefings or issuance of PARs. • Once the determination has been made to formally turnover ED responsibilities, make an announcement to EOF personnel that you are now the Emergency Director. F Inform, or direct the EOF Manager to inform, the following individuals that you have assumed the duties of Emergency Director and that the EOF is activated. 1. Emergency Plant Manager (TSC) 2. Shift Manager (CCR) 3. Company Spokes person or JNC Director (if activated) 4. CIG Duty Officer G Direct EOF Manager or EOF Communicator #2 to notify Offsite Agencies of the time that the EOF was activated: 1. NRC via ENS 2. NYS and 4 Counties via RECS	

Attachment 1
Emergency Director Checklist
Sheet 3 of 8

	Initial Responsibility/Activity(cont.)	**Notes**
1.4	**IF** relieving another Emergency Director in the EOF **THEN** perform a formal turnover with the current Emergency Director: A. Review the Emergency Director's activity log B. Obtain briefing form current ED on the emergency and any actions the have been competed or are in progress using an Essential Information Checklist (Form IP-1035-2) to document the briefing. C. Once the formal turnover is complete direct the EOF Manager to inform the EOF, TSC, CCR and JNC that you are now the Emergency Director.	
	Continuous Responsibility/Activity	**Notes**
2.0	**Maintain personnel accountability in the EOF**	
2.1	Direct EOF personnel that are required to temporarily leave the EOF area to inform the EOF Manager before leaving the work area.	
2.2	If you leave the area, upon your return, obtain a briefing from the EOF Manager on any events that have occurred while you were away.	
3.0	**Maintain a log:**	
3.1	Maintain or direct the EOF Manager to maintain a log using Form IP-1023-4, ERO Log Sheet	
3.2	Log when you assume the duties of Emergency Director (and EOF activation if not previously done).	
3.3	Log significant decisions and important details used to make decisions. (emergency classification changes and protective actions recommendations)	
3.4	Log all significant communications with other members of the ERO and all communications with individuals offsite.	
3.5	**IF** you have assigned someone to maintain the ED log **THEN** periodically review the log for accuracy.	

Attachment 1
Emergency Director Checklist
Sheet 4 of 8

	Continuous Responsibility/Activity (con't)	Notes
4.0	**Classify emergency conditions. (non-delegable)**	
4.1	Review plant conditions with the Emergency Plant Manager in the TSC and ED Technical Advisor.	
4.2	Review offsite radiological data with the ORAD and EOF Manager.	
4.3	Compare current information and recommendations with the thresholds on the EAL Wall Chart, Procedure IP-1024, Emergency Classification and the EAL Technical Basis Document.	
4.4	Solicit recommendation for change of classification from the Emergency Plant Manager.	
4.5	Escalate the emergency classification when appropriate.	
4.6	Notify the Emergency Plant Manager and the EOF Staff when and at what time the new emergency classification is made.	
5.0	**Make protective action recommendations (PARs). (non-delegable)**	
	NOTE:	
	Protective Action Recommendations (PARs) are to be made only at the General Emergency classification	
5.1	Determine, with the assistance of the ORAD and EOF Manager, the appropriate PAR per IP-1013, Protective Action Recommendations	
5.2	Reevaluate the adequacy of PARs when plant conditions, dose projections, meteorological, or environmental conditions change.	
5.3	Confer with State authorities prior to PAR issuance, if possible.	
5.4	PARs shall be transmitted to offsite authorities within 15 minutes of the decision to make the PAR using the offsite notification methods as specified in Step 6.0 below.	

Attachment 1
Emergency Director Checklist
Sheet 5 of 8

Continuous Responsibility/Activity (cont.)	Notes
6.0 Direct initial notification of emergency classification and/or PARs to offsite authorities (State, local and NRC). (non-delegable) **NOTE:** Initial offsite notifications to State and local authorities must be completed within 15 minutes of making an emergency declaration or PAR. Notification of the NRC must be completed within 1 hour. 6.1 Direct the EOF Manager to complete a NYS Radiological Emergency Data Form Part I 6.2 Review and approve (sign) the completed NYS Radiological Emergency Data Form (non-delegable). 6.3 Direct the EOF Manager to have EOF Communicator #2 transmit data on the form to the State and Local authorities and the NRC and report to you when task is complete.	
7.0 Direct periodic update notification to offsite authorities 7.1 Direct the EOF Manager to complete a NYS Radiological Emergency Data Form (Parts I & II) at the following frequencies: A When there has been a significant change in release rates and/or meteorological conditions. **OR** B When there has been a significant change in plant conditions. **OR** C Approximately every 30 minutes when conditions are static. 7.2 Review and approve the completed NYS Radiological Emergency Data Forms (non-delegable). 7.3 Direct the EOF manager to have EOF Communicator #2 transmit data on the form to State and Local authorities and the NRC and report to you when task is complete.	

Attachment 1
Emergency Director Checklist
Sheet 6 of 8

	Continuous Responsibility/Activity (cont.)	Notes
8.0	**Brief offsite representatives (State, Local, FEMA and NRC)**	
8.1	Upon their arrival at the EOF, brief offsite representatives on: A. emergency events B. current plant conditions C. emergency response activities currently underway D. offsite radiological release status E. dose assessment and PARs	
8.2	Conduct periodic briefing of offsite representatives as deemed appropriate.	
9.0	**Review and approve ConEd news releases (non-delegable)**	
9.1	Maintain the EOF Information Liaison apprised of current emergency status and any significant events that may be of public interest.	
9.2	Ensure that the EOF Information Liaison obtains a copy of any news release prior to issue for your review and approval.	
9.3	Direct copies of news releases be given to offsite representatives in the EOF upon approval.	
9.4	Confer with the Company Spokesperson at the JNC and the EOF Manager and ORAD if there is any question as to the accuracy of the proposed news release prior to approval.	
10.0	**Conduct periodic facility briefings**	
10.1	Coordinate with the EOF Manager to schedule the conduct of periodic facility briefings. Establish a briefing schedule of approximately every 30 minutes or as conditions change.	
10.2	Use an Essential Information Checklist (Form IP1035-2) as a guide for leading the briefings.	
10.3	Direct the ED Technical Advisor and the ORAD to participate in briefing facility personnel on current plant status and offsite radiological conditions respectively.	
10.4	**Emphasize** what the major tasks and priorities are during every briefing.	
10.5	Direct EOF staff to review there procedure to ensure required actions are being performed.	

Attachment 1
Emergency Director Checklist
Sheet 7 of 8

	Continuous Responsibility/Activity (cont.)	
11.0	**Approve emergency radiation exposures and KI issuance for ConEd Workers outside the Protected Area (non-delegable)**	
11.1	When requested by the EOF Manager and/or ORAD, approve emergency radiation exposures and/or issuance of KI for ConEd emergency workers outside the Protected Area Fence.	
11.2	Authorize emergency exposures up to **1 Rem TEDE** for all monitoring team personnel dispatched from the EOF and other EOF staff as required. Ensure this authorization is documented in the ED's Log Sheet.	
11.3	**IF** emergency measures require additional exposure **THEN** authorize raising the blanket emergency exposure limit 1 Rem at a time up to a limit of 5 Rem	
11.4	Review, when requested by ORAD or EOF Manager, emergency exposures beyond 5 Rem on an individual basis. Exposure in excess of 5 Rem shall be authorized using an Emergency Exposure Authorization sheet (Form IP-1023-6).	
12.0	**Acquire and allocate ConEd and external resources as needed to support emergency response.**	
12.1	Review personnel, equipment and supply needs with the EPM.	
12.2	Make all Nuclear Organization resources available to supply needed items.	
12.3	Direct the EOF Manager to interface and coordinate with the ConEd Corporate organization to acquire needed equipment and resources that are not under the direct control of the Nuclear Organization.	
12.4	Request support from INPO and Federal authorities when needed.	
13.0	**IF the emergency is classified as a General Emergency THEN direct evacuation of onsite non-essential personnel.**	
14.0	**IF the emergency is classified as a Site Area Emergency THEN review procedure IP-1027, Personnel Accountability and Evacuation for evacuation or dismissal of non-essential personnel.**	

Attachment 1
Emergency Director Checklist
Sheet 8 of 8

Continuous Responsibility/Activity (cont.)	
15.0 Terminate the emergency and enter the Recovery Phase. 15.1 Refer to IP-1048, Termination and Recovery, for guidance on entry into Recovery Phase. 15.2 Identify and assign a Recovery Manager. 15.3 Notify the Recovery Manager of the intention to enter recovery and request his/her presence in the EOF. 15.4 **IF** there was a radiological release **THEN** direct the Emergency Plant Manager to have a survey team survey the Recovery Center (Vice President, Nuclear Power Office complex, 72' elevation). 15.5 Terminate the emergency and officially enter the Recovery Phase. 15.6 Formally turnover the emergency organization to the Recovery Manager 15.7 Direct notification of the following locations that Indian Point has entered the Recovery Phase: A. The NRC via Energy Notification System (ENS) B. State and Counties using a NYS Radiological Emergency Data Form – Part I, via the RECS C. Corporate Information Group (CIG) D. All activated emergency response centers (TSC/OSC and JNC) 15.8 Ensure that a written summary of the event is provided to State and Counties per IP-1048, Termination and Recovery	
Closeout Responsibility/Activity	
16.0 Direct all Emergency Response Organization Managers to review documentation generated during the emergency 16.1 Verify all required documentation has been competed. 16.2 Verify accuracy of documentation. 16.3 Provide additional documentation such as summary reports or closeout reports that could assist in recovery of station.	
17.0 Have ERO members provide all logs and records to the Recovery Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 2
EOF Manager
Sheet 1 of 10

Initial Responsibility/Activity	Notes
1.0 Assume the position of EOF Manager.	
1.1 Upon arrival at the EOF review facility status boards, EDDS information and any other available sources to become familiar with current plant status.	
1.2 Obtain briefing from the Emergency Director	
A. Use an Essential Information Checklist (Form IP-1035-2) to document briefing items.	
B. Request any additional information on current status of emergency response.	
1.3 **IF** the EOF has **NOT** been activated **THEN**:	
A. **IF** the NYS Radiological Emergency Data Form (Part I & II) completed by the CCR are not available in the EOF **THEN**. Request CCR fax copies to EOF	
B. Review notification forms, noting time next notification is due.	
C. Assign individuals to the following positions:	
1. ED Technical Advisor	
2. Offsite Radiological Assessment Director (ORAD)	
3. Dose Assessment Health Physicist (DAHP)	
4. MIDAS Operator	
5. EOF Communicator #1	
6. EOF Communicator #2	
7. EOF Clerical Staff	
D. **WHEN** the following minimum staff is available **THEN** inform the On-Call ED that you are ready to activate the EOF.	
1. Offsite Radiological Assessment Director (ORAD)	
2. EOF Communicator #2	
3. Additional personnel as deemed necessary for the EOF to perform it's functions based on the current emergency conditions.	
E. Review Normal EOF Staffing (Form IP-1030-2) to verify full EOF Staffing.	

Attachment 2
EOF Manager
Sheet 2 of 10

Initial Responsibility/Activity(cont.)	**Notes**
F **IF** additional personnel are required **THEN**: 1. **IF** it is during normal working hours **THEN** call or assign someone to call Access Control (ext. 5327) in the Energy Education Center for additional personnel. 2. **IF** the needed individuals are **NOT** available onsite **THEN** call or assign someone to call individuals at home using the Emergency Telephone Directory. G **WHEN** the On-Call Emergency Director assumes ED responsibilities from the acting ED in the CCR **THEN:** 1. Inform the following locations that ____(name)_____ is now the Emergency Director and that the EOF is activated. (a) TSC – TSC Manager (734-5587) (b) CCR – Shift Manager (734-5299) (c) JNC (if activated) – Utility Work Room (734-5065) (d) CIG (212-580-8689) 2. Direct EOF Communicator #2 to inform the NRC via the ENS phone that the EOF is activated. H Establish EOF Security 1. Request temporary guard for EOF entrance from the Site Security Supervisor 2. Direct Security to allow access only to personnel who show a valid ID from the following organizations unless authorized: (a) ConEd or NYPA (b) State, Counties (Putnam, Orange, Rockland or Westchester) or PSC (c) NRC or FEMA I. Send (or ensure they have reported) State and County Liaisons to EOCs. Provide them with the following directions: (a) Direct that the Liaisons should provide technical assistance to EOC personnel and direct any other request to the EOF (b) Direct the Liaisons NOT to talk to the press and direct any media questions to the JNC	

Attachment 2
EOF Manager
Sheet 3 of 10

Initial Responsibility/Activity(cont.)	Notes
J Notify or direct the EOF Communicator #2 to notify Offsite Agencies that the EOF is now activated: 1. NRC via ENS 2. NYS and 4 Counties via RECS 1.4 **IF** relieving another EOF Manager **THEN** perform a formal turnover with the current EOF Manager: A Review the Emergency Director's activity log B Obtain briefing form current EOF Manager on the emergency and any actions the have been completed or are in progress. C Announcement to the EOF that you are now the EOF Manager.	
Continuous Responsibility/Activity	**Notes**
2.0 Maintain personnel accountability in the EOF 2.1 Direct EOF personnel to inform you and sign out with Security if they must temporarily leave the EOF. 2.2 **IF** you are temporarily leaving the work area **THEN** A Inform the Emergency Director if you are leaving the work area. B Upon return, obtain a briefing from the Emergency Director on any events that have occurred while you were away.	
3.0 Assist the ED in maintenance of ED Log 3.1 Use Form IP-1023-4, ERO Log Sheet to log information. 3.2 Log when the Emergency Director assumed the duties of ED (and EOF activation if not previously done). 3.3 Log when you assumed the duties of EOF Manager. 3.4 Log significant decisions and important details used to make decisions. (Emergency classification changes and protective actions recommendations shall be logged) 3.5 Log significant communications with other members of the ERO and all communications with individuals offsite.	

Attachment 2
EOF Manager
Sheet 4 of 10

	Continuous Responsibility/Activity (cont.)	Notes
4.0	**Keep the ED informed of changing conditions that may cause an upgrade in the Emergency Classification.**	
4.1	Review plant data with ED Technical Advisor	
4.2	Review offsite radiological data with ORAD.	
4.3	Compare current information and recommendations with EAL Wall Chart, Procedure IP-1024, Emergency Classification and the EAL Technical Basis Document.	
4.4	Inform the ED of any possible changes in the Emergency Classification	
5.0	**Assist the ED in determining the appropriate Protective Action Recommendations to Offsite Authorities.**	
	NOTE:	
	Protective Action Recommendations (PARs) will only be made for the General Emergency Classification	
5.1	Determine with the assistance of the ORAD the appropriate PAR per IP-1013, Protective Action Recommendations	
5.2	Reevaluate the adequacy of PARs when plant conditions, dose projection, meteorological, or environmental measurements change.	
5.3	Confer with State authorities prior to PAR issuance, if possible.	
5.4	Once the ED makes or changes a PAR it shall be transmitted to offsite authorities using a NYS Radiological Emergency Data Form, Part I, within 15 minutes of the decision to make the PAR.	
6.0	**Notify the Nuclear Facility Safety Committee (NFSC) Chairman**	
6.1	**IF** the classification was due to exceeding Technical Specifications 2.1 or 2.2 limits **THEN** inform the NFSC Chairman that the T.S. has been exceeded.	

Attachment 2
EOF Manager
Sheet 5 of 10

Continuous Responsibility/Activity (cont.)	
7.0 IF the ED changes the emergency classification THEN ensure notification of State and Local authorities be completed within 15 minutes. NOTE: The MEANS Computer program may be used to print NYS Radiological Emergency Data Forms 7.1 Complete (or designate the completion of) a NYS Radiological Emergency Data Form (Part I) 7.2 Have the ED review and approve the completed NYS Radiological Emergency Data Form (The ED approval is non-delegable). 7.3 Direct EOF Communicator #2 to transmit data on form to State and Local authorities and report to you when task is complete. 7.4 Direct transmittal of form data to NRC as soon as possible but no later than1 hour.	
8.0 Direct periodic updates to offsite authorities be prepared NOTE: Completion and transmittal of part II of the NYS Radiological Emergency Data Form may not be needed if there has been no significant release of radioactive materials. 8.1 Complete (or designate the completion of) a NYS Radiological Emergency Data Form (Parts I & II) at the following times: A When there has been a significant change in release rates and/or meteorological data. B When there has been a significant change in plant conditions. C **OR** approximately every 30 minutes if conditions are static. 8.2 Present completed form to the ED for review and approval. (The ED's Approval is non-delegable.) 8.3 Direct EOF Communicator #2 to transmit data on form to State and Local authorities and the NRC and report to you when task is complete.	

Attachment 2
EOF Manager
Sheet 6 of 10

Continuous Responsibility/Activity (cont.)	
9.0 Assist the ED in briefing offsite representatives (State, Local, FEMA and NRC) 9.1 Upon their arrival at the facility, offsite representatives should be briefed on: A. emergency events B. current plant conditions C. emergency response activities currently underway D. offsite radiological release status E. dose assessment and PARs 9.2 Coordinate with ED the periodic briefing of offsite representatives as deemed appropriate.	
10.0 Evaluate the need to evacuate all Non-Essential Personnel and recommend evacuation to ED if conditions warrant. 10.1 Check with the EPM on conditions within the Protected Area and the ORAD on conditions outside the Protected Area. 10.2 Review IP-1027, Personnel Accountability and Evacuation 10.3 Evacuation should occur at a Site Area Emergency, if radiological plume direction does not preclude. 10.4 **IF** conditions exist at an Alert that could warrant evacuation **THEN** consider evacuation of non-essential personnel from site.	
11.0 Assist the ED in periodic facility briefings 11.1 Coordinate with the Emergency Director to schedule the conduct of periodic facility briefings. Establish a briefing schedule of approximately every 30 minutes or as conditions change. 11.2 Use Form IP1035-2, Essential Information Checklist as a guide for leading the briefings. 11.3 Direct the ED Technical Advisor and the ORAD to participate in briefing facility personnel on current plant status and offsite radiological conditions respectively. 11.4 **Emphasize** what the major tasks and priorities are.	

Continuous Responsibility/Activity (cont.)	
12.0 Track EOF Staff emergency exposures.	
12.1 Monitor actual or potential EOF personnel exposures or potential exposures and request ED to authorize emergency exposures and the issuance of KI to ConEd emergency workers outside the Protected Area. (ED authorization of emergency exposures is non-delegable)	
12.2 **IF** EOF staff must receive exposure **THEN** request the ED authorize emergency exposures up to **1 Rem TEDE** for all monitoring team personnel dispatched from the EOF and remainder of staff as required. Document this authorization in the ED's ERO Log Sheet.	
12.3 **IF** emergency measures require additional exposure **THEN** request the ED to the raise the emergency exposure limit 1 Rem at a time up to a total exposure of 5 Rem.	
12.4 Evaluate when requested by ORAD, emergency exposures beyond 5 Rem on an individual basis. Request the ED authorize these exposures using Form IP-1023-6, Emergency Exposure Authorization general guidelines (more details are listed on the authorization form).	
A. ERO members may receive up to 5 Rem TEDE (per event) for any required emergency activities.	
B. ERO members may be authorized emergency exposures up to 10 Rem TEDE to protect vital equipment.	
C. ERO members may be authorized emergency exposures up to 25 Rem TEDE to save a life.	
D. Individuals may volunteer to receive greater than 25 Rem TEDE to save a life.	
E. Authorize the issuance of KI when requested for any large exposures or expected large exposures to the thyroid.	

Attachment 2
EOF Manager
Sheet 8 of 10

Continuous Responsibility/Activity (cont.)	
13.0 IF additional resources are need to support emergency response THEN assist ED in making request to Federal agencies or other non-ConEd organizations.	
14.0 Have a member of the Emergency Planning Staff report to the AEOF to prepare the facility for possible activation.	
15.0 Relocation of the EOF to AEOF 15.1 **IF** the following conditions are present **THEN** perform an organized evacuation of the EOF to the AEOF. • Exposure rates > 80 mRem/Hr TEDE **OR** 500mRem/Hr TODE • Projected Whole Body Dose for a 12 hour period is > 1 Rem TEDE **OR** Thyroid Dose >5 Rem TODE • Airborne concentrations which may result in exceeding occupational limits for inhalation specified in 10CFR20, Appendix B, Table 1. Evacuation may be performed at rates below those listed based on plant conditions and response needs. 15.2 **IF** there has been a core melt sequence where large amounts of fission products (other than noble gases) are in the containment atmosphere **AND** containment failure is judged imminent **THEN** consider starting relocation to the AEOF. 15.3 **IF** time permits **THEN** have a relief shift report to the AEOF and perform turnover prior to evacuation of EOF. 15.4 Determine the speed at which the relocation of personnel should occur giving consideration to the following items: A. Consider the impact of immediate relocation vs. projects in progress. B. Current radiological conditions within the EOF and the Plant. C. Radiological conditions en route. D. The adequacy of response from the alternate location. 15.5 Coordinate evacuation of the EOF with the ED and the EPM transferring ED responsibilities back to the EPM if another ED can not assume responsibilities at the AEOF	

Attachment 2
EOF Manager
Sheet 9 of 10

	Continuous Responsibility/Activity (cont.)	
15.6	Direct copies of Addendum 8, Directions to AEOF be provided to EOF Staff.	
15.7	Request that the EPM announce the decision to evacuate and ensure relief shift is made aware of re-location.	
16.0	**Termination of the emergency and entering the Recovery Phase. (The ED is responsible for directing entry into the Recovery Phase)**	
16.1	Refer to IP-1048, Termination and Recovery, for guidance on entry into Recovery Phase.	
16.2	The ED shall assign a Recovery Manager	
16.3	Notify the Recovery Manager of the intention to enter recovery and request his/her presence in the EOF	
16.4	**IF** there was a radiological release **THEN** direct the Emergency Plant Manager to have a survey team survey the Recovery Center.	
16.5	De-escalate the Emergency and officially enter the Recovery Phase	
16.6	Formally turnover the emergency organization to the Recovery Manager	
16.7	Notify the following locations that Indian Point has entered the Recovery Phase: A. The NRC via Energy Notification System (ENS) B. State and Counties using information on a NYS Radiological Emergency Data Form Part I, via the RECS C. Corporate Information Group D. All activated emergency response centers (TSC/OSC and JNC)	
16.8	Ensure that a written summary of the event is provided to State and Counties per IP-1048, Termination and Recovery	

Attachment 2
EOF Manager
Sheet 10 of 10

Closeout Responsibility/Activity	
17.0 Direct EOF Staff to return all equipment to proper storage locations.	
18.0 Review all documentation the EOF Staff maintained during the emergency: 18.1 Ensure logs, forms and other documentation are complete 18.2 Ensure all temporary procedures used and/or developed are properly documented for use by Recovery Organization so that necessary actions can be taken for plant operations	
19.0 Provide all logs and records to the Recovery Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 3
Offsite Radiological Assessment Director (ORAD)
Sheet 1 of 8

Initial Responsibility/Activity	Notes
1.0 Assume the position of ORAD.	
1.1 Review facility status boards, EDDS information and any other available sources to become familiar with current plant status.	
1.2 Obtain briefing from the EOF Manager or Emergency Director	
A. Use an Essential Information Checklist (Form IP-1035-2) to document briefing items.	
B. Request any additional information on current status of emergency response.	
1.3 **IF** the EOF has **NOT** been activated **THEN**:	
NOTE: Offsite Dose Assessment and Radiological Monitoring responsibilities may be transferred to the ORAD before the EOF is fully activated.	
A. **WHEN** the following minimum staff is available **THEN** inform the EOF Manager or the ED that you are ready to assume responsibilities for offsite dose assessment and offsite monitoring.	
1. On or Offsite Survey Team Members (2)	
2. EOF Communicator #1	
B. **WHEN** ready to assume dose assessment and offsite (outside Protected Area) monitoring responsibilities from the CCR **THEN** contact the CCR and formally assume these responsibilities.	
C. Review Normal EOF Staffing (Form IP-1030-2) to verify full EOF Staffing for offsite radiological tracking.	
D. **IF** additional personnel are required **THEN** inform the EOF Manager to direct callout of needed personnel.	
E. Notify the EOF staff that you have assumed these responsibilities.	

Attachment 3
Offsite Radiological Assessment Director (ORAD)
Sheet 2 of 8

Initial Responsibility/Activity (con't)	**Notes**
F Direct the MIDAS Operator to disarm (or disarm IAW steps in MIDAS Operator's Checklist) the Halon Fire Protection System (Real emergencies only)	
G **IF** there has been a release of radioactive to the environment **THEN:**	
1. Direct the MIDAS Operator to place (or place IAW steps in MIDAS Operator's Checklist) the EOF ventilation in the internal recirculation mode.	
2. Contact the Unit #3 Control Room and request that NYPA Offsite Monitoring Teams report to EOF	
H **IF** the CCR performed offsite dose assessments and made a Protective Action Recommendation **THEN**:	
1. Obtain and review NYS Radiological Emergency Data Form - Part I and Part II	
2. Verify or have the Dose Assessment HP verify dose assessment calculations.	
3. Evaluate Protective Action Recommendations.	
4. Notify the ED or CCR if there are any discrepancies.	
1.4 **IF** relieving another ORAD **THEN** perform a formal turnover with the current ORAD:	
A Review the current ORAD's activity log	
B Obtain briefing form current ORAD on the emergency and any actions the have been competed or are in progress.	
C Make an announcement to the EOF Staff that you are now the ORAD.	

Attachment 3
Offsite Radiological Assessment Director (ORAD)
Sheet 3 of 8

Continuous Responsibility/Activity	Notes
2.0 Ensure habitability surveys are performed in the EOF	
2.1 Assign an HP Technician to the position of Survey Team Health Physicist (STHP) providing them the following instructions:	
A Perform steps in Attachment 6, Survey Team Health Physicist (STHP) Checklist	
2.2 **IF** there is a potential for surface or airborne contamination with in the EOF **THEN**	
A Suspend eating and drinking until you ensure EOF food and drinking water supplies are consumable.	
B Determine the survey and radiological controls needed for the EOF based on plant conditions and whether there has been a release or not.	
C Provide further guidance to STHP on frequency of surveys and on the level of contamination controls required.	
2.3 **IF** the following conditions are present **THEN** inform the EOF Manager and/or the ED that an organized evacuation of the EOF to the AEOF should be considered.	
• Exposure rates > 80 mRem/Hr TEDE **OR** 500mRem/Hr TODE	
• Projected Whole Body Dose for a 12 hour period is > 1 Rem TEDE **OR** Thyroid Dose >5 Rem TODE	
• Airborne concentrations which may result in exceeding occupational limits for inhalation specified in 10CFR20, Appendix B, Table 1.	
2.4 Evacuation may be performed at rates below those listed based on plant conditions and response needs.	

Attachment 3
Offsite Radiological Assessment Director (ORAD)
Sheet 4 of 8

3.0	**Maintain personnel accountability in the EOF**	
3.1	Keep apprised of the whereabouts of Field Monitoring Teams and other personnel assigned to you at all times.	
3.2	**IF** you are temporarily leaving the work area **THEN**	
	A Inform the EOF Manager if you are leaving the work area.	
	B Upon return, obtain a briefing from the EOF Manager on any events which have occurred while you were away.	
4.0	**Maintain a Log**	
4.1	Use Form IP-1023-4, ERO Log Sheet to log information.	
4.2	Log when you assumed the duties of ORAD.	
4.3	Log significant decisions and important details used to make decisions.	
5.0	**Develop and provide recommendations for EAL and classification level changes based on radiological considerations to the ED.**	
5.1	Compare dose projection and field survey results with EAL criteria to determine the impact on the existing classification level.	
5.2	Notify the ED of any EALs effected by changes in radiological conditions.	
6.0	**Develop and provide recommendations for offsite PARs based on radiological considerations to the ERM.**	
6.1	Notify the ED of any changes in radiological conditions which may effect the PAR	
6.2	Use procedure IP-1013, Protective Action Recommendations to determine proper PAR.	
6.3	Document ConEd PARs whenever a General Emergency is declared.	
6.4	Review PARs whenever radiological conditions change significantly.	

Attachment 3
Offsite Radiological Assessment Director (ORAD)
Sheet 4 of 8

Continuous Responsibility/Activity (con't)	Notes
7.0 Maintain communications with the TSC Radiological Advisor to discuss radiological conditions and on and off site response actions. 7.1 Contact the TSC Radiological Advisor for information on releases or potential releases and plant conditions which may lead to offsite radiological effects. 7.2 Periodically contact the TSC Radiological Advisor to provide updates on new dose projections, results of environmental monitoring and to provide technical assistance as needed.	
8.0 Coordinate and direct the dose assessment and environmental monitoring efforts. 8.1 Supervise the activities of the Dose Assessment HP, MIDAS Operator, EOF Communicator #1 and the Field Monitoring Teams 8.2 Ensure the Health Physics Network (HPN) is manned when requested by the NRC 8.3 Determine the periodicity of dose projection calculations. A Direct the Dose Assessment HP to perform offsite dose projections using IP-1007, Dose Assessment. B Direct MIDAS Operator to obtain dose projections, plume plot and Reuter-Stokes Sentri System readings, using IP-1047, Obtaining Offsite Exposure Rates from MIDAS using Data Terminal and IP-1037, Obtaining Offsite Reuter-Stokes Monitoring Data. 8.4 Analyze dose assessment and environmental information to determine any actual or potential offsite consequences of the event. 8.5 Determine anticipated plume based on meteorological data. 8.6 Mark plume front and times on map table map. 8.7 Based on projected plume travel path select offsite sample points and indicate them on Form IP-1030-5.	

Attachment 3
Offsite Radiological Assessment Director (ORAD)
Sheet 6 of 8

Continuous Responsibility/Activity (con't)	**Notes**
8.8 Determine special instructions to be provided to monitoring teams: A IF the expected thyroid dose is greater than 25 Rem THEN consider issuing KI B Team tracking efforts should be directed to limit their exposure to less than 5 Rem for the entire emergency. 8.9 Teams should not go into radiation fields greater than 1 Rem/hr without specific directions from you. Direct On and Offsite Monitoring to survey anticipated plume path: A Direct EOF Communicator #1 to: 1. Brief teams on expected doses, plume path and any special instructions or safety precautions (such as use of KI, respirators, or protective clothing). 2. Have teams pick up samples from designated sample points. 3. Direct environmental monitoring be performed to confirm dose projections and track any offsite radioactive plume. 8.10 Compare projected doses with actual readings taken by field monitoring teams. 8.11 Determine which ERPAs are affected by any release and verify proper PARs have been issued. 8.12 Conduct periodic briefings with the ED and the EOF Manager to discuss the status of offsite radiological information and assessments. 8.13 Compare dose assessment and environmental monitoring efforts with state personnel in the State EOC and/or in the EOF. 8.14 Compare dose assessment and environmental monitoring efforts with the NRC Environmental Dose Assessment Coordinator once the NRC Site Team is in the EOF.	

Attachment 3
Offsite Radiological Assessment Director (ORAD)
Sheet 7 of 8

9.0	**Evaluate and direct the requirements for offsite emergency exposure.**	
9.1	Track EOF Staff emergency exposures.	
	A Monitor EOF personnel exposures or potential exposures and request ED to Authorize Emergency Exposures and the issuance of KI to ConEd emergency workers outside the Protected Area. (ED authorization of exposures is non-delegable)	
	B **IF** EOF staff must receive exposure **THEN** request the ED authorize emergency exposures up to **1 Rem TEDE** for all monitoring team personnel dispatched from the EOF and remainder of staff as required. This authorization shall be documented in the ED's ERO Log Sheet.	
	C **IF** emergency measures require additional exposure **THEN** request the ED to the raise the emergency exposure limit 1 Rem at a time up to 5 Rem.	
	D Emergency exposures beyond 5 Rem shall be authorized on an individual basis. Request the ED authorize these exposures using Form IP-1023-6, Emergency Exposure Authorization. General guidelines (more details are listed on authorization form)	
	1. ERO members may receive up to 5 Rem TEDE (per event) for any required emergency activities.	
	2. ERO members may be authorized emergency exposures up to 10 Rem TEDE to protect vital equipment.	
	3. ERO members may be authorized emergency exposures up to 25 Rem TEDE to save a life.	
	4. Individuals may volunteer to receive greater than 25 Rem TEDE to save a life.	
9.2	Request authorization for the issuance of KI for any large exposures or expected large exposures to the thyroid.	
9.3	Direct the use of protective clothing and respirators as necessary for ConEd workers outside the Protected Area.	
9.4	IF emergency workers are exposed to contamination or airborne activities THEN direct radiological evaluations and monitoring as needed. IP-1008, Personnel Radiological Check and Decontamination should be used for these checks.	

Attachment 3

Offsite Radiological Assessment Director (ORAD)

Sheet 8 of 8

	Continuous Responsibility/Activity (con't)	**Notes**
10.0	**Report releases to the Environmental Protection Agency (EPA)**	
10.1	**IF** any radionuclide release exceeds the value listed in Appendix B to § 302.4, (Form IP-1030-4) Title 40CFR302 **THEN**	
	A Notify the EPA National Response Center (phone number in Emergency Telephone Directory).	
	B Direct Communicator to identify report is pursuant to 40CFR302.	
10.2	Document details of any communications with EPA.	
11.0	**Initial Post Accident Environmental Sampling**	
	NOTE: After a radiological release preliminary sampling may be performed to aid in development of more extensive plan for environmental sampling.	
11.1	Confer with Emergency Director and offsite radiological officials on need for sampling.	
11.2	Refer to IP-1004, Post Accident Offsite Environmental Surveys, Sampling and Counting for sampling guidelines	
	Closeout Responsibility/Activity	
12.0	**Direct Staff to return all equipment to proper storage locations.**	
13.0	**Review all documentation the EOF Radiological Staff maintained during the emergency:**	
13.1	Ensure logs, forms and other documentation are complete	
13.2	Ensure all temporary procedures used and/or developed are properly documented for use by Recovery Organization so that necessary actions can be taken for plant operations	
14.0	**Provide all logs and records to the Recovery Manager upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 4

Dose Assessment Health Physicist (DAHP)

Sheet 1 of 4

	Initial Responsibility/Activity	Notes
1.0	**Assume the position of DAHP.**	
1.1	Review facility status boards, EDDS information and any other available sources to become familiar with current plant status.	
1.2	Obtain briefing from the ORAD or EOF Manager	
	A. Use an Essential Information Checklist (Form IP-1035-2) to document briefing items.	
	B. Review NYS Radiological Emergency Data Form, Part II if copy is available.	
	C. Request any additional information on current status of emergency response.	
1.5	**IF** relieving another DAHP **THEN** perform a formal turnover with the current DAHP:	
	D Review the current DAHP activity log	
	E Obtain briefing form current DAHP on the emergency and any actions the have been competed or are in progress.	
1.3	Inform the ORAD that you are now the DAHP.	
	Continuous Responsibility/Activity	**Notes**
2.0	**IF you are temporarily leaving the work area THEN**	
2.1	Inform the ORAD you are leaving the work area.	
2.2	Upon return, obtain a briefing from the ORAD on any events which have occurred while you were away.	
3.0	**Maintain a Log**	
3.1	Use Form IP-1023-4, ERO Log Sheet to log information.	
3.2	Log when you assumed the duties of DAHP.	
3.3	Log significant decisions and important details used to make decisions.	

Attachment 4
Dose Assessment Health Physicist (DAHP)
Sheet 2 of 4

	Continuous Responsibility/Activity (cont.)	Notes
4.0	**Evaluate Plant Radiological Data**	
4.1	Obtain Form 42c data from EDDS display, SAS printouts or fax copies received from the TSC.	
4.2	Review radiation monitor readings and evaluate for actual or potential radiological releases.	
4.3	Contact the TSC Radiological Advisor for additional information on plant radiological conditions and assistance in interpreting data.	
4.4	IF there are any indications of a radiological release THEN perform step 5.0 of this checklist.	
5.0	**IF there has been a release or potential release of radioactive materials from the plant THEN:**	
5.1	Give meteorological data, iodine to noble gas ratio and release rates to the MIDAS operator and direct him/her to perform dose projections	
	OR	
5.2	Perform dose projections utilizing procedure IP-1007, Dose Assessment.	
6.0	**Assist the ORAD in directing Onsite and Offsite Monitoring Teams to survey locations.**	
6.1	Use overlays to obtain an approximation of the plume location	
6.2	Determine which emergency sampling sites would be appropriate to send the offsite monitoring teams to.	
6.3	Use Xu/Q values to approximate relative values between locations.	

Attachment 4

Dose Assessment Health Physicist (DAHP)

Sheet 3 of 4

Continuous Responsibility/Activity (con't)	Notes
7.0 Evaluate the offsite survey data. 7.1 Calculate the charcoal / silver zeolite iodine and particulate activities using procedure IP-1020, Airborne Radioiodine Determination. 7.2 Determine the equivalent thyroid and whole body exposure rates utilizing Procedure IP-1007, "Dose Assessment" 7.3 Complete Form IP-1030-5, Offsite Survey Data and review data with the ORAD	
8.0 Establish communications with the NRC via the HPN phone line. 8.1 Dial the number listed on the V-Band console or listed in the Emergency Telephone Directory. 8.2 Inform the NRC that the EOF is activated and performing offsite dose assessment activities. Brief them on any potential releases and answer any questions. 8.3 **IF** requested by the NRC to stay on **THEN** stay on the line and request the ORAD to locate another individual to assist in HPN line communications. 8.4 **IF** continuous communications are not requested **THEN** receive calls from the NRC on the HPN when phone rings.	

Attachment 4

Dose Assessment Health Physicist (DAHP)

Sheet 4 of 4

	Continuous Responsibility/Activity (con't)	**Notes**
9.0	**Review Reuter-Stokes Sentri readings.**	
9.1	Obtain the readings from the MIDAS Operator	
9.2	Compare the projected values and the measured offstie exposure rates with the Reuter-Stokes readings	
9.3	**IF** there are large discrepancies **THEN** Inform the ORAD and continue to gather and analyze data to resolve values.	
9.4	Present Reuter-Stokes data to ORAD for review	
	Closeout Responsibility/Activity	
10.0	**Return all equipment to proper storage locations.**	
11.0	**Review all documentation the DAHPs maintained during the emergency:**	
	A. Ensure logs, forms and other documentation are complete	
	B. Ensure any items which need follow up investigations are identified to be completed during the Recovery Phase	
12.0	**Provide all logs and records to the ORAD upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 5
MIDAS Operator
Sheet 1 of 4

Initial Responsibility/Activity	Notes
1.0 Assume the position of MIDAS Operator.	
1.1 Sign in on the Facility Sign-in Board	
1.2 Review facility status boards, EDDS information and any other available sources to become familiar with current plant status.	
1.3 Obtain briefing from the DAHP or the ORAD	
A. Review NYS Radiological Emergency Data Form, Part II if copy is available.	
B. Request any additional information on current status of emergency response.	
1.4 **IF** relieving another MIDAS Operator **THEN** perform a formal turnover with the current MIDAS Operator:	
A. Review the current MIDAS Operator activity log	
B. Obtain briefing form current MIDAS Operator on the emergency and any actions the have been competed or are in progress.	
1.5 Inform the DAHP that you are now the MIDAS Operator.	
1.6 **IF** the facility has **NOT** been activated **THEN**	
A. Check operability and availability of MIDAS equipment, Reuter-Stokes Systems and Meteorological data.	
B. Report any equipment problems to the DAHP or ORAD.	
Continuous Responsibility/Activity	**Notes**
2.0 IF you are temporarily leaving the work area THEN	
2.1 Inform the DAHP or ORAD you are leaving the work area.	
2.2 Upon return, obtain a briefing from the DAHP or ORAD on any events which have occurred while you were away.	

Attachment 5
MIDAS Operator
Sheet 2 of 4

	Continuous Responsibility/Activity (cont.)	Notes
3.0	**Maintain a Log**	
3.1	Use Form IP-1023-4, ERO Log Sheet to log information.	
3.2	Log when you assumed the duties of MIDAS Operator.	
3.3	Log significant decisions, important details used to make decisions and any equipment operability issues.	
4.0	**WHEN directed by the ORAD THEN disarm the EOF Halon System**	
4.1	Obtain the key to the FIKE Fire Suppression System control panel from the EOF key locker.	
4.2	Open the upper compartment of the FIKE control panel located on the west wall of the EOF next to the key locker.	
4.3	Toggle the module switch (the switch is located in the lower left corner of the panel.) from the "Armed" position to the "S1" position.	
4.4	**IF** the ORAD does **NOT** direct this action **THEN** ask the ORAD if the action is required.	
5.0	**WHEN directed by the ORAD THEN place the EOF ventilation on internal recirculation.**	
5.1	Obtain the key to the EOF Electrical Equipment Room from the EOF key locker.	
5.2	Locate the EOF HVAC damper control system switches on the East wall of the EOF Electrical Equipment Room.	
5.3	Rotate all three (3) damper control knobs CLOCKWISE to close the dampers.	
5.4	Place the three (3) AC Unit control switches to the "OVERRIDE" (up) position	
5.5	Inform the ORAD and log when you have placed ventilation system in recircualtion and return key to key locker.	
5.6	**IF** the ORAD does **NOT** direct this action **THEN** ask the ORAD if the action is required.	

Attachment 5
MIDAS Operator
Sheet 3 of 4

Continuous Responsibility/Activity (con't)	Notes
6.0 Maintain the MET Data Status Board 6.1 Use procedure IP-1016, Obtaining Meteorological Data to retrieve weather predictions. 6.2 Obtain the latest measured MET data from MIDAS every 15 minutes. A Update the MET Data Status Board to display the correct data. B Notify the ORAD of any changes in the meteorological data. 6.3 Obtain weather predictions from MIDAS and/or Weather Bureau A Update the MET Data Status Board to display the correct data. B Notify the ORAD of any significant changes in the weather forecast data	
7.0 Obtain Reuter-Stokes data. 7.1 Use procedure IP-1037, Obtaining Reuter-Stokes Monitor Data to obtain radiological data. 7.2 IF any readings indicate above background levels THEN inform the DAHP and ORAD immediately of the readings.	
8.0 Obtain radiological release data and perform dose projections as directed. 8.1 Use procedure IP-1022, Obtaining Meteorological and Dose Assessment Data from MIDAS 8.2 Review MIDAS dose assessment data with the DAHP and ORAD	

Attachment 5
MIDAS Operator
Sheet 4 of 4

	Closeout Responsibility/Activity	
9.0	**Rearm the EOF Halon System**	
9.1	Obtain the key to the FIKE Fire Suppression System control panel from the EOF key locker.	
9.2	Open the upper compartment of the FIKE control panel located on the west wall of the EOF next to the key locker.	
9.3	Toggle the module switch (the switch is located in the lower left corner of the panel.) from the "S1" (up) position to the "Armed" (down) position.	
10.0	**Return the EOF ventilation to normal.**	
10.1	Obtain the key to the EOF Electrical Equipment Room from the EOF key locker.	
10.2	Locate the EOF HVAC damper control system switches on the East wall of the EOF Electrical Equipment Room.	
10.3	Rotate all three (3) damper control knobs COUNTER - CLOCKWISE half way to open the dampers.	
10.4	Place the three (3) AC control switches to the "NORMAL" (down) position	
11.0	**Return all equipment used by MIDAS Operators to it's proper storage locations.**	
12.0	**Review all documentation the MIDAS Operator maintained during the emergency:**	
12.1	Ensure logs, forms and other documentation are complete	
12.2	Ensure any items which need follow up investigations are identified to be completed during the Recovery Phase	
13.0	**Provide all logs and records to the ORAD upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 6
Survey Team Health Physicist (STHP)
Sheet 1 of 4

	Initial Responsibility/Activity	Notes
1.0	**When directed by the ORAD assume the position of STHP.**	
1.1	Sign in on the Facility Sign In Board.	
1.2	Periodically review this checklist throughout the emergency to determine which actions are appropriate for current conditions.	
1.3	**IF** relieving another STHP **THEN** perform a formal turnover with the current STHP: A. Review the current EOF survey data B. Obtain briefing form current STHP on the emergency and any actions the have been competed or are in progress.	
	Continuous Responsibility/Activity	**Notes**
2.0	**Confer with the ORAD or DAHP on the need to set up EOF Radiological Controls. When directed set up EOF entrance as follows:**	
2.1	Set up stanchions, rope barricade, and frisker in the main hall entrance to EOF work area.	
2.2	Set frisker alarm to two (2) times background.	
2.3	Set up Step Off Pads (SOPs) at entrance. A **IF** hallway contamination levels are LESS THAN 1000 dpm/100 cm^2 **THEN** use SOP labeled "CHECK SHOES BEFORE STEPPING HERE" B **IF** hallway contamination levels are GREATER THAN 1000 dpm/100 cm^2 **THEN** use SOP labeled "REMOVE PROTECTIVE CLOTHING BEFORE STEPPING HERE" AND C Place a waste receptacle and clean shoe covers near the SOP location.	
2.4	Post the door in the upper level EOF near the Clerks as "Emergency Exit Only"	
2.5	Check to ensure door to West stairwell (to upper EOF) is locked.	

Attachment 6
Survey Team Health Physicist (STHP)
Sheet 2 of 4

Continuous Responsibility/Activity (cont.)	Notes
3.0 Monitor Habitability of the EOF	
3.1 Survey building using an Ion Chamber instrument approximately every 30 minutes. Survey times can be changed at the discretion of the ORAD.	
3.2 Take Beta and Gamma readings throughout occupied areas of the EOF and hallways record readings on EOF Radiological Survey (Form IP-1030-3).	
3.3 Take smears at building entrance, EOF entrance and in hallways. Record results on EOF Radiological Survey (Form IP-1030-3)	
3.4 **IF** any readings are found to be above background **THEN** inform the ORAD or DAHP immediately.	
3.5 Use procedure IP-1041, Use of Triton to Monitor for Radiogas" to set up the Triton monitor.	
3.6 **IF** Triton monitor alarms or surveys indicate contamination **THEN** monitor air in the EOF A Set up air sampler near HP Work Area B **IF** beta survey results are greater than 50 mr/hr **OR** the iodine-131 activity on a charcoal filter cartridge is greater than 10 –8 uCi/cc **THEN** use silver zeolite filter cartridge. C Set up MS-2/SPA-3 Counter in the lower level of the EOF by the HP area. D Determine airborne air activity using procedure IP-1020, Airborne Activity Determination. Record results EOF Radiological Survey (Form IP-1030-3).	
4.0 IF the Security Guards do NOT bring two (2) radios THEN obtain Emergency Planning Radios	
4.1 Call the Command Guard House and request they send the two (2) Emergency Planning Radios to the EOF	
4.2 Provide radios to Security Guards	

Attachment 6
Survey Team Health Physicist (STHP)
Sheet 3 of 4

Continuous Responsibility/Activity (con't)	Notes
5.0 Assign Dosimetry 5.1 **IF** the EOF Security Guards do **NOT** have a TLD or dosimeter **THEN** assign a TLD badge and dosimeter to the EOF Security Guards. 5.2 Place one (1) each TLD badge and dosimeter in the upper and lower areas of the EOF work areas to monitor EOF personnel exposures. 5.3 Ensure Onsite and Offsite Monitoring Team members are issued TLD badges and dosimeter.	
6.0 Personnel Exposure Control - ALARA 6.1 **IF** ConED Emergency Personnel outside the Protected Area must receive emergency exposures **THEN** confer with the ORAD and EOF Manager to establish controls and limits. A Emergency Exposures may be authorized by the Emergency Director up to 5 Rem for the event regardless of prior year-to-date exposures. B Limits will normally be set at 1 Rem and raised 1 Rem at a time up to 5 Rem. NOTE EOF Communicator #1 shall track exposures of on and offsite monitoring team members. 6.2 **IF** any ConEd emergency workers outside the Protected Area are receiving radiological exposures **THEN** record exposures on Individual Exposure Tracking Log (Form IP-1023-3) 6.3 Maintain Total Effective Dose Equivalent (TEDE) less than established emergency exposure limits. 6.4 **IF** any worker must receive greater than 5 Rem **THEN** Have the ORAD request the ED authorize these exposures using Form IP-1023-6, Emergency Exposure Authorization.	
7.0 IF directed to determine thyroid burdens THEN arrange for emergency workers to receive Whole Body counts at a onsite or offsite counting station.	

Attachment 6

Survey Team Health Physicist (STHP)

Sheet 4 of 4

Continuous Responsibility/Activity (con't)		**Notes**
8.0	**IF directed to perform onsite surveys THEN use procedure IP-1028, Onsite (Out of Plant) Field Surveys.**	
9.0	**IF directed to perform site perimeter surveys THEN use procedure IP-1015, Radiological Surveys Outside the Protected Area..**	
10.0	**IF directed to perform personnel contamination checks and decontamination THEN use procedure IP-1008, Personnel Radiological Check and Decontamination.**	
11.0	**IF directed to perform vehicle contamination checks and decontamination THEN use procedure IP-1009, Radiological Check and Decontamination of Vehicles.**	
12.0	**IF directed to check equipment leaving the site THEN use procedure IP-1014, Radiological Check of Equipment Before it leaves the Site.**	
Closeout Responsibility/Activity		
13.0	**Review all documentation the STHPs maintained during the emergency:**	
13.1	Ensure logs, forms and other documentation are complete	
13.2	Ensure any items which need follow up investigations are identified to be completed during the Recovery Phase	
14.0	**Provide all logs and records to the ORAD upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 7
Emergency Director Technical Advisor (TA)
Sheet 1 of 3

Initial Responsibility/Activity	Notes
1.0 Assume the position of TA.	
1.1 Sign in on the Facility Sign-in Board	
1.2 Review facility status boards, EDDS information and any other available sources to become familiar with current plant status.	
1.3 Confer with the Emergency Director and EOF Manager on emergency status	
1.4 **IF** relieving another TA **THEN** perform a formal turnover with the current TA:	
A. Review the current TA activity log	
B. Obtain briefing form current TA on the emergency and any actions the have been competed or are in progress.	
1.5 Inform the Emergency Director that you are now the TA.	
Continuous Responsibility/Activity	**Notes**
2.0 IF you are temporarily leaving the work area THEN	
2.1 Inform the DAHP or ORAD you are leaving the work area.	
2.2 Upon return, obtain a briefing from the DAHP or ORAD on any events which have occurred while you were away.	
3.0 Maintain a Log	
3.1 Use Form IP-1023-4, ERO Log Sheet to log information.	
3.2 Log when you assumed the duties of Emergency Director Technical Advisor.	
3.3 Log significant decisions, important details used to make decisions and any equipment operability issues.	

Attachment 7
Emergency Director Technical Advisor (TA)
Sheet 2 of 3

Continuous Responsibility/Activity (cont.)	Notes
4.0 Obtain and monitor plant data:	
4.1 Monitor plant data and operations information on the EOF-TSC-CCR dedicated phone line.	
4.2 Monitor plant data on the Emergency Data Display System (EDDS), SAS Computer Terminal and Proteus Computer.	
4.3 Advise ED on the following items:	
A Any significant change in the condition of the plant	
B Any observable trends in plant data	
C Major Operator actions being undertaken	
D Any condition which may effect the emergency classification.	
4.4 Advise the ORAD of any observed changes in plant radiological data.	
4.5 **IF** any of the EOF plant data computer systems are not functioning **THEN** inform a SAS/Proteus operator of malfunctions.	
5.0 Maintain Plant Status Chronology on easel pad.	
5.1 Enter major information on plant status or changes to plant status obtained from CCR or TSC	
5.2 WHEN easel sheet gets full THEN:	
A Have Clerical Staff transcribe information onto log sheet, place sheet with TA logs.	
B Have Clerical Staff hang completed easel sheet on the wall between upper and lower levels of EOF.	
6.0 Assist ED in interpreting plant data	
6.1 Provide technical advice on plant operating procedures	
6.2 Provide technical advice on Severe Accident Management Guidelines.	

Attachment 7

Emergency Director Technical Advisor (TA)

Sheet 3 of 3

	Continuous Responsibility/Activity (cont.)	Notes
7.0	**Assist Emergency Director in conduct of briefings**	
7.1	Assist the ED in preparations for facility briefings.	
7.2	When directed by the ED provide summary briefings of plant conditions to EOF Staff and/or offsite authorities present in the EOF.	
8.0	**Return all equipment to it's proper storage locations.**	
9.0	**Review all documentation the ED Technical Advisors maintained during the emergency:**	
9.1	Ensure logs, forms and other documentation are complete	
9.2	Ensure any items which need follow up investigations are identified to be completed during the Recovery Phase	
10.0	**Provide all logs and records to the EOF Manager upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 8
EOF Communicator No. 1
Sheet 1 of 4

Initial Responsibility/Activity	Notes
1.0 Assume the position of EOF Communicator No. 1.	
1.1 Review facility status boards, Emergency Data Display System (EDDS) information and any other available sources to become familiar with current plant status.	
1.2 Obtain briefing from the Dose Assessment HP (DAHP) or the Offsite Radiological Assessment Director (ORAD).	
A. Review onsite and offsite monitoring team data.	
B. Request any additional information on current status of emergency response.	
1.3 **IF** relieving another communicator **THEN** perform a formal turnover with the current EOF Communicator No. 1:	
A. Review the current EOF Communicator No. 1 activity log.	
B. Obtain briefing from current EOF Communicator No. 1 on the emergency and any actions the have been completed or are in progress.	
1.4 Inform the ORAD and DAHP that you are now EOF Communicator No. 1.	

Attachment 8
EOF Communicator No. 1
Sheet 2 of 4

Continuous Responsibility/Activity	Notes
2.0 Transmit directions to the Offsite Teams Note: Offsite Teams are designated as Unit # 2 or Unit # 3 2.1 Use the Radio or Cell Phones to communicate with teams. 2.2 Confer with the ORAD and DAHP to determine the sample points and the expected whole body exposure rates based on dose projections. 2.3 Enter selected sample point(s) and assigned team number on Form IP-1030-5, Offsite Survey Team Data Sheet. 2.4 Contact the each team and direct them to the designated sample point providing following information: A The expected whole body dose rates B Methods of traversing the plume to keep their exposure as low as possible, such as going around plume or traveling through low field areas. 2.5 Have teams verify instructions by repeating them back.	
3.0 Receive and Record Offsite Monitoring Team Data 3.1 Have teams state sample point for which data is being transmitted. 3.2 Record survey data on Form IP-1030-5, Offsite Survey Team Data Sheet. 3.3 Verify numbers by repeating values back to Team 3.4 Inform the ORAD or DAHP immediately of survey and sample results	

Attachment 8
EOF Communicator No. 1
Sheet 3 of 4

Continuous Responsibility/Activity (con't)	Notes
4.0 Receive and Record Onsite Monitoring Team Data 4.1 Have teams state sample locations for which data is being transmitted. 4.2 Record survey data on Form 10, Monitoring Team Field Survey. 4.3 Verify numbers by repeating values back to each team. 4.4 Inform the ORAD or DAHP immediately of survey and sample results.	
5.0 Maintain Onsite and Offsite Monitoring Team Exposure Records. 5.1 **IF** any exposure rates are above background **THEN** obtain team member whole body exposure (dosimetry readings) each time they radio or call in. 5.2 **IF** any team members are receiving radiological exposures **THEN** record exposures on Individual Exposure Tracking Log (Form IP-1023-3)	
6.0 Keep Onsite and Offsite Teams informed of major changes in emergency status: 6.1 Changes in emergency classification. 6.2 Start or stop of any offsite releases of radioactive materials.	
7.0 Obtain new sample locations and points from ORAD Repeat above steps to continue plume tracking until ORAD determined surveys and sampling are no longer necessary.	

Attachment 8
EOF Communicator No. 1
Sheet 4 of 4

	Closeout Responsibility/Activity	
8.0	**Return all equipment to proper storage locations.**	
9.0	**Review all documentation EOF Communicator No. 1s maintained during the emergency:**	
9.1	Ensure logs, forms and other documentation are complete	
9.2	Ensure any items which need follow up investigations are identified to be completed during the Recovery Phase	
10.0	**Provide all logs and records to the ORAD upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 9
EOF Communicator No. 2
Sheet 1 of 3

Initial Responsibility/Activity	Notes
1.0 Assume the position of EOF Communicator No. 2.	
1.1 Review facility status boards, Emergency Data Display System (EDDS) information and any other available sources to become familiar with current plant status.	
1.2 Obtain briefing from the EOF Manager or the Emergency Director	
A. Review NYS Radiological Emergency Data Form Part I data which has been transmitted	
B. Request any additional information on current status of emergency response.	
1.3 **IF** relieving another communicator **THEN** perform a formal turnover with the current EOF Communicator No. 2:	
A. Review the current EOF Communicator No. 2 activity log.	
B. Obtain briefing from current EOF Communicator No. 2 on the emergency and any actions the have been completed or are in progress.	
C. Determine the time the next notification update is due to be transmitted.	
1.4 Inform the EOF Manager and ED that you are now EOF Communicator No. 2.	
Continuous Responsibility/Activity	**Notes**
2.0 IF you are temporarily leaving the work area THEN	
2.1 Inform the EOF Manager you are leaving the work area.	
2.2 Upon return, obtain a briefing from the EOF Manager on any events which have occurred while you were away.	
3.0 Maintain a Log	
3.1 Use Form IP-1023-4, ERO Log Sheet to log information.	
3.2 Log when you assumed the duties of EOF Communicator No.2.	
3.3 Log all communications that are not already documented on Forms.	

Attachment 9
EOF Communicator No. 2
Sheet 2 of 3

Continuous Responsibility/Activity (cont.)	Notes
4.0 Perform required notifications to Offsite Authorities. NOTES: Start notification of any change in classification within 15 minutes of the classification change. The MEANS Computer program may be used to print NYS Radiological Emergency Data Forms 4.1 **IF** the emergency classification changes(upgrade, downgrade, terminates) **THEN** perform the following: A Complete or obtain from ED a NYS Radiological Emergency Data Form Part 1 (Form IP-1030-1) B Ensure the ED has signed the NYS Radiological Emergency Data Form to indicate approval for transmittal. C Communicate the information on the completed form(s) to the offsite authorities per instructions on Alert/SAE/GE Upgrade/Update Notification Checklist (Form IP-1002-3) 4.2 **IF** the emergency classification **DOES NOT** change **THEN** perform subsequent notifications as follows: A Complete or obtain from ED a NYS Radiological Emergency Data Form (Part I) when any of the following conditions are met: • It has been approximately 30 minutes since the last form was transmitted. • The plant status has changed (Stable, improving, degrading or entry into the recovery phase) • There has been a change in the status of an actual or potential radiological release. B **IF** there is a change in radiological release data **THEN** include transmittal of data on NYS Radiological Emergency Data Form Part II	

Attachment 9
EOF Communicator No. 2
Sheet 3 of 3

Continuous Responsibility/Activity (cont.)	Notes
C Ensure the ED has signed the NYS Radiological Emergency Data Form(s) to indicate approval for transmittal. D Communicate the information on the completed form(s) to the offsite authorities per instructions on Alert/SAE/GE Upgrade/Update Notification Checklist (Form IP-1002-3)	
5.0 WHEN directed by the Emergency Director (ED) THEN obtain accountability status from the OSC Manager and/ or Unit 3 Watch Supervisor.	
Closeout Responsibility/Activity	
6.0 Return all equipment to proper storage locations.	
7.0 Review all documentation EOF Communicator No. 2 maintained during the emergency: 7.2 Ensure logs, forms and other documentation are complete	
8.0 Provide all logs and records to the EOF Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 10
EOF Clerical Staff
Sheet 1 of 4

Initial Responsibility/Activity	Notes
1.0 Assume the position of EOF Clerical.	
1.1 Sign in on the Facility Sign-in Board	
1.2 Obtain briefing from the EOF Manager	
1.3 **IF** relieving another clerk **THEN** perform a formal turnover with the current clerk: A. Review current emergency status B. Obtain briefing from current Clerical Staff on the emergency and any actions the have been competed or are in progress.	
1.4 Inform the EOF Manager that you are now part of the EOF Clerical Staff.	
Continuous Responsibility/Activity	**Notes**
2.0 Process Plant Status Data	
2.1 **IF** the Emergency Data Display System (EDDS) is operating **THEN** perform the following: A. Obtain computer printout of Forms 42a, 42b and 42c trend data screens every 15 minutes. B. Make and distribute copies of updated Forms 42a, 42b and 42c to representative located in the EOF. Telecopy forms (a, b & c) to the following locations and record times sent in the Telecopy Log, Form 19: • State • County EOCs • NRC • JNC	

Attachment 10
EOF Clerical Staff
Sheet 2 of 4

Continuous Responsibility/Activity (cont.)	**Notes**
2.2 **IF** the Emergency Data Display System (EDDS) is **NOT** operating **THEN** perform the following: A. Inform the EOF Manager B. Receive Forms 42a, 42b and 42c via telecopier from the TSC. C. Prepare transparencies of forms and place on projector. D. Make and distribute copies of forms to NRC, FEMA, State and County Representatives at the EOF E. Telecopy forms (a, b & c) to the State and County EOCs, JNC and NRC and record times sent in the Telecopy Log (Form 19).	
2.3 **IF** the Emergency Data Display System (EDDS) is **NOT** operating **AND** Forms 42a, 42b and 42c are **NOT** available via telecopier from the TSC **THEN** perform the following: A. Inform the EOF Manager B. Receive data on Forms 42a, 42b and 42c from the EOF SAS Proteus Operator and the TSC C. Prepare transparencies of forms and place on projector. D. Make and distribute copies of updated Forms 42a, 42b and 42c to NRC, FEMA, State and County Representatives at the EOF. E. Telecopy forms (a, b & c) to the State and County EOCs, JNC and NRC and record times sent in the Telecopy Log (Form 19).	
2.4 **IF** all of the following systems are **NOT** operating: EDDS, Telecopiers and EOF SAS Proteus Computer Terminals: **THEN** A. Inform the EOF manager that equipment necessary to obtain plant data in the EOF is not operating B. Request the SAS / Proteus Operator obtain Form 42a, 42b and 42c data via phone from the TSC C. Distribute forms as specified in step 2.3 above..	

Attachment 10
EOF Clerical Staff
Sheet 3 of 4

	Continuous Responsibility/Activity (cont.)	Notes
3.0	**Process the NYS Radiological Emergency Data Form Parts I & II as follows:**	
3.1	Receive form(s) from the EOF Communicator #2, verifying that the form(s) are signed by the Emergency Director.	
3.2	Telecopy form(s) to NYS, Counties, JNC and NRC	
3.3	Record time of telecopy on Telecopy Log, Form 18	
3.4	Make and distribute copies of form to NRC, FEMA, State and County representatives in the EOF.	
3.5	Return original form to EOF Communicator #2	
4.0	**Process the Offsite Survey Team Data (Form IP-1030-5) as follows:**	
4.1	Receive form from the ORAD	
4.2	Make copies of form and distribute to NRC, FEMA, State and County representatives in the EOF.	
4.3	Telecopy form to NYS and County EOCs. (Ask the ORAD for the order in which to transmit forms to the counties.)	
5.0	**Receive and distribute telecopies from outside sources as follows:**	
5.1	Make copies of all documents received.	
5.2	Distribute to addressee if known	
5.3	For any document containing radiological data distribute copies to ORAD and NRC, FEMA, State and County representatives in the EOF.	
5.4	Maintain copies of all telecopies.	

Attachment 10
EOF Clerical Staff
Sheet 4 of 4

Continuous Responsibility/Activity (cont.)	Notes
6.0 Copy Chronology Easel Pad as follows: 6.1 Receive completed easel pad from ED Technical Advisor 6.2 Transcribe the information from the easel pad and give transcript to the ED Technical Advisor 6.3 Tape the easel pad to the wall between the upper and lower levels of the EOF.	
7.0 Perform accountability duty for the Upper Level of the EOF as follows: 7.1 Record the names and arrival times of personnel stationed in the upper level EOF.	
Closeout Responsibility/Activity	
8.0 Return all equipment to proper storage locations.	
9.0 Review all documentation maintained during the emergency by the clerical staff to ensure it is complete and organized.	
10.0 Provide all logs and records to the EOF Manager upon termination of the emergency and entry into the Recovery Phase.	

Attachment 11
EOF SAS / Proteus Operator
Sheet 1 of 2

Initial Responsibility/Activity	Notes
1.0 Assume the position of EOF SAS / Proteus Operator.	
1.1 Sign in on the Facility Sign-in Board	
1.2 **IF** the EOF has not been previously activated **THEN** perform the following steps:	
A. Start the EDDS computers to display plant data.	
1. Start computer	
2. Log on to the network	
3. Launch "Internet Explorer" from the windows desktop	
4. From the "Favorites" menu select EDDS (Address http://epccrr/edds/!main.htm)	
5. Select "Go To Trend Pages"	
6. Select "Form 42A" for monitor labeled Form 42A	
7. Adjust display to display entire form.	
8. Return to step 1 and repeat for Forms 42B and 42C	
9. Repeat steps 1-5 above for the EDDS terminal(s) located upstairs in the State and County work area.	
B. Verify SAS Terminals are operational to display plant data (adjust brightness)	
C. Verify Proteus Computer is operational to display plant data.	
D. **IF** the proteus computer is not properly displaying data **THEN** refer to IP-1021, "Manual Update and Readout of Proteus Plant Parameter Data"	

Attachment 11
EOF SAS / Proteus Operator
Sheet 2 of 2

	Initial Responsibility/Activity (cont.)	**Notes**
1.3	**IF** relieving another EOF SAS / Proteus Operator **THEN** perform a formal turnover with the current SAS / Proteus Operator: A. Review current emergency status B. Obtain briefing from current SAS / Proteus Operator on the emergency and any actions the have been competed or are in progress.	
1.4	Inform the EOF Manager that you are now the EOF SAS / Proteus Operator	
	Continuous Responsibility/Activity	**Notes**
2.0	**IF the Emergency Data Display System (EDDS) is NOT operating THEN perform the following:** A. Inform the EOF Manager B. Contact the TSC Data Coordinator to verify the server is operating properly. C. Attempt to call up data. Procedure IP-1026, Emergency Data Acquisition, provides further guidance on system troubleshooting.	
3.0	**Continue to monitor EOF information systems and assist EOF Staff in obtaining information as needed.**	
	Closeout Responsibility/Activity	
4.0	**Return all equipment to proper storage locations.**	
5.0	**Review all documentation maintained during the emergency by the EOF SAS / Proteus Operator to ensure it is complete and organized.**	
6.0	**Provide all logs and records to the EOF Manager upon termination of the emergency and entry into the Recovery Phase.**	

Attachment 12
State and County Technical Advisors
Sheet 1 of 2

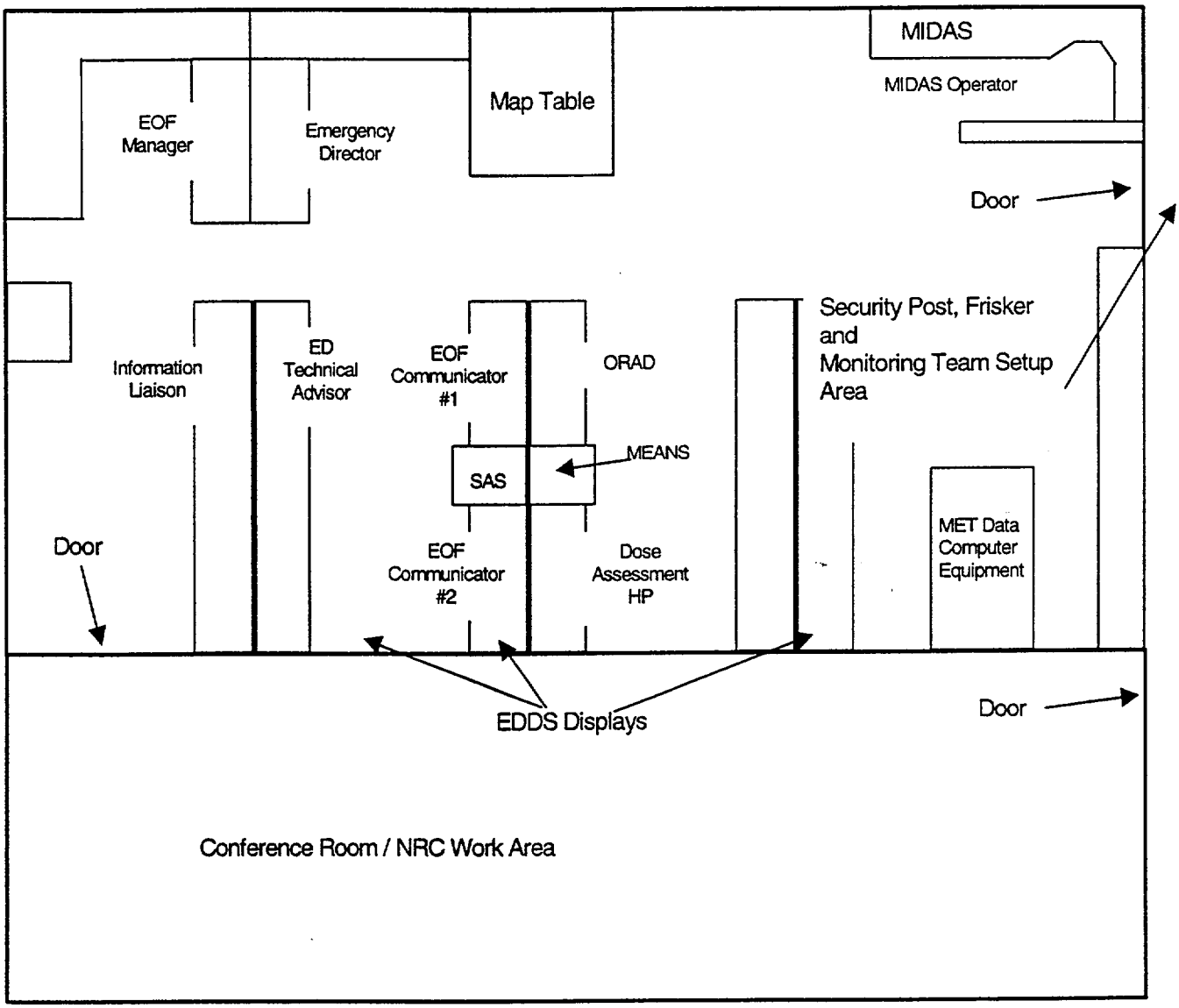
Initial Responsibility/Activity	Notes
1.0 Assume the position of State or County Technical Advisor.	
1.1 Report to your assigned offsite Emergency Operations Center (EOC)	
A. Show your Identification to EOC security and inform them of your purpose for being at the EOC	
B. Inform the Emergency Operations Center Manager (title may vary for different EOCs) you have arrived.	
C. Contact EOF Manager and inform them of your arrival at the Emergency Operations Center and you are now the <location> Technical Advisor.	
1.2 **IF** relieving another State and County Technical Advisor **THEN** perform a formal turnover with the current Technical Advisor:	
A. Review current emergency status	
B. Obtain briefing from current State and County Technical Advisor on the emergency and any actions the have been competed or are in progress.	
C. Inform the EOF Manager that you are now the State and County Technical Advisor	
Continuous Responsibility/Activity	**Notes**
2.0 Provide technical assistance to the Emergency Operations Center staff.	
2.1 Request copies of notification and data forms received from the plant and clarify the data received.	
2.2 Answer questions regarding plant systems and operations, and how they relate to the current conditions.	
2.3 Be prepared to brief EOC Staff on basis for decisions made by the Emergency Director.	

Attachment 12
State and County Technical Advisors
Sheet 2 of 2

Continuous Responsibility/Activity (cont.)	Notes
2.4 Be prepared to provide technical briefings to EOC staff regarding the sequence of events and the current plant status. 2.5 Contact the Technical Advisor to the Emergency Director or EOF Manager for clarification of any questionable or confusing data, or if any question of a "sensitive" nature has been posed. NOTE: DO NOT: 1) Express any opinions regarding the events 2) Question or "double guess" ED decisions 3) Provide any prognosis or guesses of where the event may go	
3.0 Maintain a Log 3.0 Use Form IP-1023-4, ERO Log Sheet to log information. 3.1 Log when you assumed the duties of Technical Advisor 3.2 Log significant communications, important details on information coming into the Emergency Operations Center.	
4.0 Keep the Emergency Operations Facility informed of actions being taken at your assigned Emergency Operations Center. 4.1 Inform the EOF Manager of Protective Actions the State or Counties are implementing.	
Closeout Responsibility/Activity	
5.0 Collect all materials you provided to the EOC.	
6.0 Review all documentation maintained during the emergency by the State and County Technical Advisors to ensure it is complete and organized.	
7.0 Provide all logs and records to the Emergency Planning Manager upon termination of the emergency and entry into the Recovery Phase.	

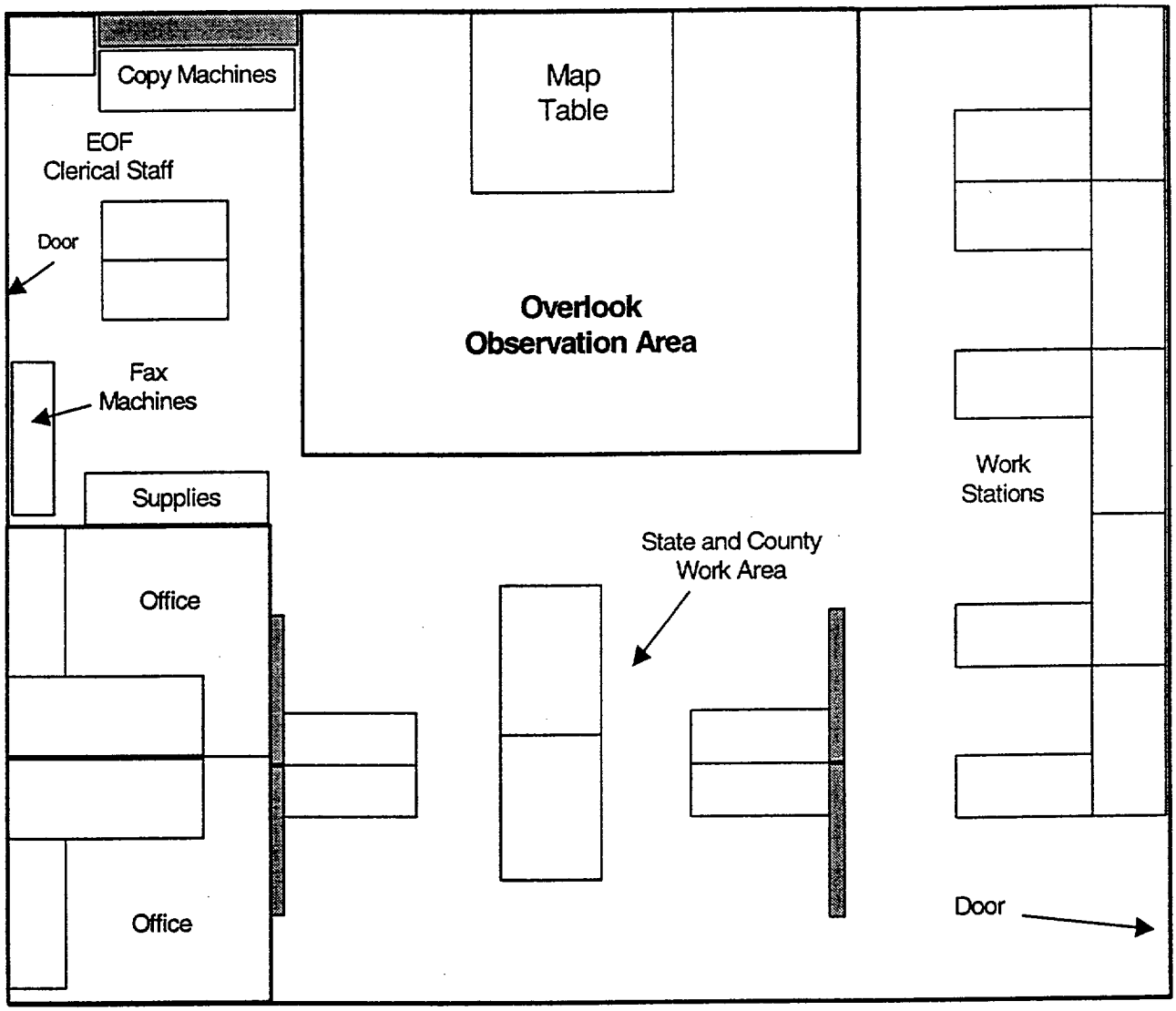
Addendum 1
EOF Layout
Sheet 1 of 2

Lower Level Work Area



Addendum 1
EOF Layout
Sheet 2 of 2

Upper Level Work Area



Addendum 2

NYS Radiological Data Form (Part I) (Form IP-1030-1)

Sheet 1 of 2

CON EDISON

New York State

Radiological Emergency Data Form

Part I - General Information Instructions: **Circle or Fill-in Information as appropriate**

1. This message being transmitted on: _____ (Date) at: _____ (Time) ☐ AM ☐ PM VIA: A. RECS B. Other _____

2. This is..... A. NOT an Exercise B. An Exercise

3. The Facility Providing this Information is: A. INDIAN POINT NUMBER 2 B. INDIAN POINT NUMBER 3

4. The Emergency A. Unusual Event B. Alert C. Site Area Emergency D. General Emergency E. Emergency Terminated F. Recovery G. Transportation Incident

5. This Emergency Classification Declared on: _____ (Date) at: _____ (Time) ☐ AM ☐ PM

6. Release of Radioactive Materials due to the Classified Event:
   A. No Release
   B. Release **BELOW** federally approved operating limits (Technical Specifications)
      ☐ To Atmosphere ☐ To Water
   C. Release **ABOVE** federally approved operating limits (Technical Specifications)
      ☐ To Atmosphere ☐ To Water
   D. Unmonitored Release – requiring evaluation

7. Protective Action Recommendations:
   A. No need for Protective Actions outside the site boundary.
   B. EVACUATE the following ERPAs:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51									

   C. SHELTER all remaining ERPAs.

8. **EAL Number:** ☐
   Brief _____
   Event _____
   Description _____

9. The Plant status is: A. Stable B. Improving C. Degrading D. Hot Shutdown E. Cold Shutdown

10. Reactor Shutdown: A. Not Applicable B. _____ (Date) at: _____ (Time) ☐AM ☐PM

11. Wind Speed: _____ Meters/Second at elevation 10 meters.

12. Wind Direction: (From) _____ Degrees at elevation 10 meters.

13. Stability Class: A B C D E F G

14. Report By: _____ (Communicator's Name) at Telephone Number (914) 737-8929

Message Received by: _____ | Message Ended at: _____

Emergency Director Review and Approval: _____

Form IP-1030-1 Rev 1

Addendum 2

NYS Radiological Data Form (Part II) (Form IP-1030-1)

Sheet 2 of 2

CON EDISON

New York State

Radiological Emergency Data Form

Part II - EP Form Part II: **Circle or Fill-in Information as appropriate**

14. Message transmitted at: DATE:_____ TIME:_____ FROM:

16. General release information:

A. RELEASE > TECH. SPEC STARTED AT:
DATE:_____ TIME: _____
B. PROJECTED DURATION OF RELEASE:_____(hrs.)
C. RELEASE > TECH. SPEC. ENDED DATE:_____TIME:_____
D. REACTOR SHUTDOWN: N/A OR DATE: _____TIME:_____
E. WIND SPEED: _____M/SEC.
AT ELEVATION: _____(METERS)
F. WIND DIRECTION: (FROM) ____DEGREES
AT ELEVATION:_____(METERS)
G. STABILITY CLASS:_(PASQUILL A-G)

17. Atmospheric release information:

A. RELEASE FROM: GROUND LEVEL FT.
B. IODINE/NOBLE GAS RATIO_____
(Assumed or Actual)
C. TOTAL RELEASE RATE: _____ Ci/SEC.
D. NOBLE GAS RELEASE RATE: _____Ci/SEC.
E. IODINE RELEASE RATE: _____Ci/SEC.
F. PARTICULATE RELEASE RATE:_____Ci/SEC.

18. Waterborne release information:

A. VOLUME OF RELEASE:_____GALLONS
B. TOTAL CONCENTRATION (gross): _____µCi/ml
C. RADIONUCLIDES IN RELEASE:
D. TOTAL ACTIVITY RELEASED:

19. Dose calculations (based on release duration of _____ Hrs.):

CALCULATION IS BASED ON: (circle one)
A. INPLANT MEASUREMENTS
B. FIELD MEASUREMENTS
C. ASSUMED SOURCE TERM

TABLE BELOW APPLIES TO: (circle one)
A. ATMOSPHERE RELEASE
B. WATERBORNE RELEASE

DISTANCE	Xµ/Q	DOSE	
		TEDE (REM)	TODE (REM)
SITE BOUNDARY			
2 MILES			
5 MILES			
10 MILES			
MILES			

20. Field measurement of dose rates or surface contamination/deposition:

MILE/SECTOR OR MILES/DEGREES	LOCATION OR SAMPLING POINT	TIME OF READING	DOSE RATE (mR/HR.) OR CONTAMINATION (µCi/m²)

Emergency Director Review and Approval: _____

Part II Page 1 of 1 Form IP-1030-1 Rev 1

Addendum 3
Normal EOF Staffing (Form IP-1030-2)
Sheet 1 of 1

Normal EOF Staffing

No.	Positions	Number Present	Number Needed	Called
1	Emergency Director			
1	EOF Manager			
1	Information Liaison			
1	Offsite Radiological Assessment Director			
1	ED Technical Advisor			
1	Dose Assessment Health Physicist			
1	Survey Team Health Physicist			
1	MIDAS Operator			
1	EOF Communicator #1			
1	EOF Communicator #2			
3	EOF Clerical Staff			
2	Onsite Monitoring Team Members			
4	Offsite Monitoring Team Members			
1	Technical Advisor to State EOC			
1	SAS/Proteus Operator			
21	Total number of individuals assigned to EOF			

EOF Manager should enter number of each position needed based on event.

Form IP-1030-2 Rev 2

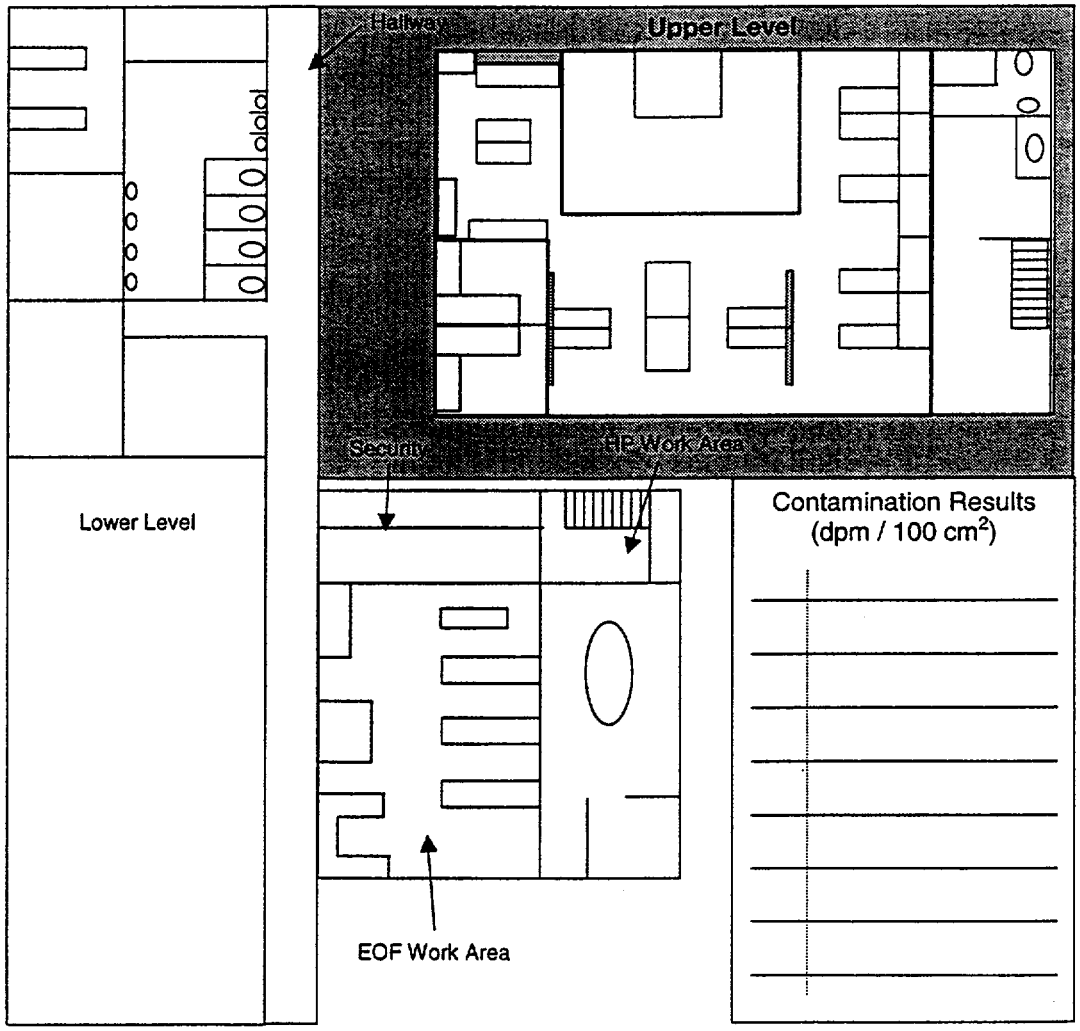
Addendum 4

EOF Radiological Survey Map (Form IP-1030-3)

Sheet 1 of 1

EOF Radiological Survey Map

By:		Area / Item: Occupied Areas EOF / Service Center	
Date:	Time:	Type of Survey: ❑ Rad ❑ Cont ❑ Air	
Meter / Serial #		Smear Counter/ Serial #	
Map Key: __ =Dose Rate, * =Contact, β =Beta, O =Smear, H =Head, C =Chest, K =Knee, FL = Floor			
Air Sample Results:	RadioGas:	Particulate:	Charcoal:
Air Sample Counter / Serial #		Highest mr/hour Reading:	
Comments:			

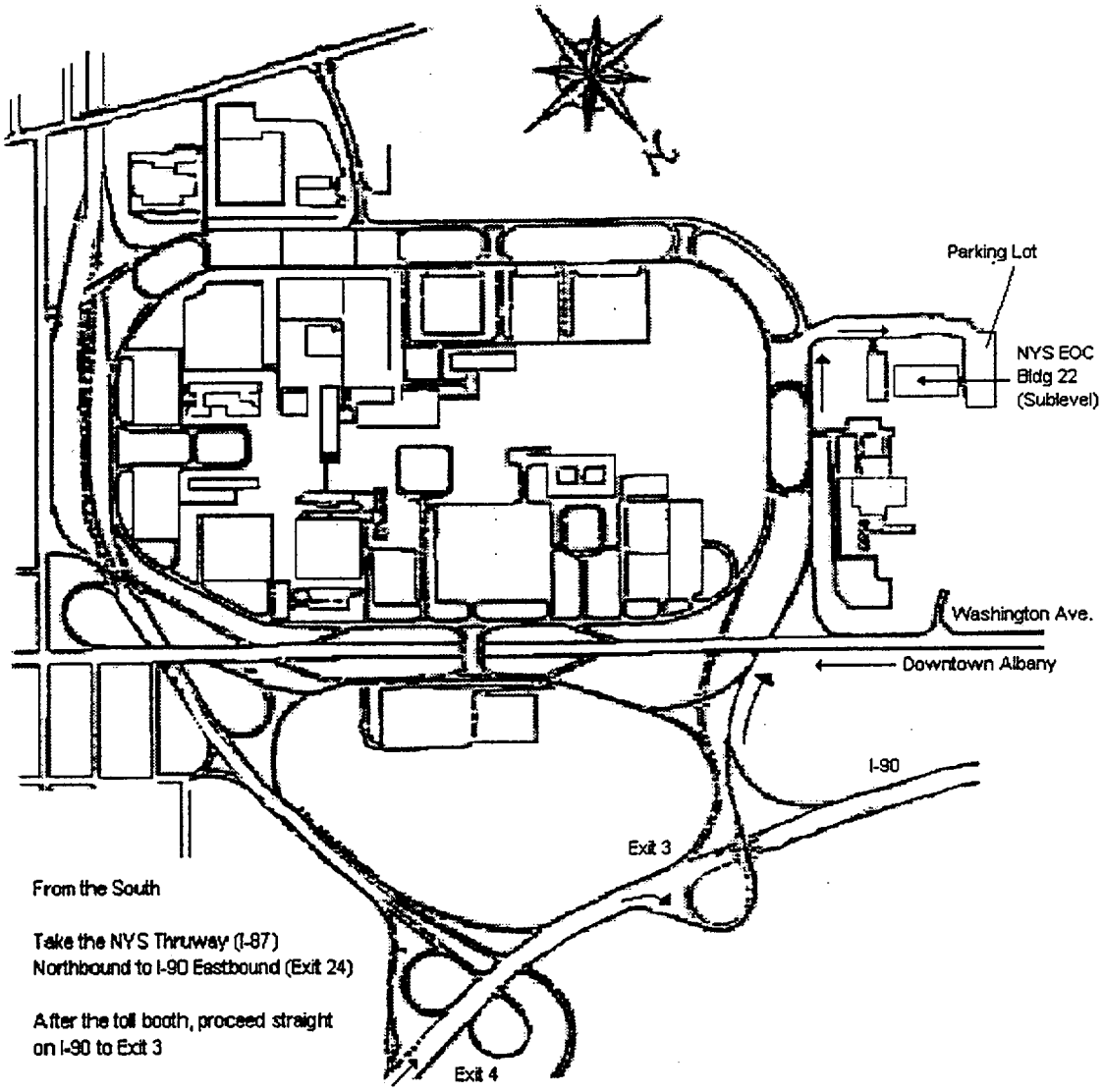


Form IP-1030-3 Rev 0

Addendum 5

State Campus Office Building Map

Sheet 1 of 1



Addendum 6

Appendix B to § 302.4

The table of reportable amounts of radionuclides from CFR 40 PART 302—DESIGNATION, REPORT-ABLE QUANTITIES, AND NOTIFICATION

Maintained current by Emergency Planning Department and distributed to ERO position binders where required.

The table is designated as Form IP-1030-4, titled "APPENDIX B TO § 302.4 – RADIONUCLIDES"

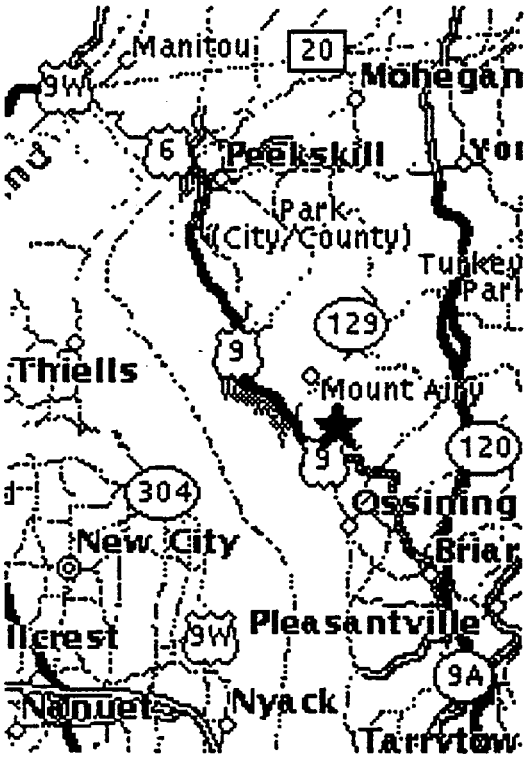
Current Revision is 0
7 pages

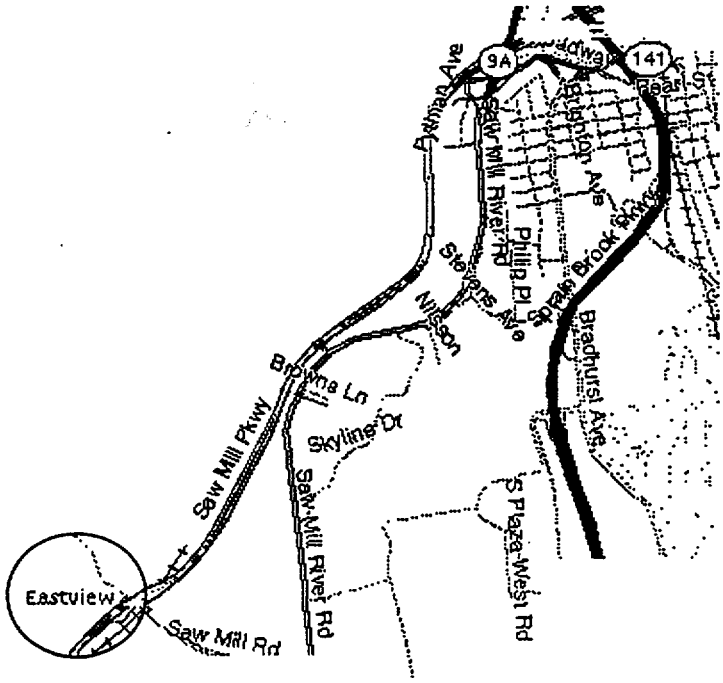
Addendum 8
Directions to AEOF
Sheet 1 of 1

The Alternate Emergency Operations Facility (AEOF) is located in the Eastview Service Center. Eastveiw is located between Hawthorne and North Tarrytown off of the Saw Mill River Parkway

Directions:

1. From the Indian Point Site proceed to Route 9 and head SOUTH.
2. As you pass the "Harmon Railroad Yards" (approximately 8 miles) keep to the LEFT, and bear LEFT onto Route 9A (This will take you LEFT under the Route 9 overpass).
3. Follow Route 9A to the Saw Mill River Parkway (approximately 8 miles). At the entrance to the Saw Mill River Parkway you will see the County Police Headquarters.
4. Take the Saw Mill River Parkway SOUTH to the next exit, Route 100C.
5. At the end of the exit ramp make a LEFT and proceed to the Eastview Service Center entrance on the LEFT. Enter building through the southwest double doors.





Addendum 7

Offsite Survey Data Sheet (Form IP-1030-5)

Sheet 1 of 1

Offsite Survey Team Data Sheet

(Formally Form 27)

Team No.	Date	Time	Sample Co	Field Survey	Sample Id. Vol. Flow	Counter Blank CPM	Part. Blank CPM	Part. Gross Activity	Char. AQ Za CPM	Char. AQ Za Iodine Activity	Equip. Thyroid Bkgnd
				CM μR/hr	CM μR/hr						

Form IP-1030-5 Rev 0

OFFSITE CONTAMINATION CHECKS

CONTROLLED COPY

	Print Name	Signature	Date
Prepared by:	Al Lee		9/7/00
Technical Reviewer:	C. KELLY WALKER		9/7/00
Reviewer:	MICHAEL DONEGAN		9/7/00
Reviewer:			
Reviewer:			
SNSC Review:	Previous SNSC 2627 (Meeting Number)	N/A (Signature Secretary)	—
Approval:	Frank Inzirillo		1/11/01

Effective Date: 1/12/01

Extensively Revised

Biennial Review

Reviewer/Date _____ Reviewer/Date _____

IP-1039 Rev 9.doc
20006251000

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8.1 SURFACE CONTAMINATION CHECK (FORM IP-1039-1) 6

OFFSITE CONTAMINATION CHECKS

1.0 PURPOSE

To describe the methods of performing offsite contamination checks to determine the levels of radioactive material deposited on the ground and exposed surfaces.

2.0 DISCUSSION

2.1 A release of radioactive airborne material from the plant during an accident has the potential to contaminate the environment (e.g. airborne, waterborne and surface contamination). The release may be any combination of noble gases, radioiodines and particulates.

2.2 Radioiodine and particulate contamination are addressed in this procedure. This contamination can contain long lived isotopes such as Cesium-137 as well as shorter lived radioiodines. Deposition of the particulates and iodines can be measured by the following two methods.

- Smear checks.
- Field Readings (beta and gamma).

2.3 Significant iodine and particulate releases causing area contamination would only occur during a core melt sequence with a breach of containment integrity.

2.4 A deposition of particulates and iodines to a level of 1 millicurie/m^2 would give an appproximate field reading, 1 meter above ground, of 4 mR/hr. This is a very rough estimate and is dependent upon the mixture of the nuclides deposited (Reference 6.1).

3.0 PRECAUTIONS AND LIMITATIONS

Survey teams shall NOT enter areas where radiation fields EXCEED 1 R/hr WITHOUT permission of the DAHP or ORAD, as appropriate.

4.0 EQUIPMENT AND MATERIALS

4.1 Ion Chamber Survey Instrument

4.2 Frisker or E-140 Meter with HP-210 or HP 260 Probe

5.0 INSTRUCTIONS

5.1 Determine surveys to be performed:

5.1.1 Consult with ORAD (or DAHP, if appropriate) AND determine surveys to be performed.

5.1.2 Get appropriate survey forms:

- Field Survey Form (Form IP-1015-2)
- Surface Contamination Check (Form IP-1039-1)

5.2 Get appropriate ion chamber survey instrument:

5.2.1 Verify current calibration.

5.2.2 Perform source check using 5 μCi Cs-137 source. In the beta plus gamma mode (OW), the instrument indication should be about 15 mR/hr on contact.

5.3 Take field readings:

NOTES:

Beta field readings are determined with the survey instrument detector window shielded (cw) and unshielded (ow). Subtract the cw reading from the ow reading. Multiple the difference by 2 for mrad/hr.

Beta readings could indicate high contamination levels.

5.3.1 Hold the ion chamber survey instrument 1 meter above the ground or surface AND obtain an OW and CW field reading.

5.3.2 Record on Field Survey Form (Form IP-1015-2) indicating the 1 meter height in the "Remarks" column.

5.3.3 Hold the ion chamber survey instrument as close to the ground or surface as possible WITHOUT touching it AND obtain an OW and CW reading.

5.3.4 Record results on Field Survey Form (Form IP-1015-2) AND indicate "contact" in the "Remarks" column.

5.4 Perform smear check, smooth surfaces only:

5.4.1 Wear a glove when performing smear.

5.4.2 Smear an area 100 cm^2 in size (use "S" smear pattern).

5.4.3 Check background using E-140N/HP-210 or HP-260 AND record CPM on Surface Contamination Check (FORM IP-1039-1).

NOTE:
Background checks should be performed at a location where the background is less than 500 cpm or the gross sample count rate is greater than twice background.

5.4.4 Take ¼" contact reading of smear using an E-140N/HP-210 OR HP-260 probe and record on Surface Contamination Check (FORM IP-1039-1) in the "Smear plus Background CPM" column.

5.4.5 Place the paper disk in an envelope or other container, identify it (name, date, time, sample location) AND save for later isotopic identification.

5.4.6 Calculate NET smear CPM (subtract BKGD from GROSS smear CPM) and record in appropriate column.

5.4.7 Multiply smear CPM by 10 to determine DPM AND record on Surface Contamination Check (FORM IP-1039-1) in the "Equivalent DPM/100 cm^2" column.

5.5 Submit data and samples to the DAHP or ORAD, as appropriate.

6.0 REFERENCES

Sandia Laboratories - Accident Scenario Manual

7.0 ATTACHMENTS

NONE

8.0 ADDENDUM

8.1 Surface Contamination Check (Form IP-1039-1) .

Addendum 1

Surface Contamination Check (Form IP-1039-1)

Sheet 1 of 1

SURFACE CONTAMINATION CHECK

Date_____ Instr. Model_____

Technician_____ Instr. Number_____

LOCATION	TIME	SURFACE SMEARED	SMEAR + BKGD CPM	BKGD CPM	SMEAR CPM	EQUIVALENT DPM/100cm²

Form IP-1039-1 Rev 0